



ENGLISH
USER MANUAL
LogiTRACE Unfolding Software Version 13



LogiTRACE

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Online Help

Press F1 for online help

Press F1 to display the online help.

About this manual

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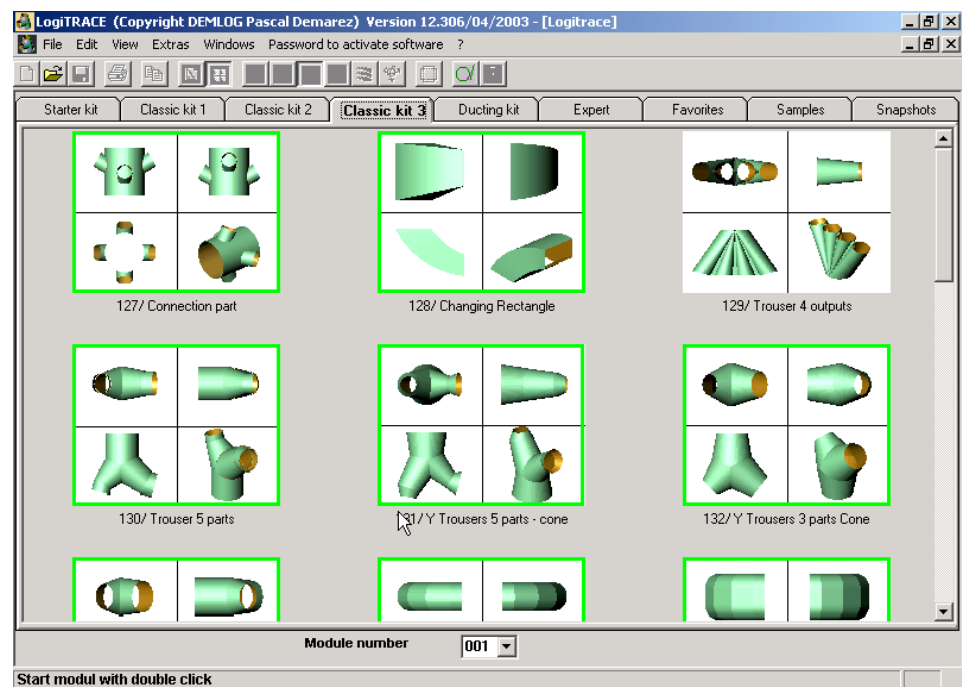
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Tel. +49 8661 98 396-0 • Fax -99
www.profirst-group.com
info@tolsoftware.com

Innovations in this version

Optimum treatment of sheet thickness

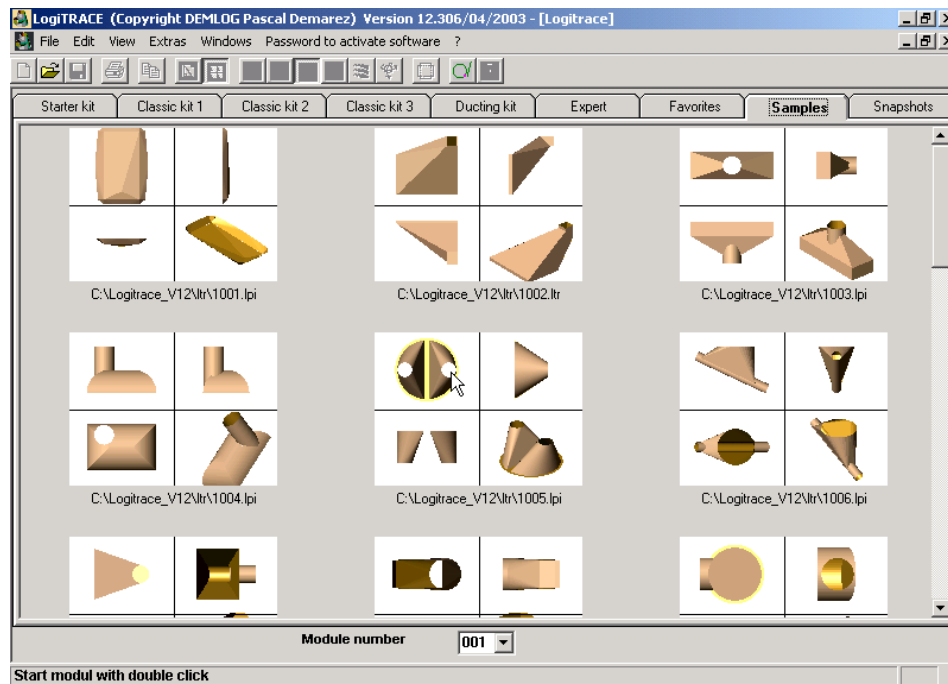
See chapter "**Basics**".

New classic kit 3



LogiTRACE version 13 has been extended with classic kit 3 (about 23 modules). All these modules are new and didn't exist in version 11. An important module is "127/ Connection part". With this you can calculate the development of a container vessel with pipes.

Samples window



This kit shows examples of customer parts that we have made using a combination of the other modules. The samples kit cannot be purchased you need to purchase the base module that the sample uses. This is usually one of the expert modules.

Snapshot function

Using the snapshot function you can build up a set of your own modules. These can be created using any of the other standard or expert modules. The advantage of the snapshot function is that it helps you find a part once you have done it. Also you can store special parts that you have done that can them be modified by simply changing the dimensions.

IMPORTANT

The snapshot icon (camera) is only available after you have saved you module with a name. Having saved, a camera icon for the snapshot is shown in the menu.



If you click on it a file with the same name you saved before will be created automatically. Further a picture of this combination will be created and saved in the snapshots window.

Module 146/ Pipeline

See chapter "**Module 146/Pipeline**".

Module 147/ Profile cut by 2 plains

See chapter "**Module 147/Profile cut by 2 plains**".

Read at least this chapter and FAQs

Installation on Windows® NT or 95

NT Service Pack 3 is required

We use a modern installation program which requires that you are using at least the service pack SP 3 when using NT.

WIN 95 up-to-date service packs required

We use a modern installation program which requires that you are using the up-to-date service packs for WIN 95. Windows 95 is very old and if used you should install the service packs. We no longer recommend WIN 95, we suggest updating to WIN 2000, XP,...

Important setup information

General hints for installation

Install LogiTRACE in the standard folder

"**C:\Programs\LogiTRACE_V13**" that is suggested and **not** in other folders such as

"C:\Program files\LogiTRACE".

Close all other programs when installing any software.

Known problems during installation

Run time error 50003 - Tabctl32.ocx

If LogiTRACE does not operate correctly after installation with the run-time error 50003 check that the file **Tabctl32.ocx** has been installed and is not older than 07.05.99

The file is usually in the folder:

WINDOWS NT **C:\WINNT\SYSTEM32**

WINDOWS 98/ME **C:\WINDOWS\SYSTEM.**

Also enter the following command:

"Start", "Command"

regsvr32.exe c:\windows\system32\tabctl32.ocx

Run time error 7 "Not enough memory" - Tabctl32.ocx

See run time error 50003 above.

Known problems with LogiTRACE

Display problems

Using **WINDOWS NT/2000** it is advised to set to **16 000 000 colours/ True Colour.**

To prevent blank screens during operation set part rotation ON.

Run time error 11

With certain graphic cards you may have frequent run time errors, especially just after starting a particular module. Try downloading the newest available drivers from the internet. The drivers you receive per CD or that are supplied with windows are almost always out of date. Problems are common with ELSA and Matrox cards.

Display errors especially with 3D views

If the 3D view doesn't work correctly, you have to reduce the graphic acceleration from Windows. The problem isn't caused by LogiTRACE, but by the OpenGL graphic driver of Windows. Generally a mouse click on the window is enough and the picture will be rebuilt.

Reduce graphic acceleration

WINDOWS 95: click with the right mouse button on the desktop. Then choose "PROPERTIES", "SETTINGS", "EXTENDED", "...". A window should appear with graphic settings. Look for the hardware graphic acceleration setting and set to the far left or 0%.

Now you can reduce the hardware accelerator to zero. If you get problems with other programs, you should adjust the slider at approximately 25%. You should try which setting is the best for all programs.

In both cases LogiTRACE runs perfectly, you only have a disadvantage in presentation, which means that the DXF files and the developments will be calculated and presented correctly, only the 3D view could perhaps show some errors.

WINDOWS 98: click with the right mouse button on the desktop. Then choose "PROPERTIES", "SETTINGS", "...". Look for as window with graphic settings. Look for the hardware graphic acceleration setting and set to the far left or 0%.

WINDOWS XP: click with the right mouse button on the desktop. Then choose "PROPERTIES", "SETTINGS", "EXTENDED", "...". Look for as window with graphic settings. Look for the hardware graphic acceleration setting and set to the far left or 0%.

Problems with calculations

Following problems are known:

All modules:

If parts do not intersect 100% the output can often be wrong. You can prevent this by trying to ensure that you always intersect 100 % with the parts.

Wrong part of the development is kept:

Sometimes the wrong part of the contour is kept. Often a trivial change of dimensions, position of weld/seam, number of construction lines etc. can prevent the problem.

Ventilation modules and sheet thickness

The sheet thickness is not necessarily taken into account on these modules. This is normally not a problem up to 2mm sheet thickness. Above 2mm the customer should check the results are appropriate for the application and part required. We normally use corner to corner thickness treatment on these modules.

Modules with intersection of 2 identical diameters:

When two pipes have the same diameter it is possible that the connection can be trimmed badly. The best solution for this is to reduce the diameter of one tube by a small amount 0.1mm which will mean that the two tubes are sure to make contact at all points. Other problems can occur when files that are required for the calculations cannot be found properly. This can be avoided by always using the folder that we recommend as standard.

Basics

Sheet thickness

Treatment of the sheet thickness

LogiTRACE treats the sheet thickness in a very advanced way in almost for all modules. Read in the menu under “?”, “Information about the sheet thickness”, how the sheet thickness is treated and what the green black and red coloured frames around each module mean.



Advanced treatment of the sheet thickness (green frame)

Advanced treatment of the sheet thickness treats the slope of the sheet and all type of contact.

CARE! Contact type inner/outer and outer/inner can not always be used. You should check the results on the screen to see whether they look okay or not. The type of contact can be selected in each part with the button “**type of contact**”.

Partial treatment of the sheet thickness (black frame)

As above but only contact type inner/inner is possible.

Simple treatment of the sheet thickness (no frame)

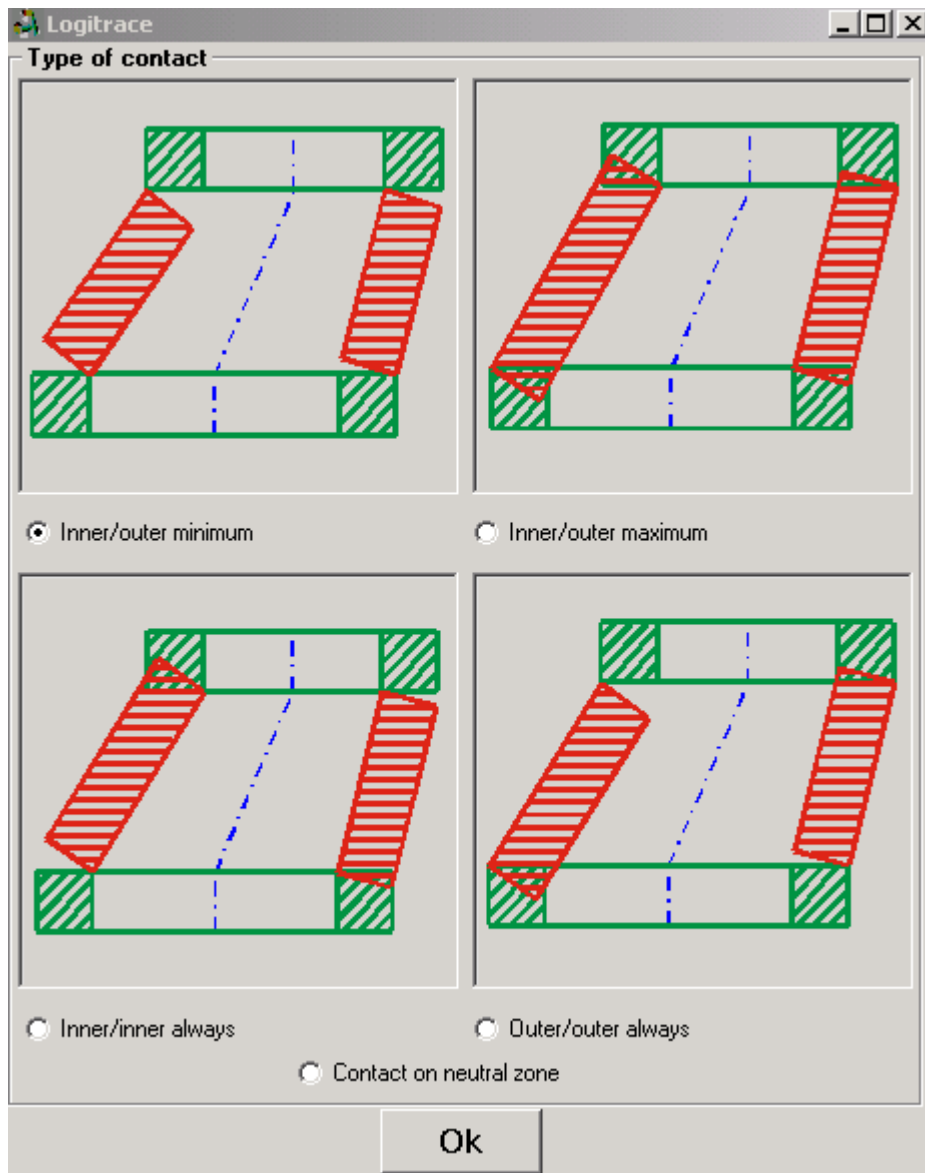
In this case we simply add or subtract the sheet thickness to obtain neutral dimension (circles) or inner dimension on rectangles. There is no special treatment of the contact position.

No treatment of the sheet thickness (red frame)

CARE! No treatment of the sheet thickness. Enter the desired dimensions treating the sheet thickness yourself.

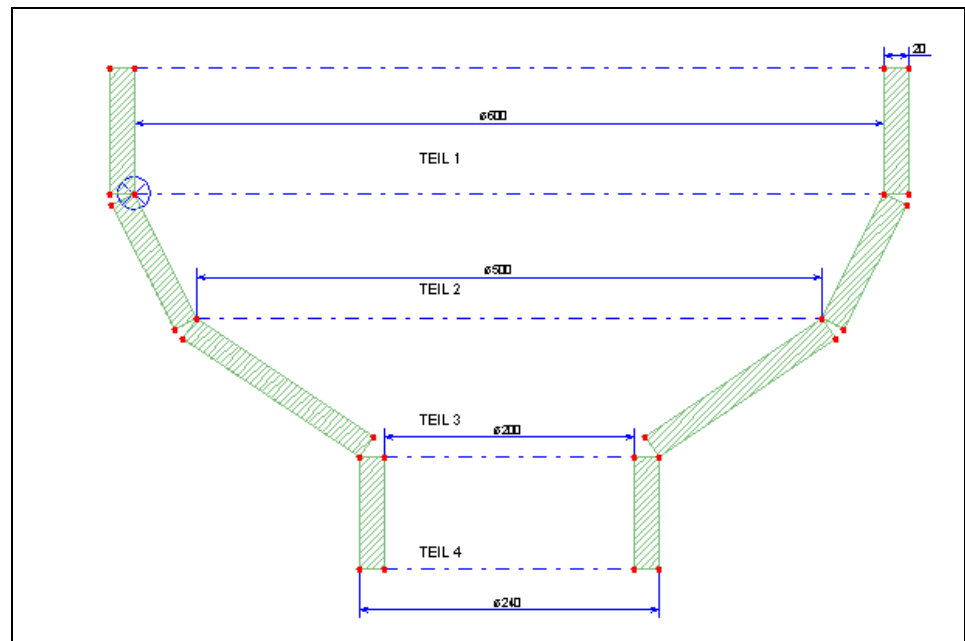
Choose type of contact

The picture below shows the type of contact and the contact if you work with the treatment of the sheet thickness. The height of the component is calculated by the chosen contact and the development on the neutral zone.



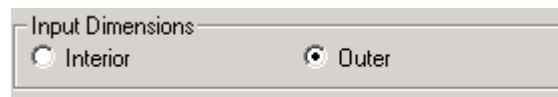
If the contact on neutral zone is chosen the height of the component is calculated on the neutral zone, too.

Example of the contacts point:



This example shows, that the cone
 “Teil 2” is calculated with the contact **“Inner/inner”**
 “Teil 3” with the contact **“Inner/outer minimum”**.

Standard setting is outer dimensions. This setting is in the menu
 under “Extras”, “Options”, “Input dimensions”, activate outer
 dimensions.

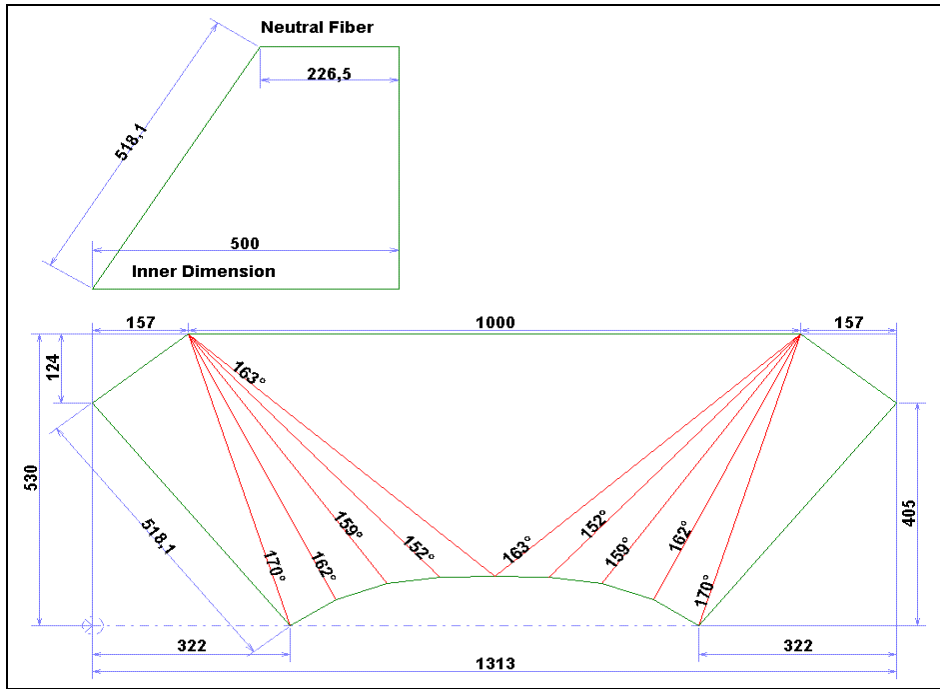


Example: Calculation of the development rectangle to circle

Here is an example of how we calculate this type of part:

Length A= 1006, width B=406, diameter C=456, height H=440,
 thickness T=3, number of folds N=16 .

In the drawing below we have drawn the neutral dimension on the
 circle and the inner dimension on the rectangle. You can see the
 correspondence with the development calculated by LogiTRACE.



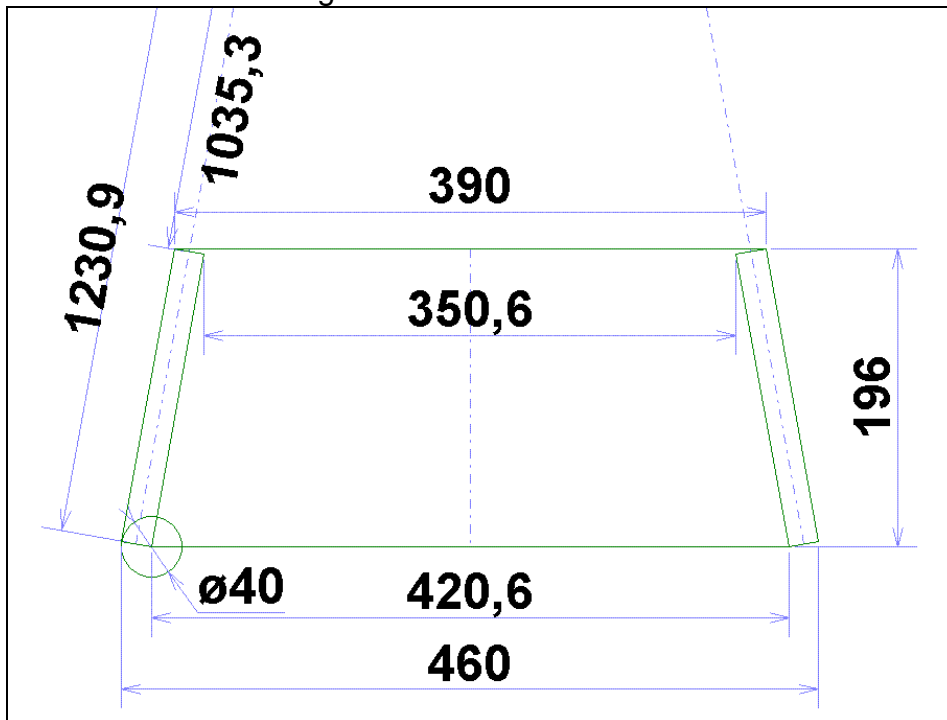
Special case straight cone

On the special case of the straight cone we also treat the slope of the cone. For this reason you may find a small difference between values calculated manually or using less professional programs.

The method used by LogiTRACE gives better results. The calculation is complex and not often used.

LogiTRACE calculates first the inner diameter and constructs the cone as in the drawing below. The values of the inner diameter are output on the printout for this one module.

The module 002/ straight cone is calculated as shown below:



The calculation using less professional methods, that do not take into account the slope of the cone would achieve dimensions of 1251.4 mm and 1052.4 mm.

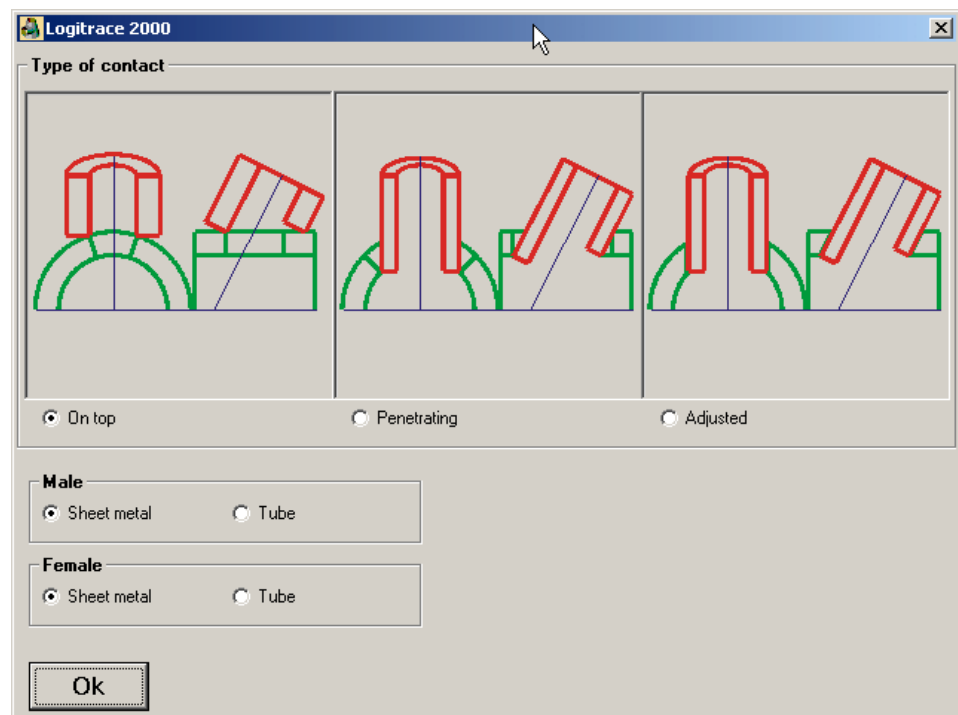
IMPORTANT: H=height (look above 196mm)

Modules 071/ Pipe in pipe and 084/ Pipe in pipe on axis

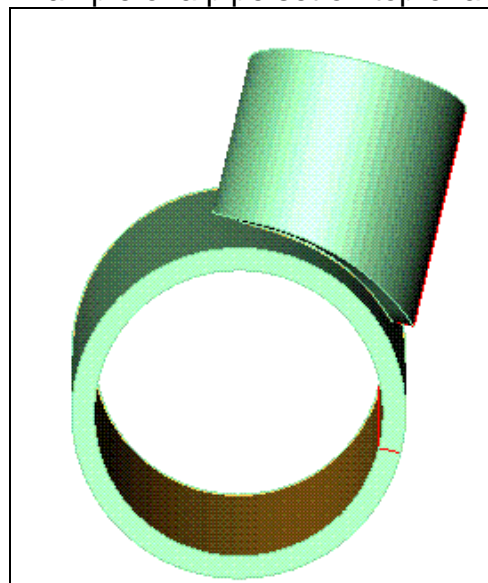
These 2 modules have a special treatment of the sheet thickness.

The thickness is also displayed graphically and has as a result that the 3D files from these parts cannot be used in combi-figure module.

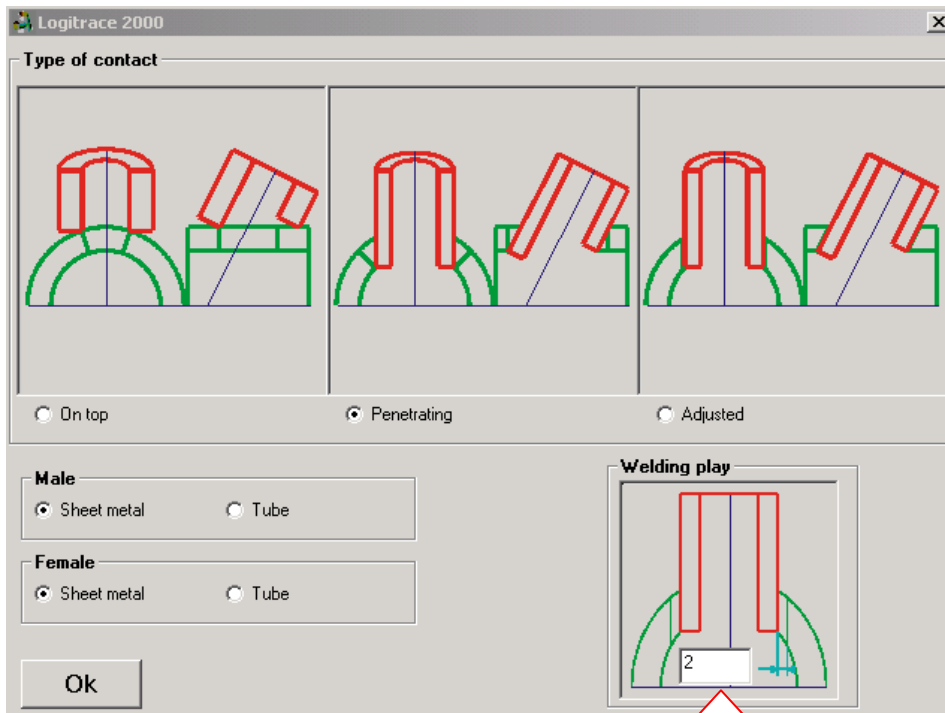
You can choose the type of penetration that you have.



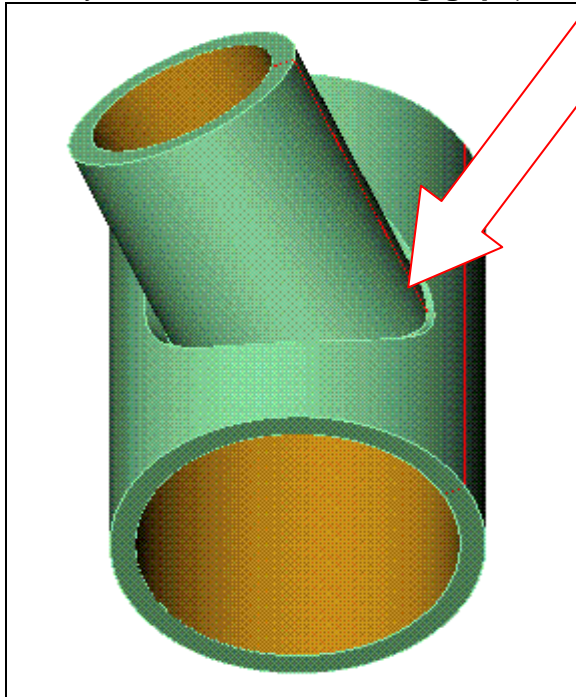
Example of a pipe set on top of another pipe:



Example of a penetrating tube:



Here you can enter a **welding gap** (in millimetre)



How do we unfold?

Automatic setting of the number of folds N

There are 2 golden rules that are applied to the number of folds.

1. The number of folds N must be divisible by 4.
2. With parts with a round, oval or elliptical base contour 360° must be divisible by the number of folds N.

Examples: Entered value N	N divided by 4	360 divided by N	Adjusted Value for N
12	3	30	12
16	4	$360/16=22,5$	20
72	18	$360/72=5$	72
100	25	$360/100=3,6$	120
180	45	2	180
..... 360	?		360

These 2 rules are necessary to ensure an exact division of the 360° part of circular parts for internal calculations.

Circumference is smaller than $D \cdot \pi$

LogiTRACE calculates the circumference using the number of folds/construction lines and the straight dimension (not the curved one) between two points on the circumference.

This means that the value calculated by LogiTRACE is always slightly smaller than $\pi \cdot D$. The more folds that are chosen, the less the difference becomes.

With **rolled parts** use **at least 72** folds/construction lines or more depending on the diameter. With **folded** parts use the desired number of folds, a typical value is **36**.

With parts including an **intersection** use if possible **120** folds or more.

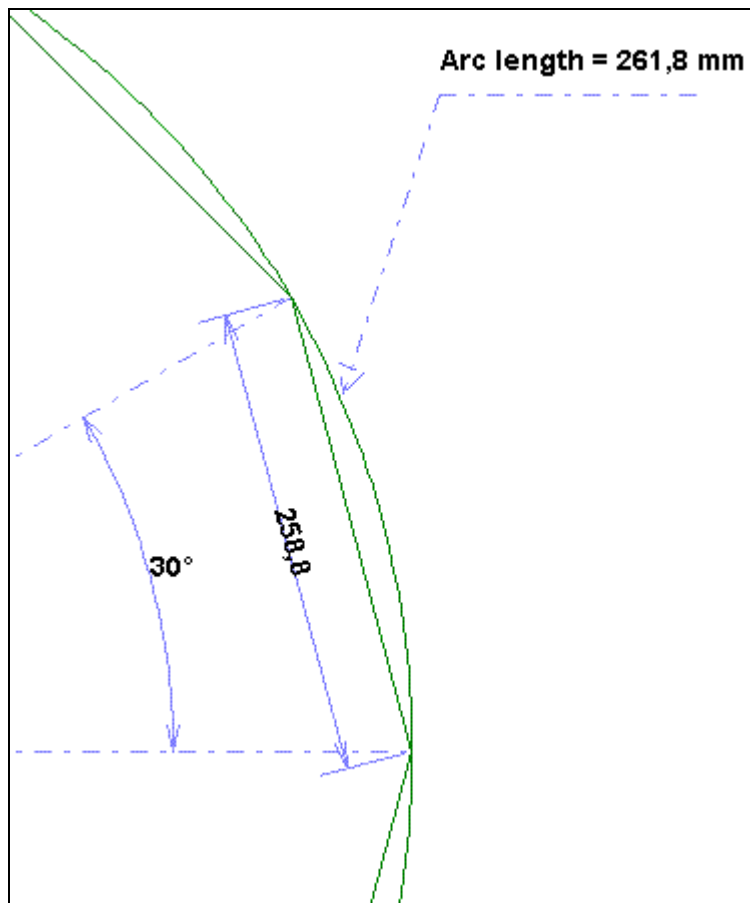
For 3D files for combi-figure use an appropriate value and think about what you are doing!

Example:

Container diameter 2m should have 360 folds

Pipe diameter 100mm that is to intersect with the container can have much less 72 is more than enough.

Example 2: Container 1000mm diameter with only 12 folds



Length of development with only 12 straight segments:

$$12 \cdot 258,8 = 3105,6$$

Calculated circumference should be:

$$3141,6$$

→ 72 folds is often sufficient!

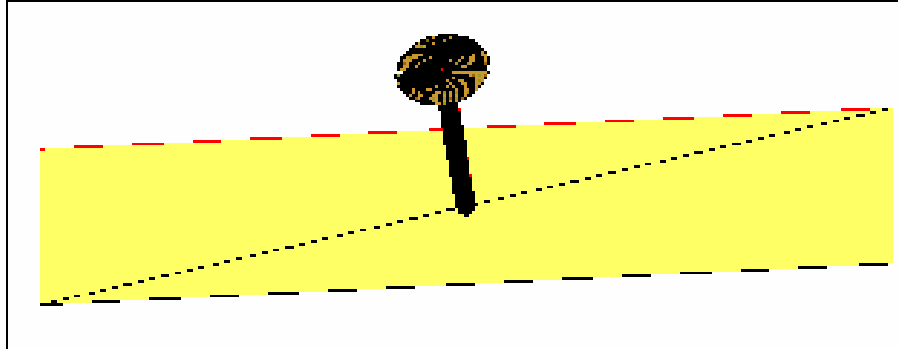
For a container with planned diameter 1000 mm we have following deviation that can normally be ignored.

Constructi on lines N	Actual circumferen ce	Resulting diameter	Deviation in %
36	3137,6	998,73	0,127 %
72	3140,6	999,68	0,032 %
100	3141,1	999,84	0,016 %
144	3141,3	999,91	0,009 %

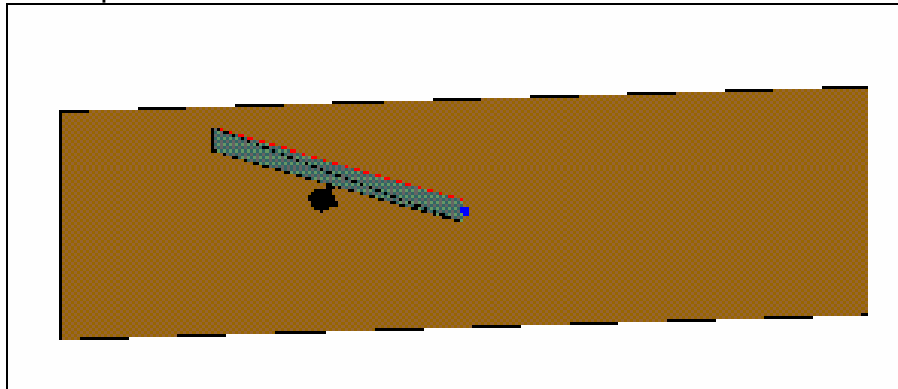
Basic principle of unfolding

The drawing below shows one of the basic principles of unfolding with a model.

To create the development of a rectangle linked to an inclined circle in the correct position a rectangle can be attached to the inclined circle as shown with a rod.



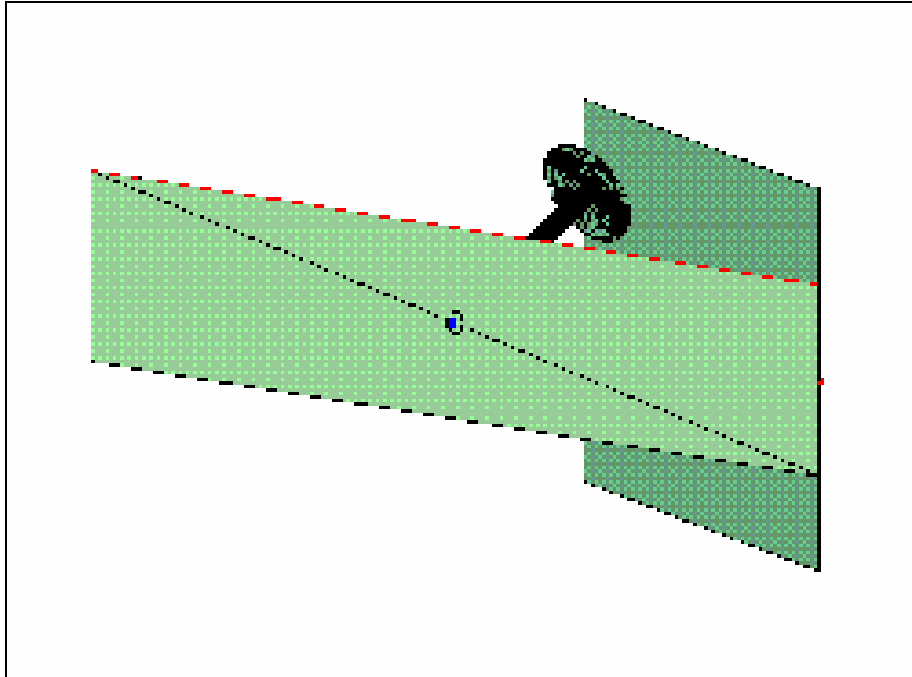
Model of a rectangle attached to an inclined circle with a rod. See example „explain-good-part.lpi“ in the examples. The part can then be rolled on the ground to trace the development.



Calculating the position of the welds or folds on inclined surfaces

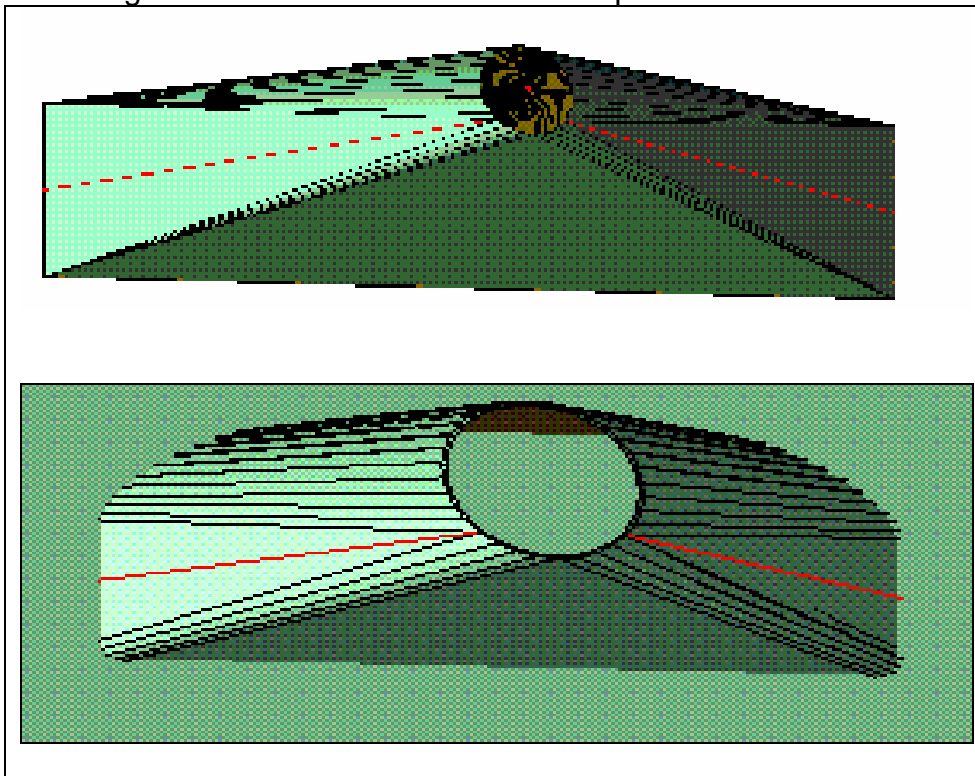
On all parts with inclined surfaces the above method results in a developments where the folds or welds are not always at 0° and 180° . The size of this deviation depends on the shape of the part and inclination.

The example shown below results in a very large deviation from the 0° and 180° positions.



Example of a correctly formed part

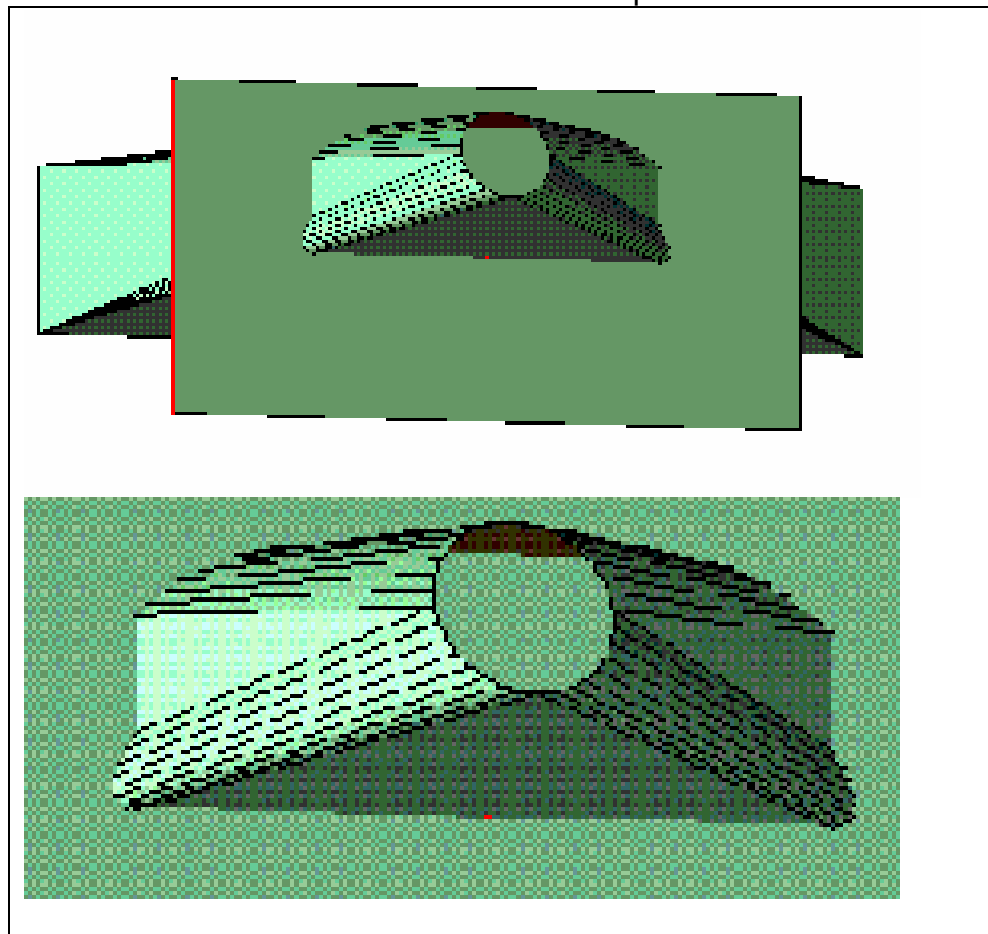
Here we can see the difference between two parts. One calculated correctly in LOGITRACE and one calculated wrongly like is commonly done. We can see that the difference is mainly in the resulting volume and internal folds on the parts.



See "good-part.lpi" in the examples

Example of an incorrectly formed part

Here we can see clearly the form of a badly calculated part where the welds are attached to the 0 ° and 180° position

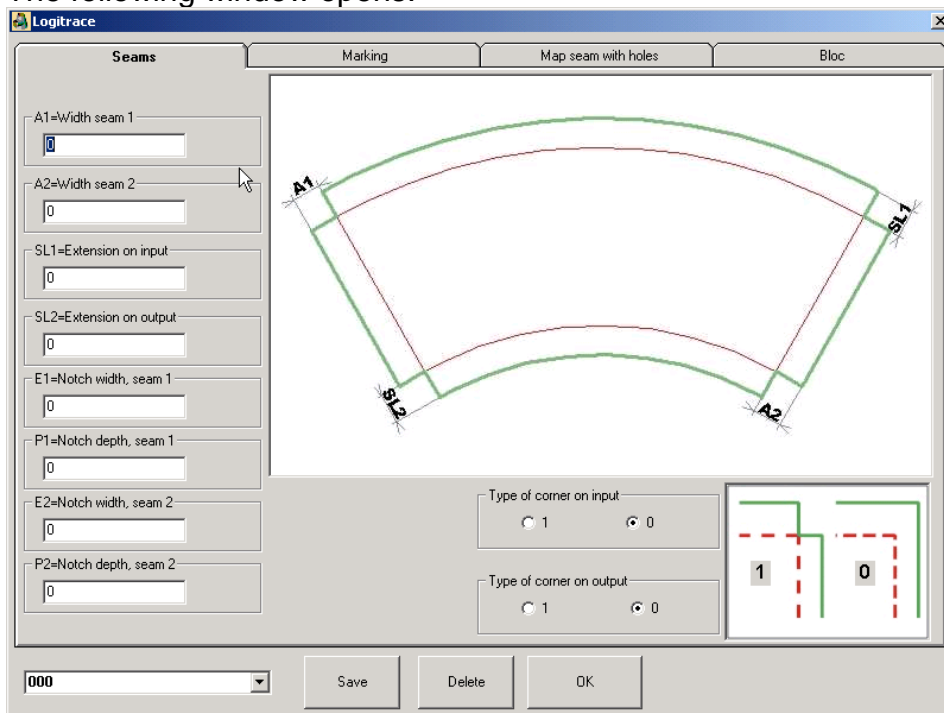


See "bad-part.lpi" in the examples.

Difference in the cross section and hence the volume and shape between the good and the bad part. Deviation is in this case is 17mm.

Setup seams

The setup seams are in the menu under “Extras”, “Setup seams”.
The following window opens:

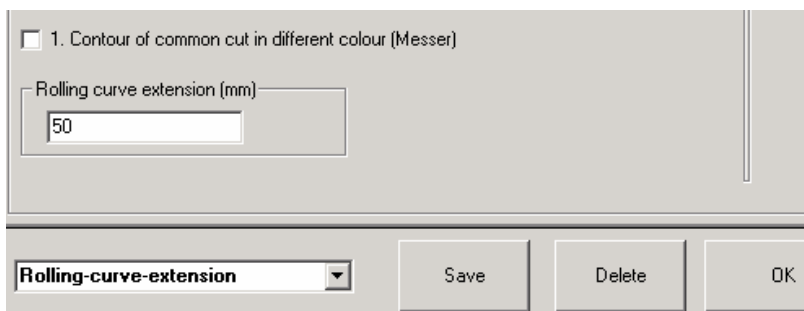


Specific folds and seam settings can be defined and saved for each component.

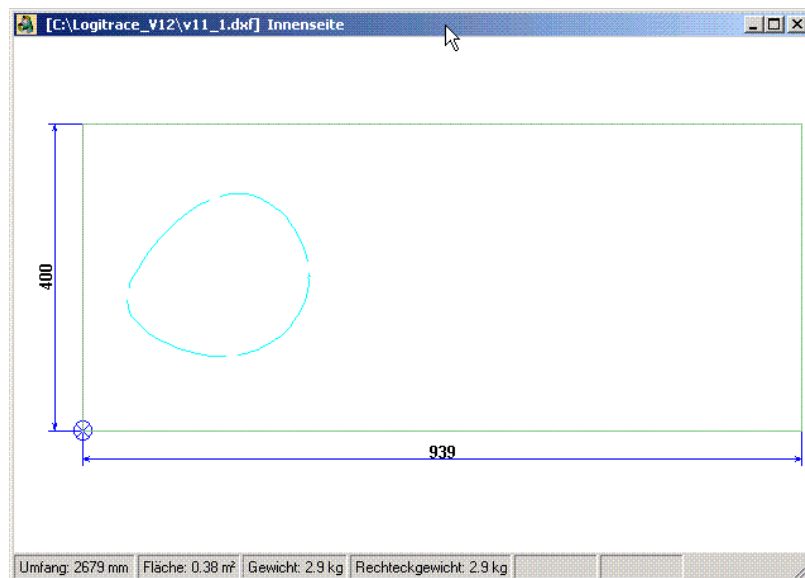
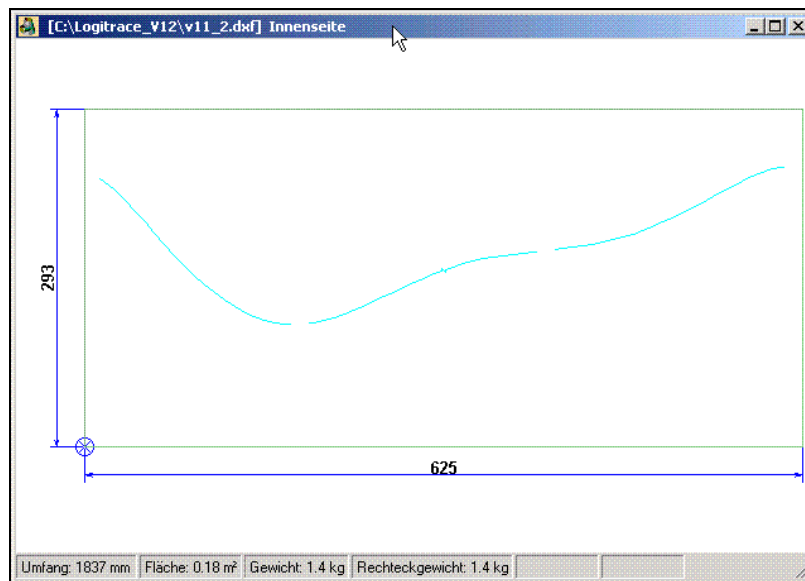
Improved seam representation

For the better understanding of the seam settings, there is an improved graphics for the corresponding modules.

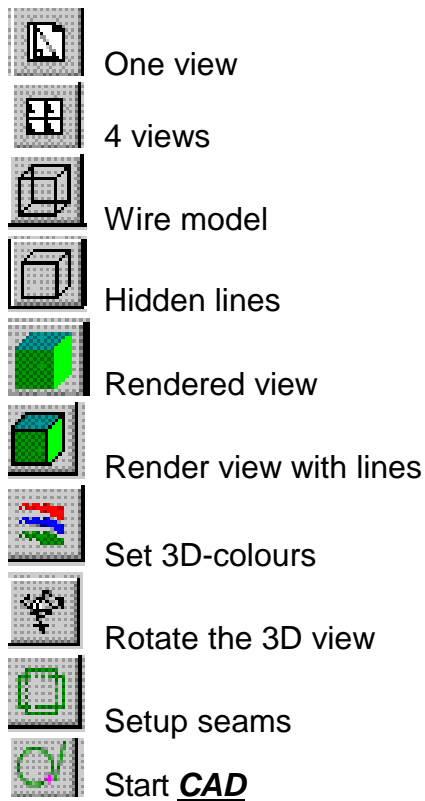
Rolling curve extension



Also set the setting for cutting diameter and number and size of cutting joints correctly. This results in much easier rolling of the parts. This function is currently available in modules with intersection of 2 or more pipes.

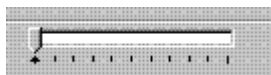


Description of the standard icons



Arrows for browsing between the different developments which were created after the calculation.

2/2 means that 2 developments were created and you can browse with the arrows.



Slider to view inside the part.

Moving and zooming the 3D view

Hold **left mouse button** and move: component will be **displaced**

Hold **right mouse button** and move: component will be **rotated**

Hold **middle mouse button** and move: component will be zoomed

Hold **<Ctrl> + right mouse button**: **zoom** for mice with only 2 buttons

Quick start - Installation

Installation of LogiTRACE


Before starting the software, it has to be installed on the hard disk.

Open the Explorer and choose the CD-Rom drive.

Click on folder LogiTRACE.

Click on LogiTRACE_V13_SETUP_CD (.EXE).

You should use the suggested standard folder for the installation. Setup starts and the files are copied automatically to the hard disk.

This icon is created on the desktop  and to finish setup click on Finish.

Start LogiTRACE by double clicking on the icon.

Program starts in test mode / activate software

The installation of the software creates an unique serial number. The software runs in test mode until the program is activated with a password.

Purchasing LogiTRACE and requesting the password

1. Request the serial number

The serial number is shown in the menu

„Password to activate software“

You should note this serial number and send it to your supplier via email or fax. The best thing to avoid typing errors is to use **email**.

2. Activating the software.

You get a password from your supplier, which can only be used for this computer and serial number. You can activate the software in the menu under „Password to activate software“ by entering in the password.

After the first installation of LogiTRACE the software starts in **test mode**. In this mode the software can be completely tested and even **DXF files** can be created.

To activate the software click in the menu on **Password to activate software**.

The following window is shown:

The serial number is only for this PC. Send us this serial number via email or fax.

According to this number you get a password for this PC.

Enter this password in the field password and click on "Accept".

Now the software is activated.

We remind you that LogiTRACE is like all commercial software a single user licence. It is possible to transfer the licence from one PC to another with a floppy disk after the software is permanently activated.

What can I do in test mode

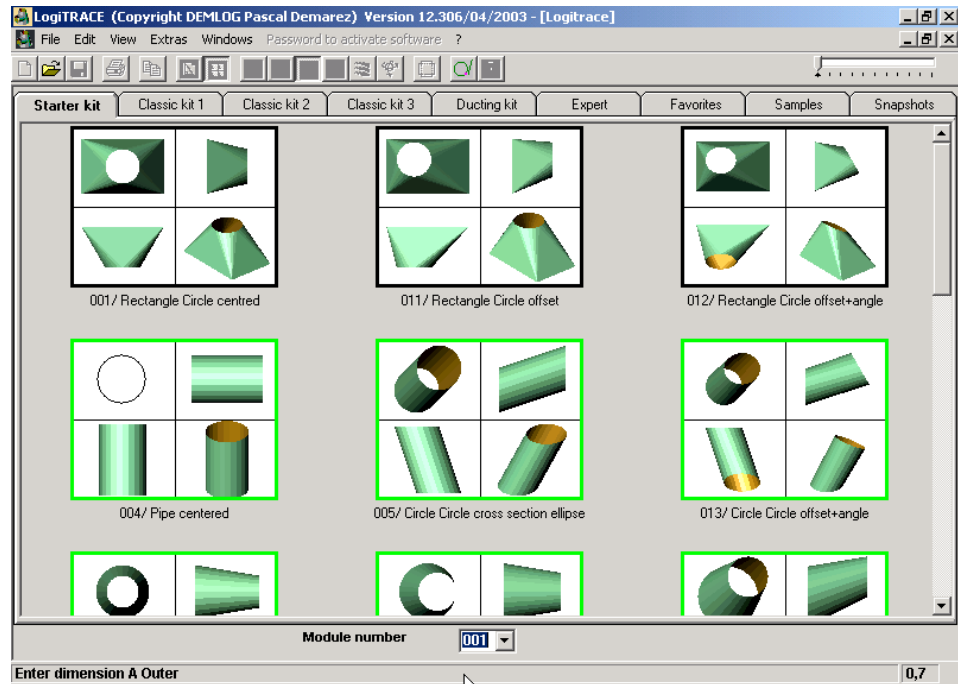
It is possible to test all functions in the test mode. Only two dimensions per module are frozen and displayed grey and can't be changed. It is possible to print and to create DXF files. So you can test all functions of the software.

Starting of LogiTRACE



Start LogiTRACE by clicking on this icon.

The following window is the start screen of LogiTRACE:



You see the different modules of LogiTRACE:
 Starter kit, Classic kit 1, Classic kit 2, Classic kit 3, Ducting kit,
 Expert, Favourites, Samples and Snapshots.
 At the bottom you can see the menu with the module numbers of
 LogiTRACE.



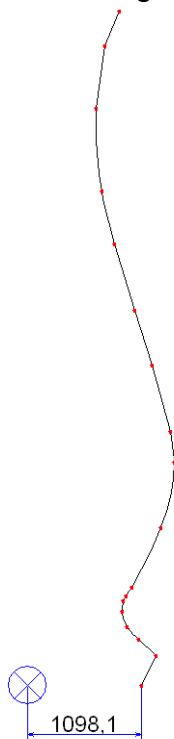
If you click on a module the module number is shown here. With
 this module number and the <ENTER> key you can start a
 module.

Reading in DXFs for use in Modules 007 110 147

The following points are very important when reading in a DXF file for use in LogITRACE:

Position of the contour

The contour must be positioned correctly regarding the zero point of the drawing.



Colour

All lines must be in the same colour. We suggest you use the colour Black/white (No. 7) or light green (No.93).

No Polylines, splines, blocks: use EXPLODE in AutoCAD

The contour can only contain simple lines and arc. Use the EXPLODE/URSPUNG command in AutoCAD to ensure this.

Closed continuous contour

The contour must be a continuous contour. It needs to be closed for module 007.

Important tips for AutoCAD

Use the EXPLODE command to make sure only lines and arcs are in the drawing.

In order to have a simple dxf file do the following:

Select the contour to be used.

COPY

NEW

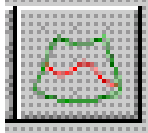
PASTE

This means that you will have a very simple DXF file only containing what we want and not lots of rubbish that AutoCAD normally copies into the file.

Combi - figure

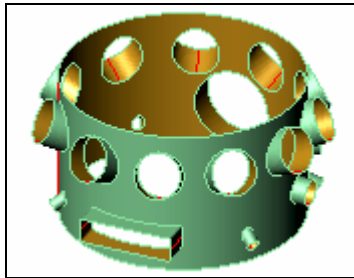
How to use combi-figure to calculate the intersection between two 3D-parts.

Important - Error solving

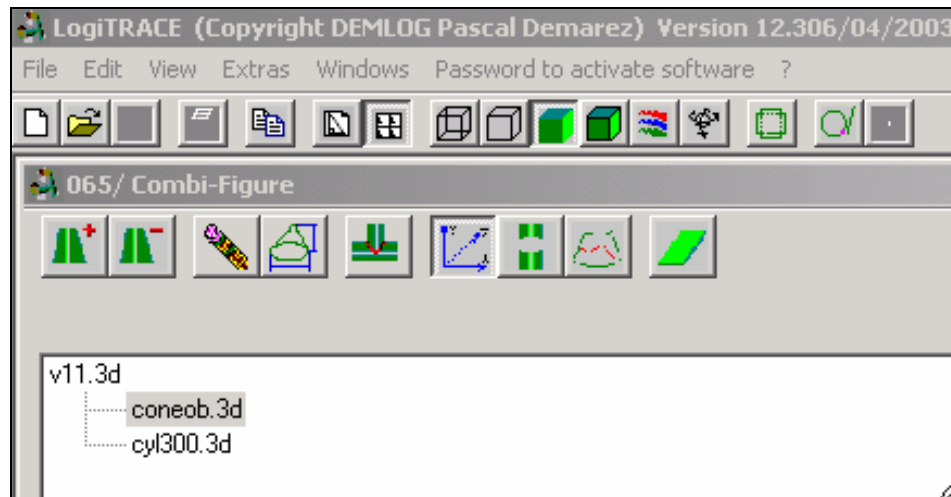


The new method of calculation in combi-figure is not quite perfect yet and sometimes if the results look strange you should try the method "Quick intersection without trimming". To do this click on the icon shown:

Menu of module Combi – Figure



Click on 065/ Combi-Figure in the module Expert.



- + = Add a 3D figure to the screen
- = Remove the selected 3D figure from the screen



Reset position values of selected 3D figure to 0.



Change the size or properties of the selected figure.

Using this icon you jump into the module used to create the selected 3D part. The part can be changed and when you click on calculate you jump back to combi-figure.

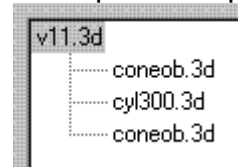
IMPORTANT This only works when the part has been stored in the standard LTR folder of LogiTRACE.



Calculate the intersection - with trimming when possible

IMPORTANT: If you click on the top of the tree the intersection and development of all parts will be calculated. If as in this case you only want the intersection and development of one of the parts (in this case the foot) first select the figure in the tree then click on the icon. This save a huge amount of number crunching and time.

Example: All 3 parts will be calculated



Keep bottom part of the 3D figure. Normally the top part is kept.

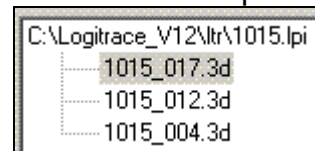


Quick intersection without trimming - use if trimming results have errors.

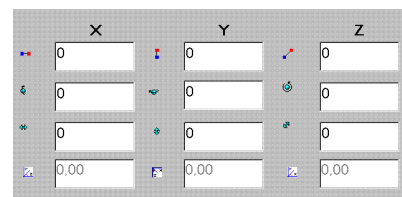
IMPORTANT Use the CA function n ***PROfirst*** to reduce the large number of lines to arcs when using this function.



Create a plain or surface in LOGITRACE



Folders and files which are worked with.



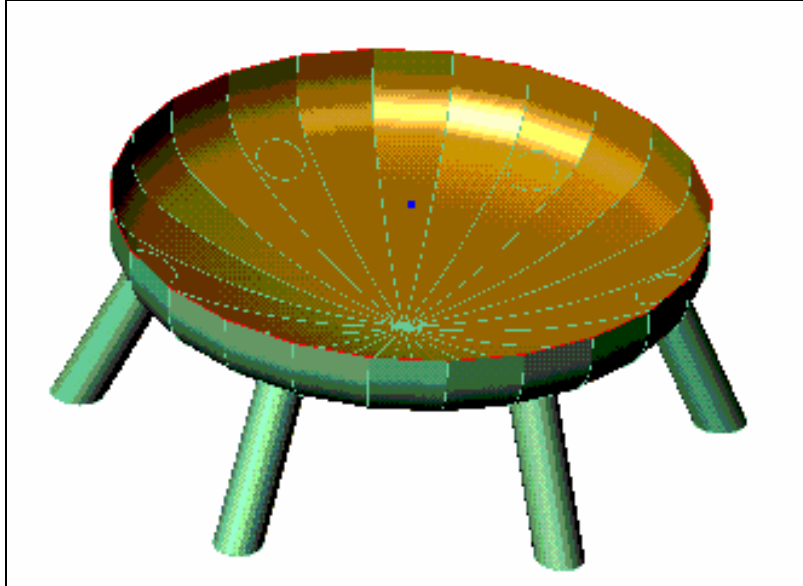
Data entry fields for movement and rotation of parts.

IMPORTANT: Please read the direct help that appears in yellow text when you hold the mouse in these fields.

TIP: To rotate parts with several angles, you should always use only one angle per part. For further rotation angles don't use the same part, but choose another.

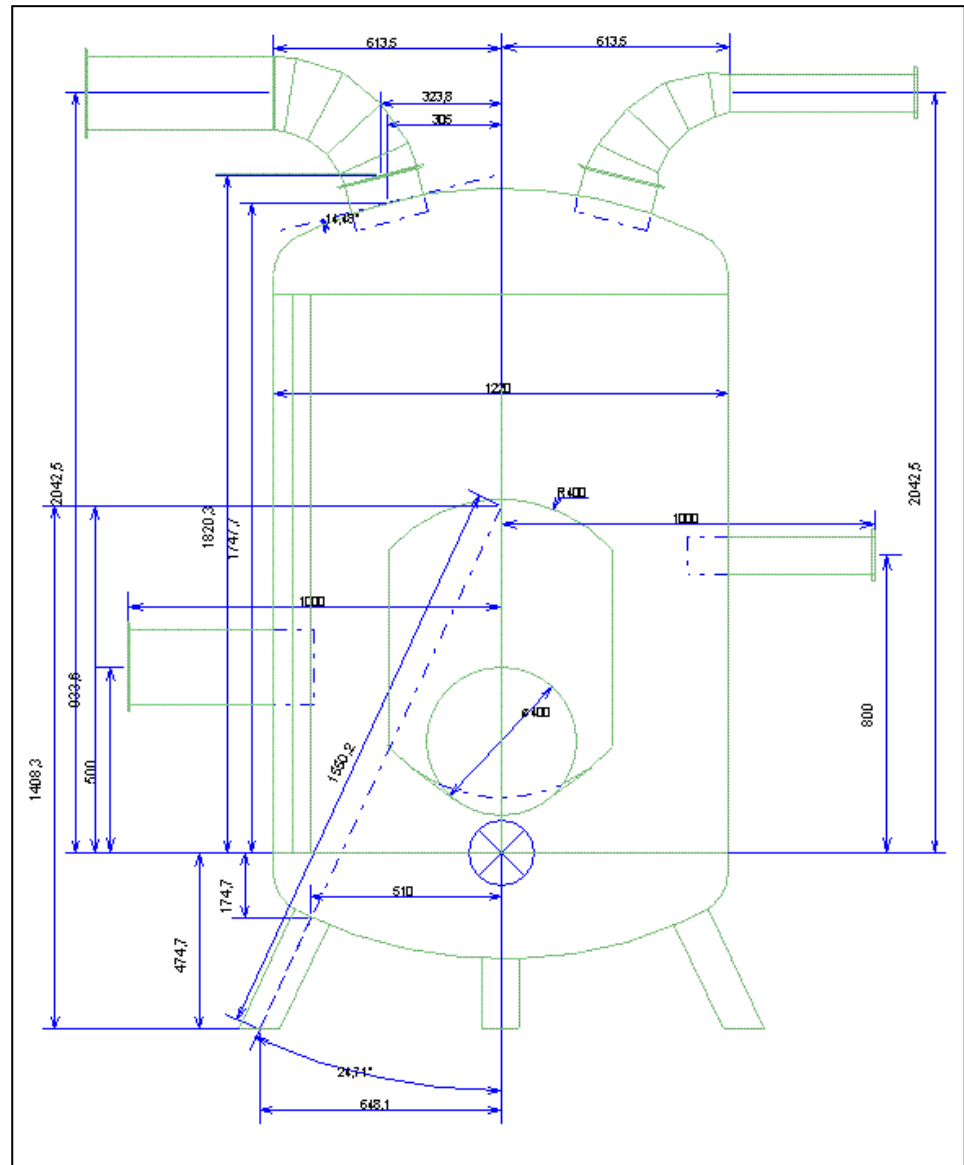
Example 1: Vessel bottom with a tube foot

In this example the module combi-figure will be used to calculate the intersection between a vessel bottom and a tube foot to create the development of the following part:

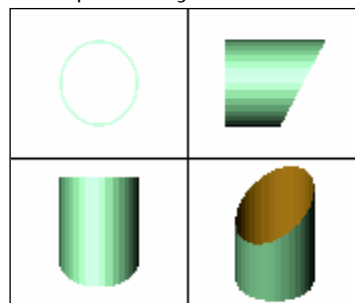


To start with we will create a foot that is cut by a plane on the bottom. Then we will combine this foot with a 3D model of a vessel bottom to get the form required for the intersection on the top of the foot.

This is the drawing we will use:

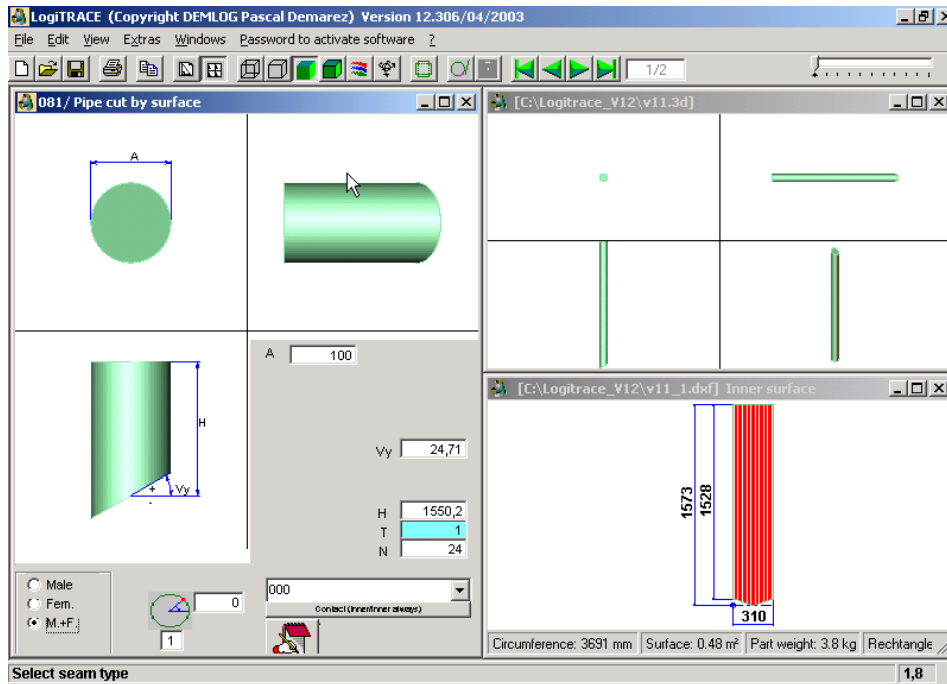


081/ Pipe cut by surface



All LogiTRACE modules create 3D files. We will use the module "081/ Pipe cut by surface" to create a 3D file of a pipe. Click on the this icon in the **classic kit 1** to start the module.

The screen will be shown as below:



Enter the following values:

- A= 100 (Diameter)
 Vy= 24,71° (Angle)
 H= 1550.2 (Height)
 T= 0 (Thickness) IMPORTANT
 N= 36 (Number of fold or construction lines)

Click on the icon "calculate" to generate the part:

Calculate

Click on "File", "Save" to store the part with the name foot.
 The file containing the values entered will be stored in the DXF-
 folder as "Foot.Ltr".

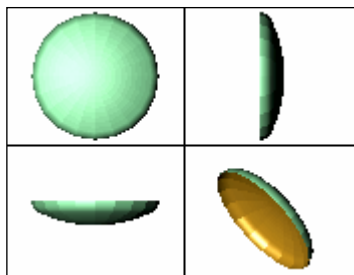
A 3D file will be automatically created and stored as **FOOT.3D**.

The pipe is created and now you have to create the vessel bottom.

Click on „File”, "New".

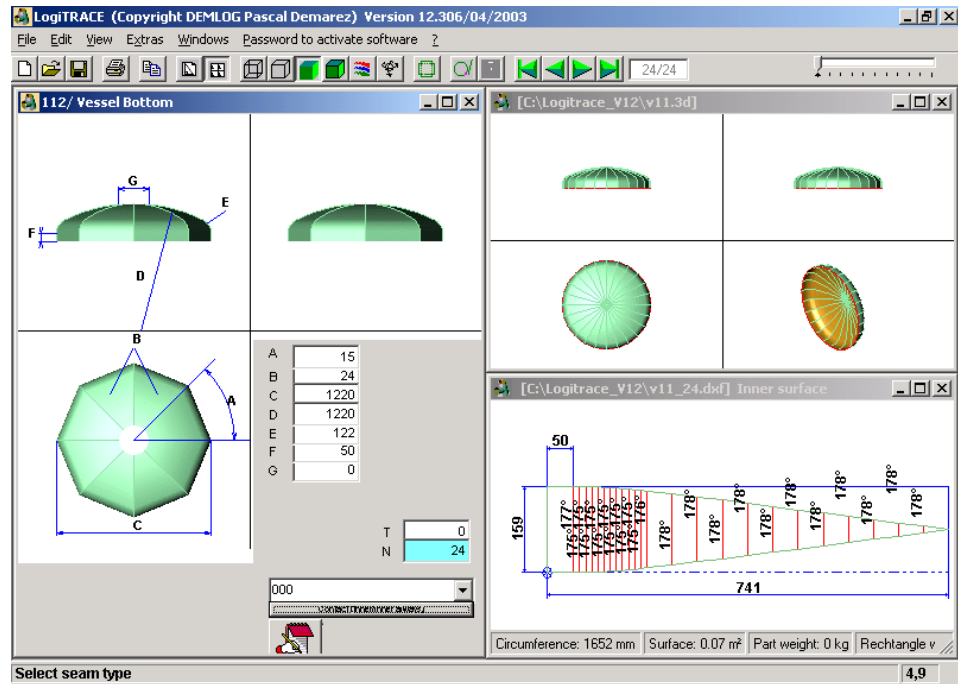
You return to the main screen of LogiTRACE.

112/ Creating the vessel bottom



Click on the icon „112/Vessel bottom”
 from the "starter kit" to start the
 module.

Following Screen will be shown:



Enter following values (Check then against the drawing):

A=	15°	(degrees per segment)
B=	24	(number of segments)
C=	1220	(Outer diameter)
D=	1220	(Radius of vessel bottom)
E=	122	(Corner radius)
F=	50	(Height)
G=	0	(Diameter of hole)
T=	0	(Thickness)
N=	24	(number of construction lines)

Click on "calculate" to create the vessel bottom:

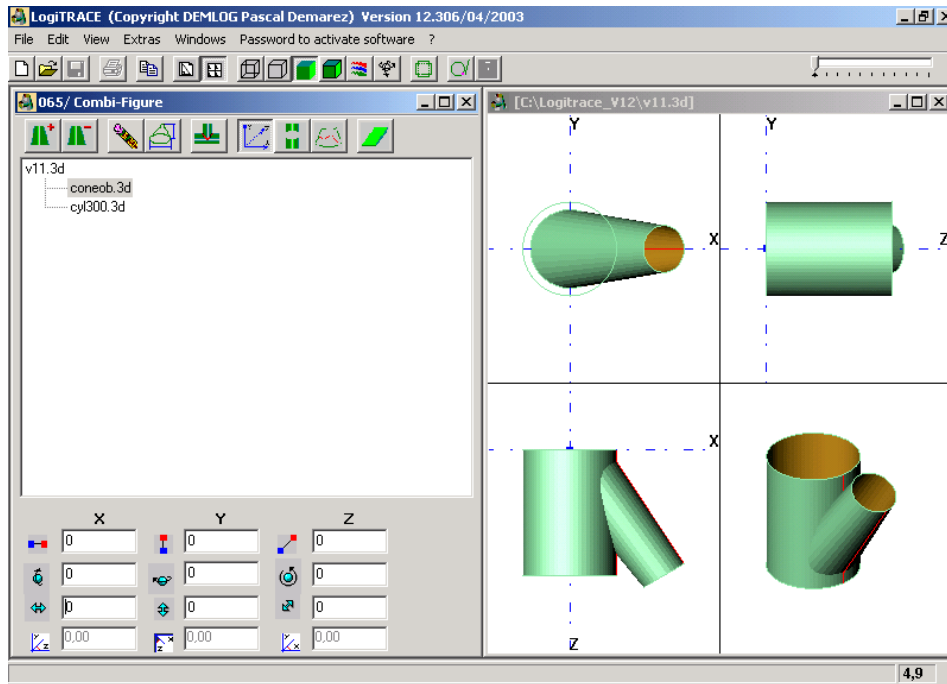
Calculate

Click on "File", "Save" to store the vessel bottom with the name "Bottom.ltr".

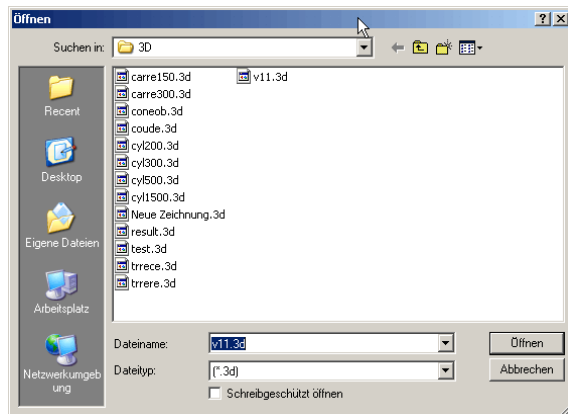
Result: a 3D file bottom.3d" has been created automatically.

Combining a vessel bottom with a pipe as a foot

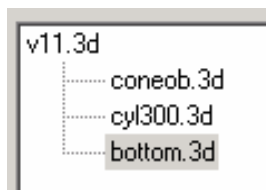
Now we can continue our example. Start module „COMBI-FIGURE“ from the "expert" kit. The screen looks as shown with standard parts to start with:




Click on this icon to add the vessel bottom to the screen.



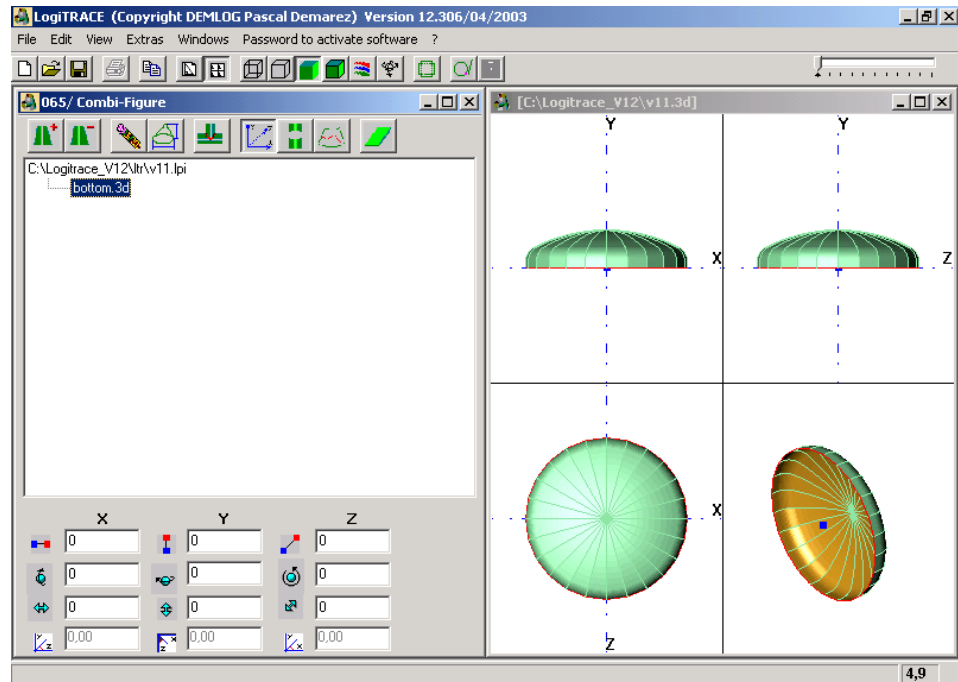
Select **Bottom.3D** and click on "open"
The vessel bottom will be shown in the 3D view.
Now we delete the 2 standard parts that are not required.




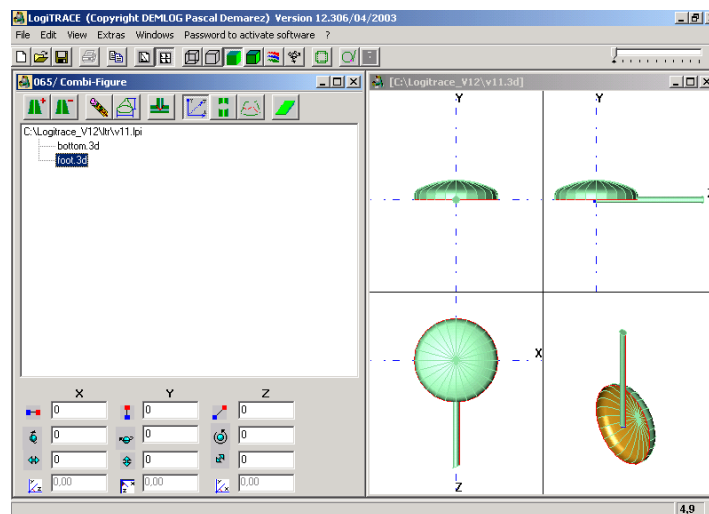
Click on coneob.3d then icon  to delete this part.

Click on cyl300.ed then icon  to delete this part

Now the screen shows only the vessel bottom:



Click on  to add the foot.
 Select file **Foot.3d** and click on "open". The foot should now be displayed:

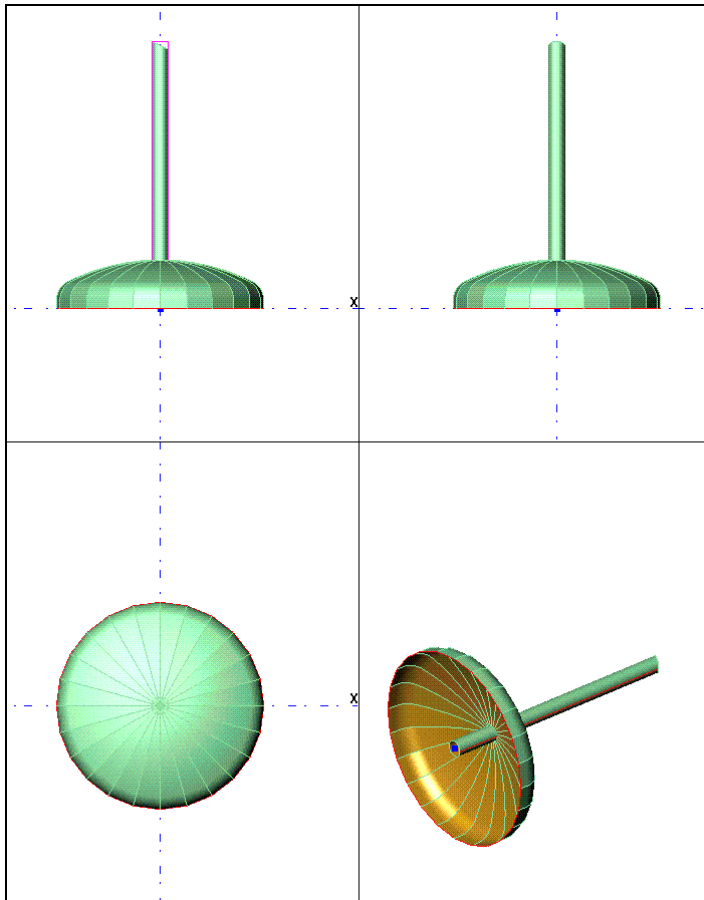


If the screen is not like above check that you have followed the instruction correctly.

Now we rotate the vessel bottom 90° about the X axis.
 In the tree click on **BOTTOM.3D** and enter the following values:

	X	Y	Z
	0	0	0
	90	0	0
	0	0	0
	90,00	0,00	0,00

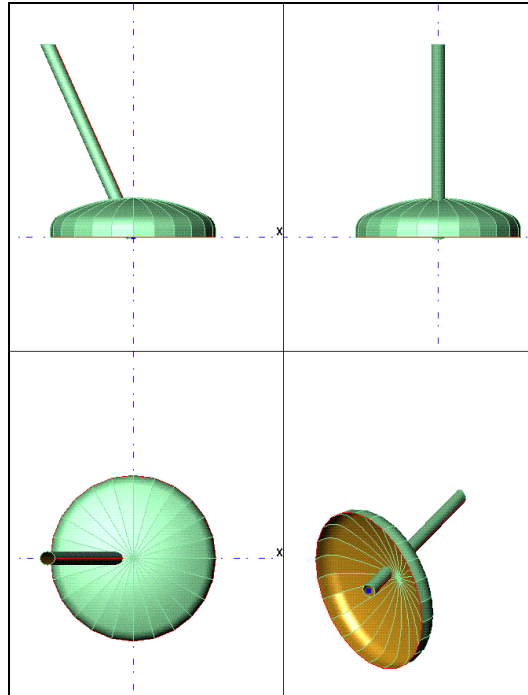
You can see the container bottom rotated by 90° around the X-Axis. The screen should now look like this:



Now we rotate the foot by 24,71° in the Z axis. As above click on the part and enter the angle in the data field for the Z rotation:

	X	Y	Z
	0	0	0
	90	0	24.71
	0	0	0
	90,00	90,00	-65,29

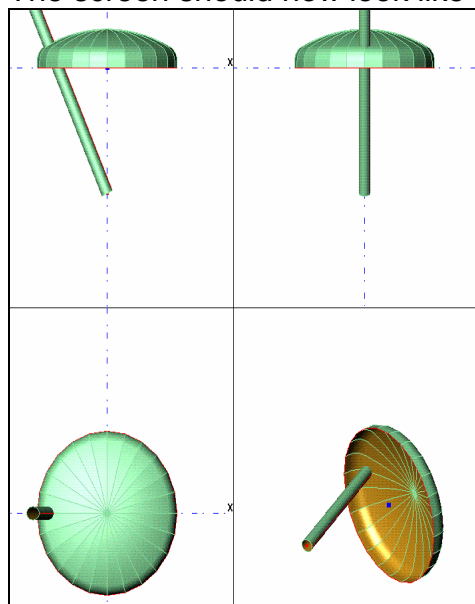
The screen should now look like this:




Now we move the foot with its point of rotation in the Y axis by 933,6 mm in the negative direction. Enter the following value:

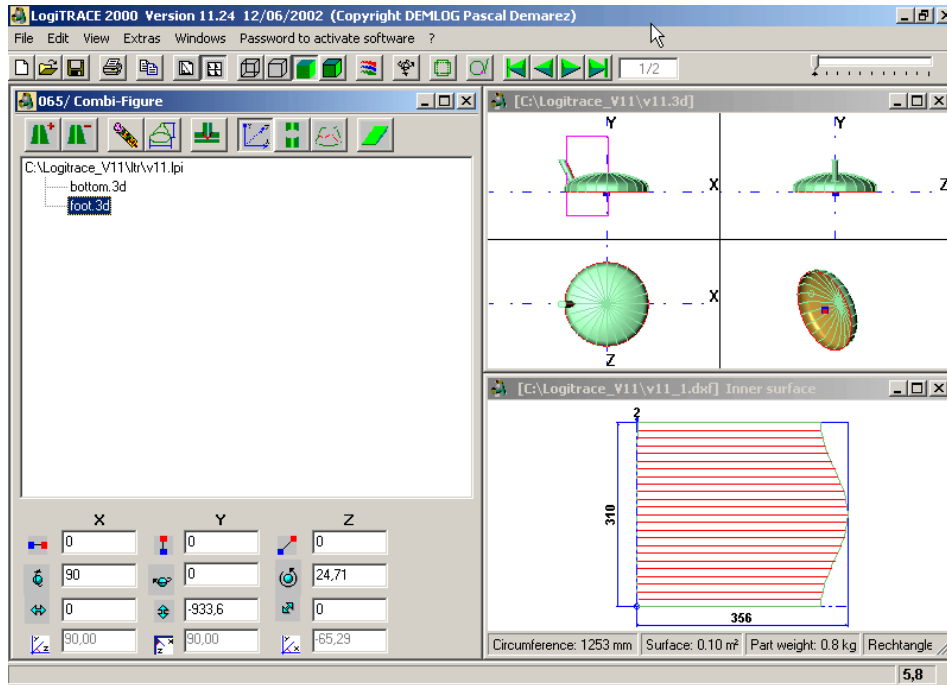
	X	Y	Z
	0	0	0
	90	0	24.71
	0	-933.6	0
	90.00	90.00	-65.29

The screen should now look like this:



Now we have correctly positioned the two 3D parts. Now we can calculate the intersection of the foot.

Click on the part **Foot.3D** in the tree then the  icon. After the calculations are carried out the screen should show the following:



The 2D development of the foot is shown bottom right and is stored in the file LT_Modul_1.DXF .

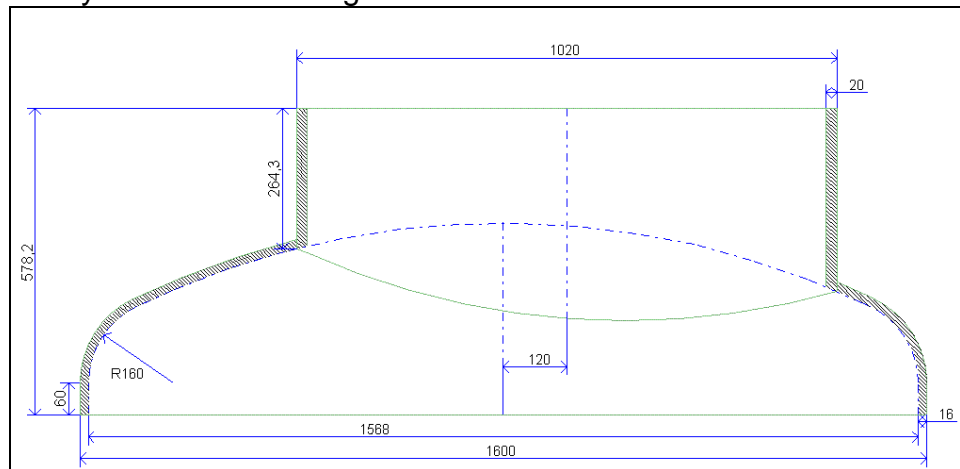
At the same time the resulting 3D shape of the foot is stored in the file **RESULT.3D**. This file can now be used for the bottom of the container.

It is possible to rename this file after the calculation in the windows explorer, for example if you need it later again.

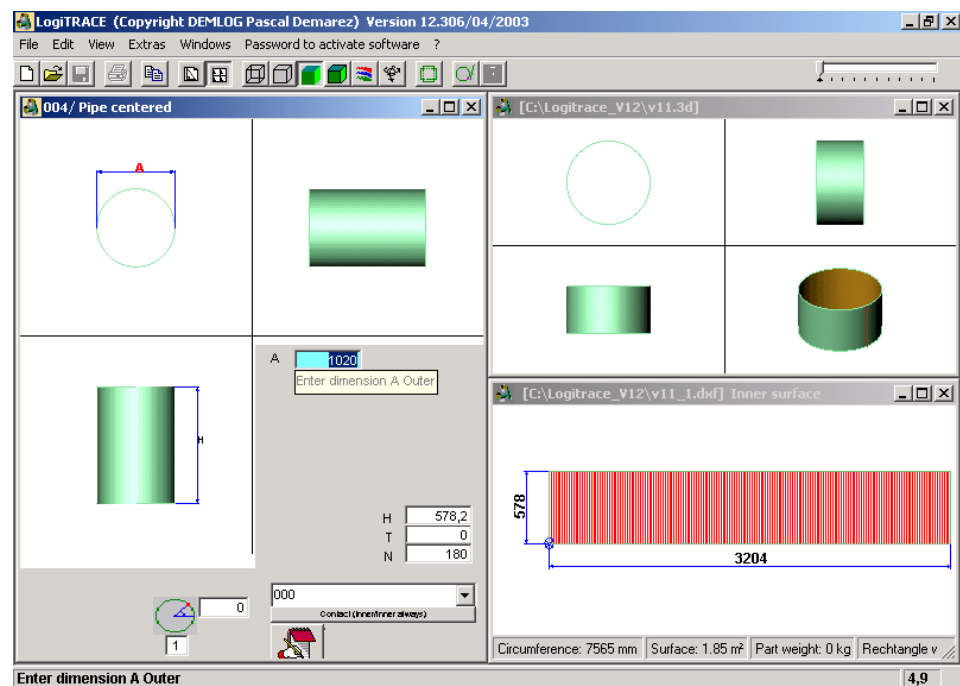
IMPORTANT: You have to rename the file immediately after the calculation, because after every calculation a file named result.3d is created by the software. The file will be overwritten every time.

Example 2: Vessel bottom with a large opening, different sheet thickness

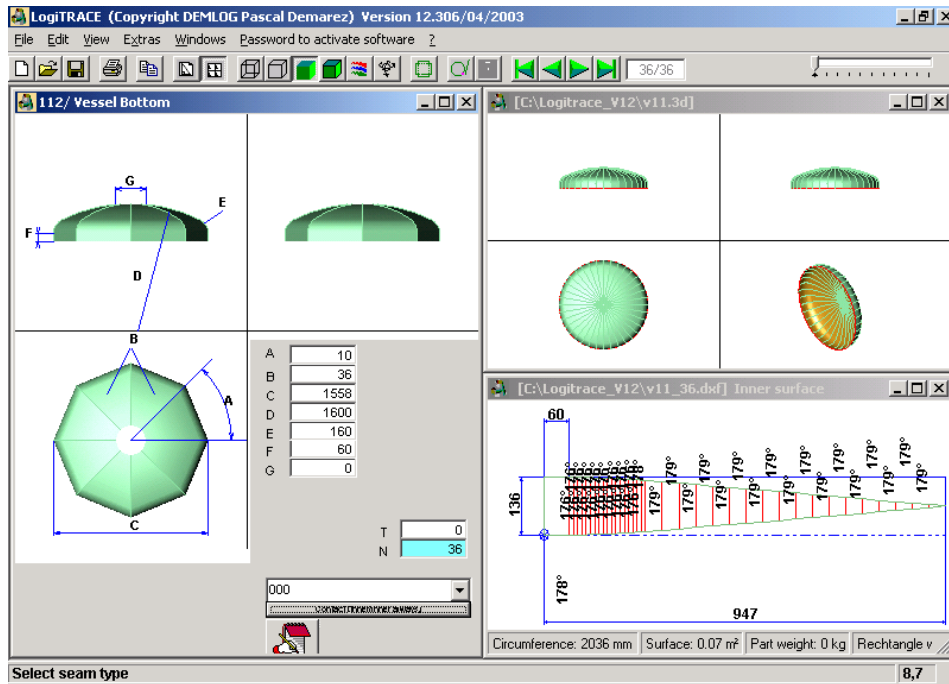
First you need a drawing which looks like this:



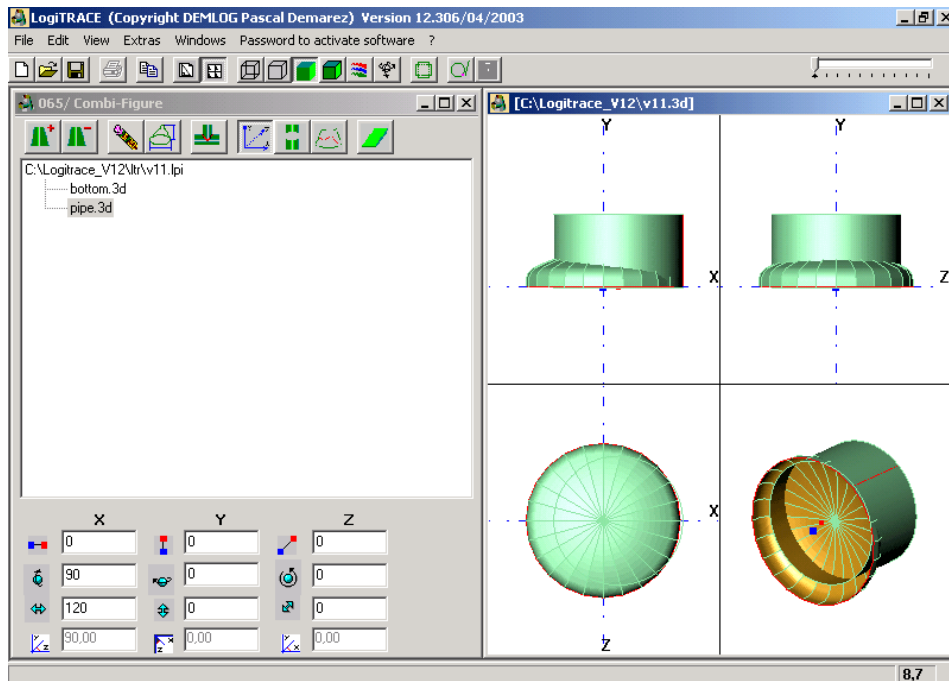
Now you create and save a pipe with a diameter of 1020mm:



Now you have to create and save a second component with the module "112/ Vessel Bottom" like shown in the picture below. Please exactly pay **IMPORTANT** to the inputs. You have to give in the inner dimensions.

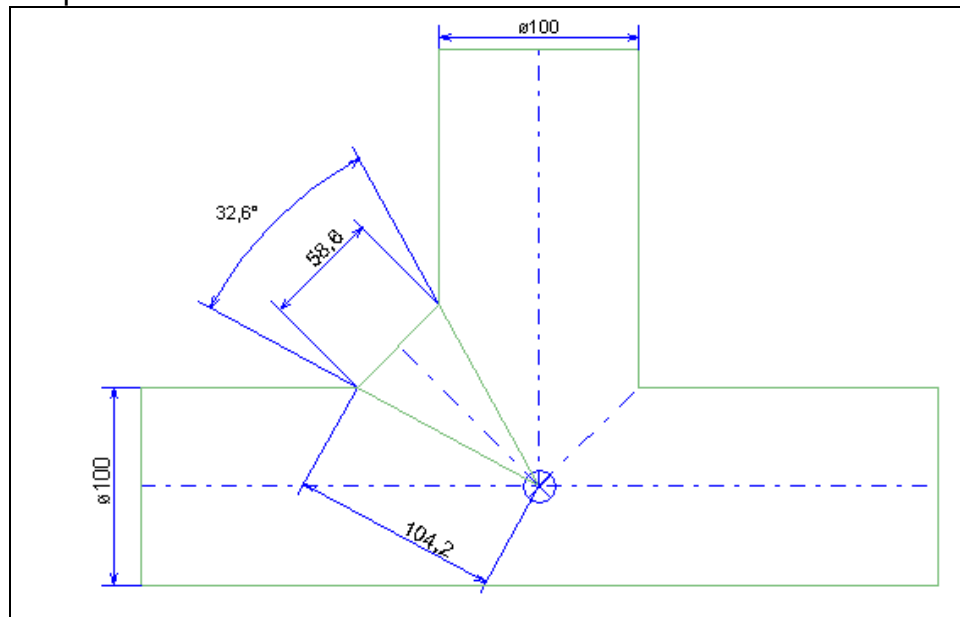


Now it is possible to position the 2 components with the module “065/ Combi-Figure” like shown in the following picture:

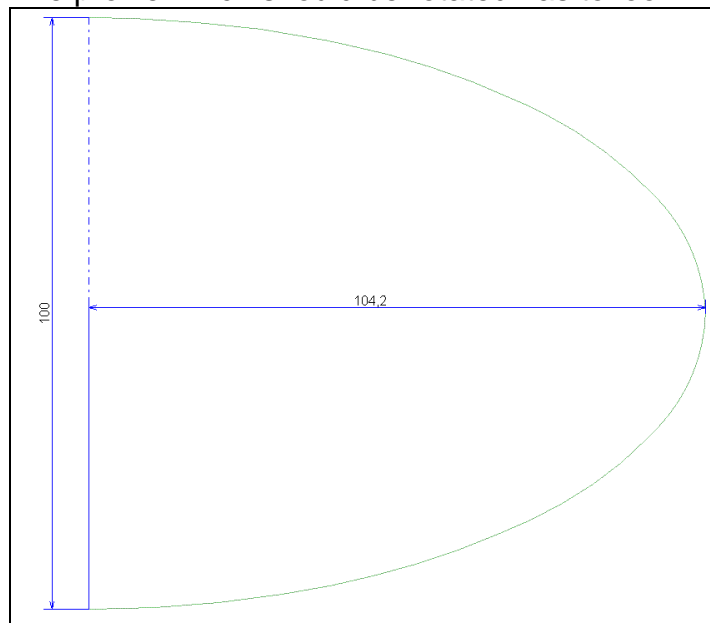


Example 3:

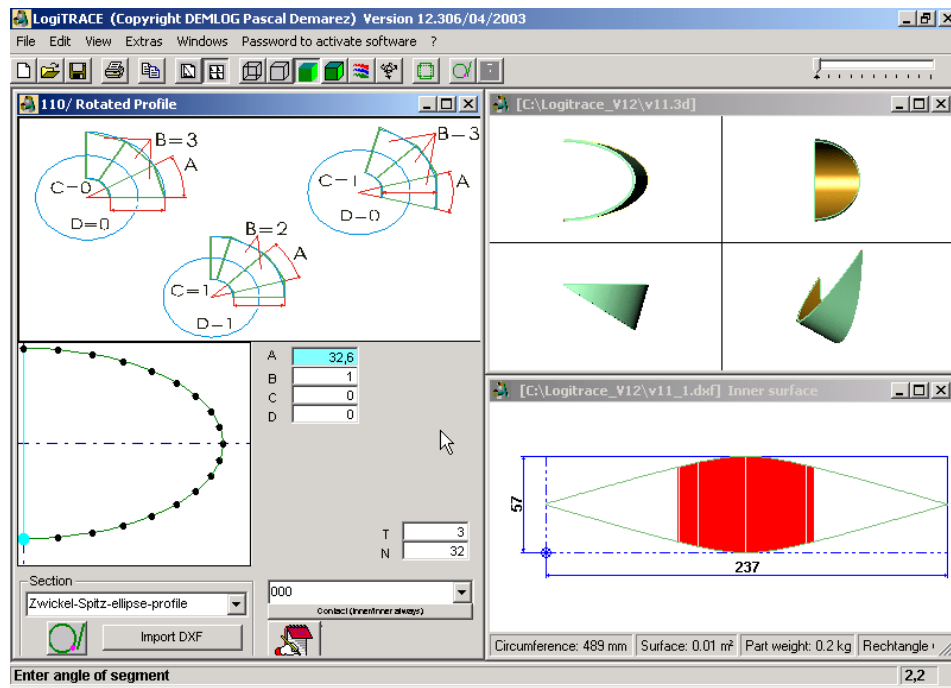
You can create a similar part with the module “110/ Rotated Profile”. Have a look on the following screenshots to understand the procedure:



The profile which should be rotated has to look like this:



Save the contour as DXF and open it with LogiTRACE “110/ Rotated profile”:



Enter data as shown and click on calculate, finished.

Combi - contour

Using expert module Combi - Contour

This module allows you to make a 3D part from any two 2D contours. The contours can be inclined, rotated or offset. The program creates the 3D file corresponding to the part and the 2D development of the flat part. The basic contours can be selected from a menu of standard shapes or more importantly can be drawn in any CAD system and read into LogiTRACE in the standard DXF format.

Reasons to use this module are:

- The required part is non-standard and there is no standard module available for it.
- You want to position the weld or fold in a very specific place not available in the standard shapes.
- The contours have been drawn with CAD and are available as DXF files.

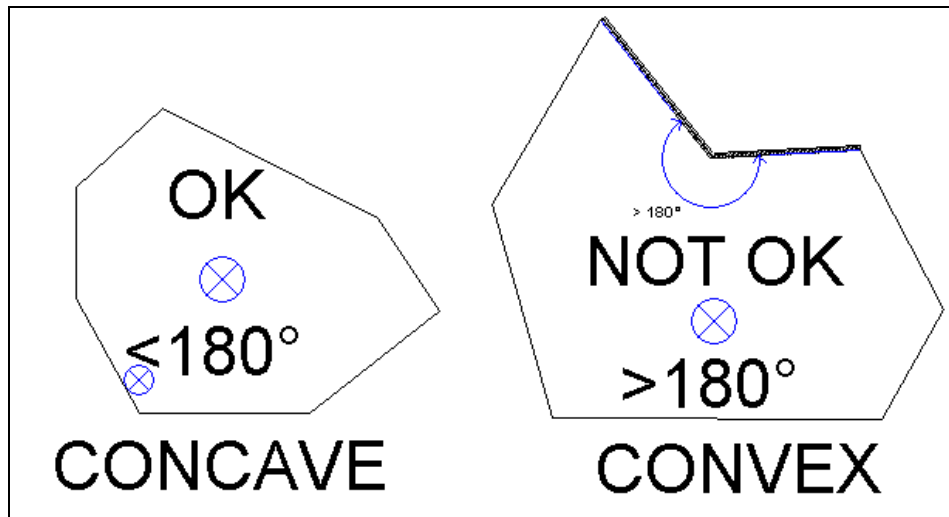
Importing a contour from a DXF file

Import DXF

Click on this icon to import a contour drawn with any CAD software and saved in the DXF format.

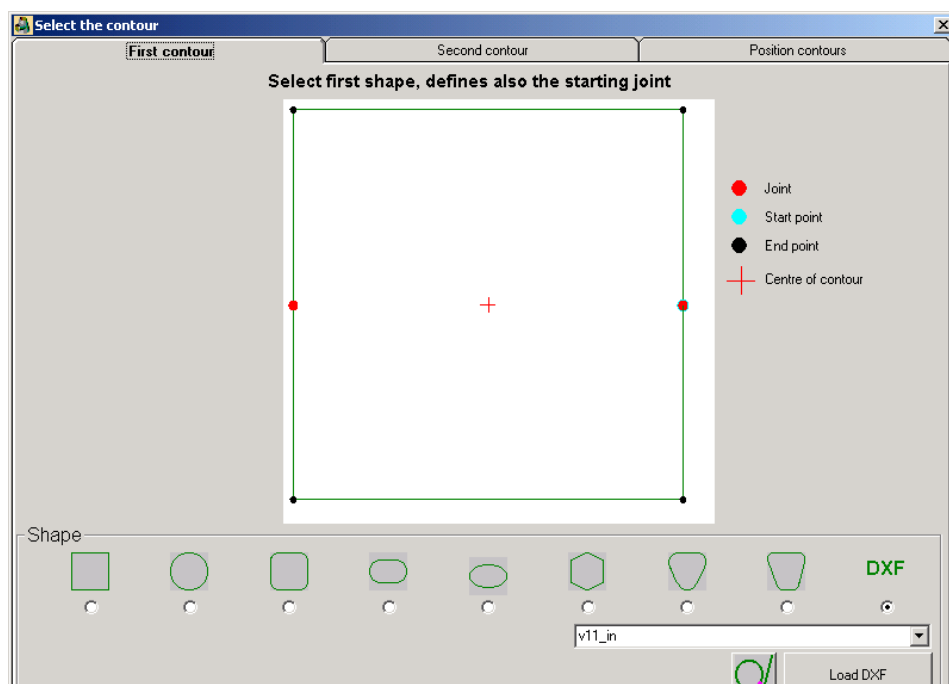
IMPORTANT:

- The contour has to include only ARCS and LINES. **FULL CIRCLES**, BLOCKS, POLYLINES, SPLINES etc. are **not allowed**. For a full circle draw two arcs.
- The **absolute zero point** of the drawing must be **within shape** and NOT outside or on the contour.
- The contour has to be closed.
- The **first contour** must be concave – this means no internal angles $> 180^\circ$. The second contour can be concave or convex.
Swap the order of the contours if necessary.
- The first contour is used to define the position of the welds. To define the **position of a weld** draw a circle or any diameter on the **end point** of a line or arc where the weld is required. If you want a weld in the middle of a line you must split the line in the CAD so that the line is made up of 2 lines.



Using combi – contour


Click on the Expert module tab and double click the module combi-contour. Following screen is shown:



Explanation of the screen "Combi – contour", type of shape:



You can select the shape from this standard list, select a preloaded dxf shape in the white field marked "v11_out", "Load a

DXF" with the appropriate button or click on the  **CAD** icon to draw a new DXF shape:

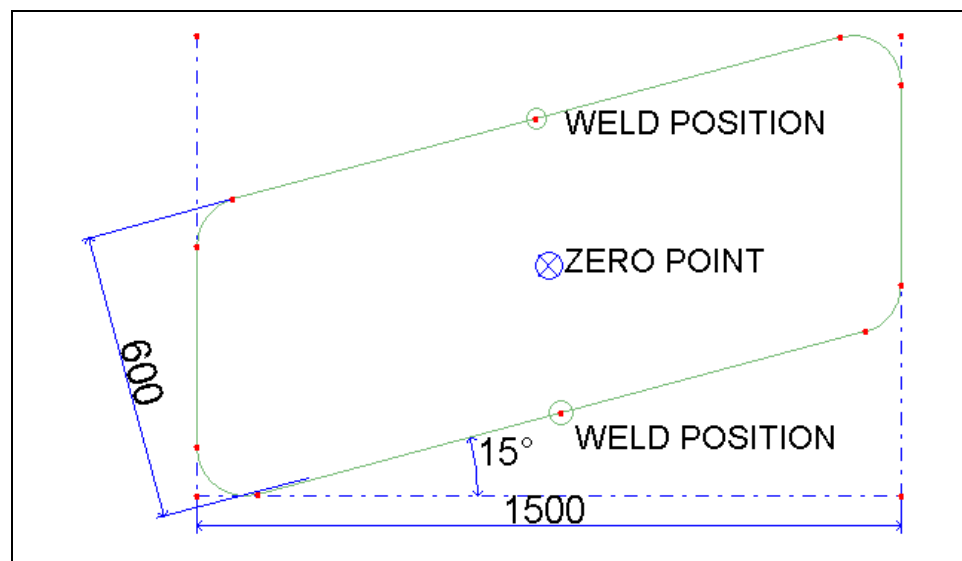
Load DXF

Click on this icon to import an already existing contour. This contour can be drawn with any CAD software. You only have to know the path to this contour.

Procedure:

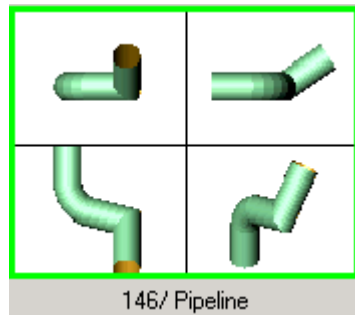
Click "**First contour**" to select the first shape.

Example: Draw the following shape in the CAD that you use:



Click "**Second contour**" to define the second contour. In this example select a circle with diameter 1000mm.

Module 146/ Pipeline



146/ Pipeline

Logitrace (Copyright DEMLOG Pascal Demarez) Version 12.306/04/2003

File Edit View Extras Windows Password to activate software ?

19/19

146/ Pipeline [C:\Logitrace_v12\v11.3d]

	X	Y	Z	A	Radius	Anzahl
1	0	0	-300	150	0	1
2	220	0	-300	150	120	2
3	-21.667	680	0	150	220	5
4	601.667	680	0	150	220	5
5	360	0	300	150	120	2
6	580	0	300	150	0	1

OK Use the <TAB> <Enter> key to move and delete

11_19.dxf Inner surface

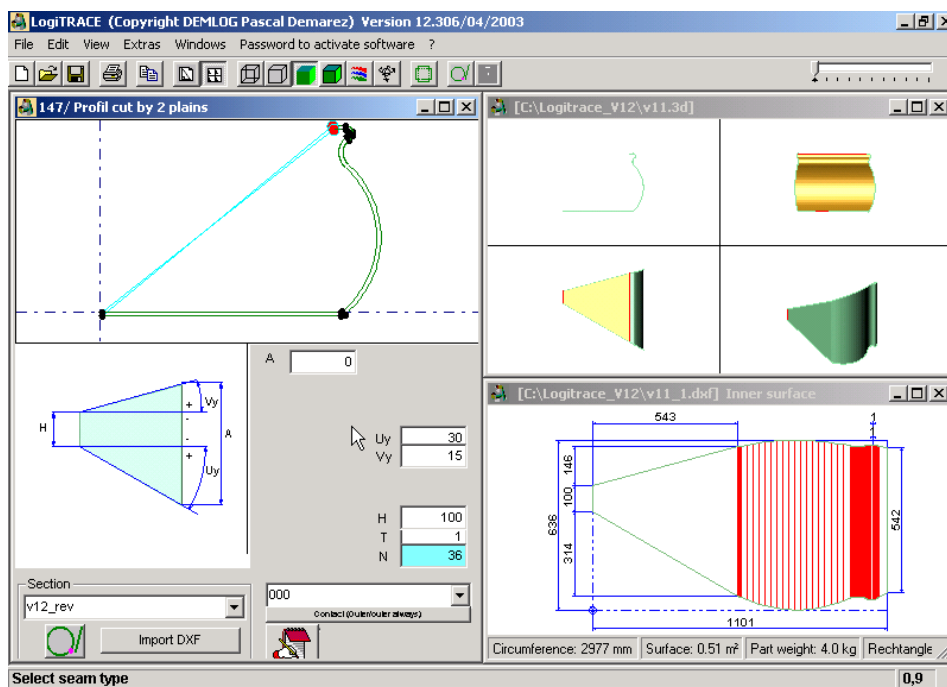
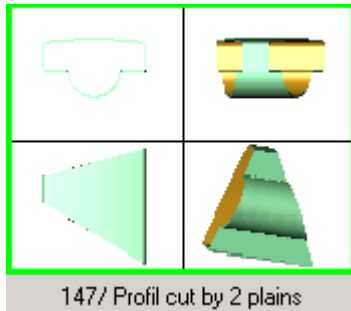
118 78 468

Circumference: 1104 mm Surface: 0.04 m² Part weight: 0.3 kg Rectangle

Enter sheet thickness

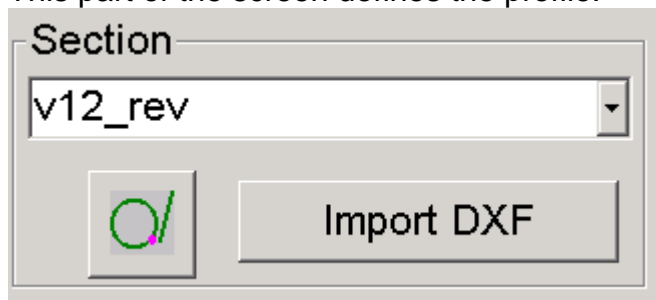
In this module complex pipelines can be created and unfolded very easily. For that click on “Pipes” and change the table where the different pipeline segments are defined. Enter the XYZ coordinates, then diameter and number of segments. Click on OK and then on “Calculate”.

Module 147/ Profile cut by 2 plains



Now you can import an existing DXF profile or click on the **CAD** icon to draw your profile and store it as a dxf file.

This part of the screen defines the profile:





If you click on this icon the defined CAD program starts and you can draw a profile and save it as a dxf file

Import DXF

Here it is possible to import an existing DXF file, created for example in AutoCAD, MegaCAD, etc.

IMPORTANT:

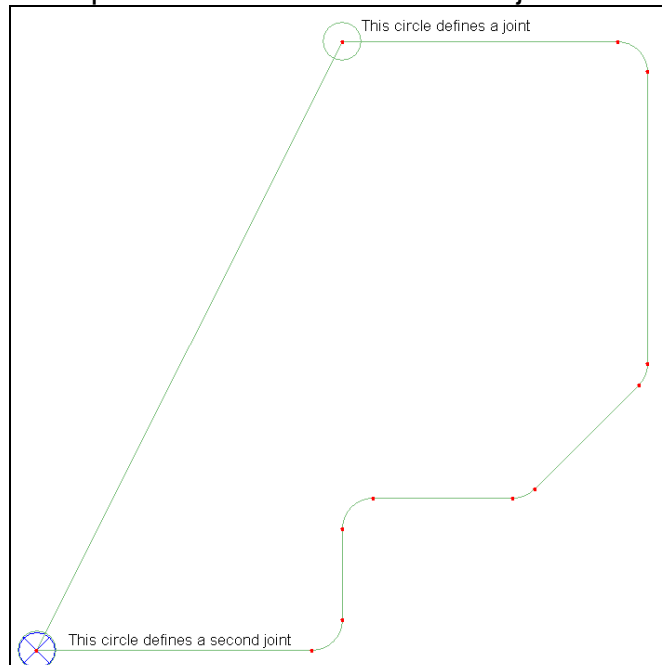
If you want to use the treatment of the sheet thickness, the contour should be closed.

If you use the **treatment of the sheet thickness** draw the profile with **outer dimensions**, and enter the thickness. We will automatically calculate using the neutral zone values and compensate for the thickness.

If you want to treat the thickness yourself we suggest drawing the profile with **inner dimensions** and entering thickness 0.

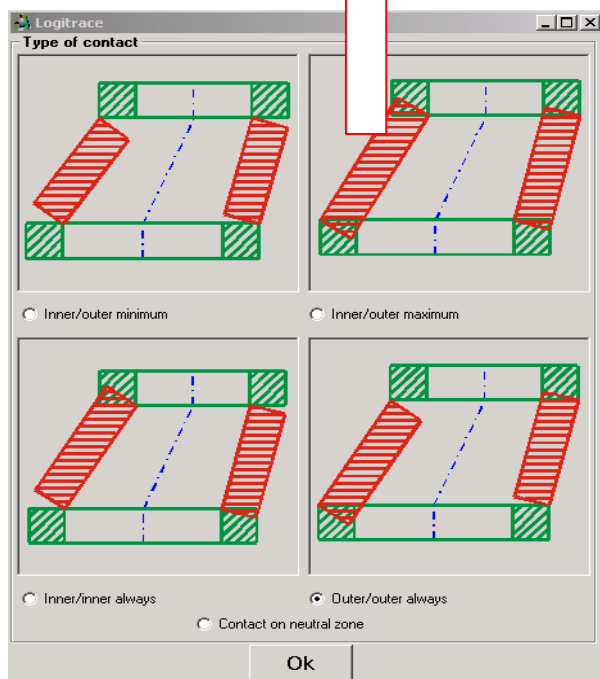
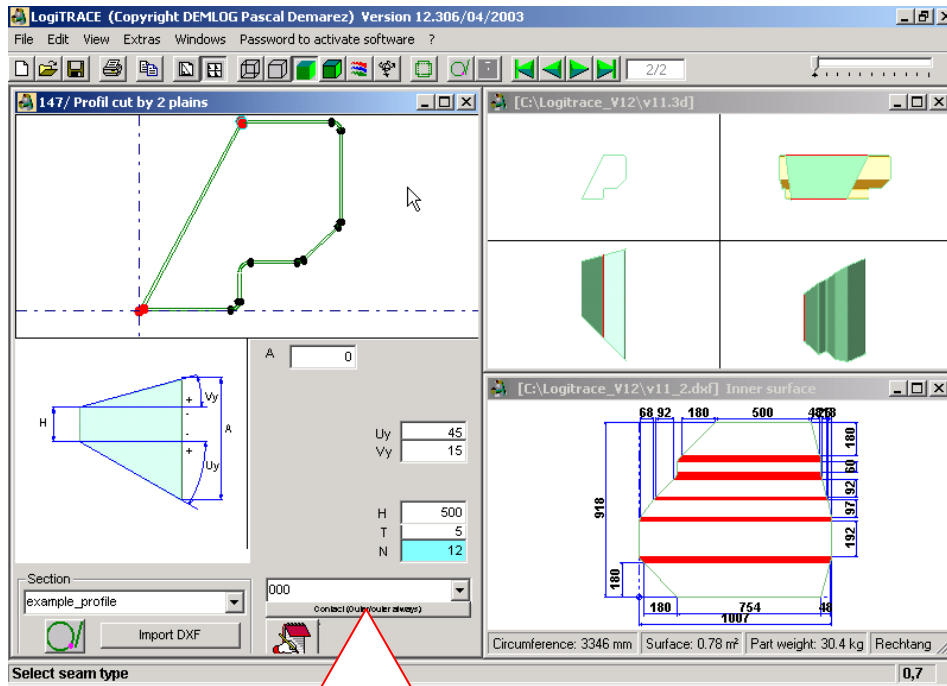
To define the position of the folds draw a circle with any size on an end point of a line or an arc. Folds can only be set on an end point of a line or arc and not on the centre point.

Example of a closed contour with 2 joints:



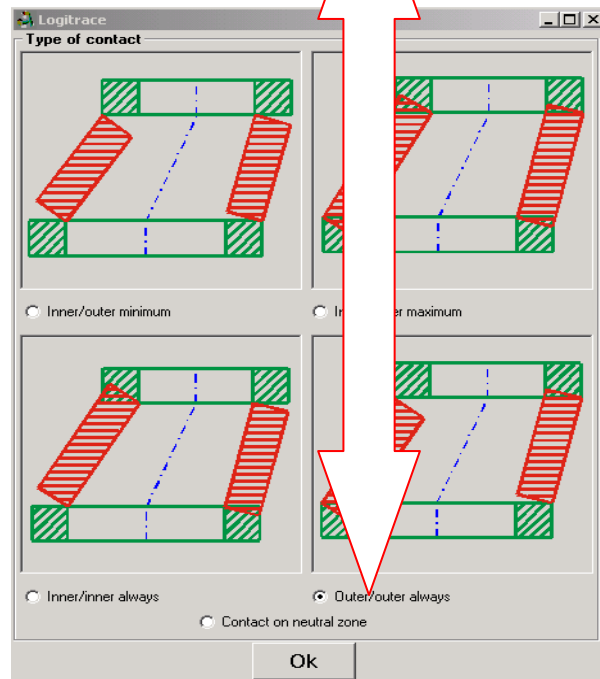
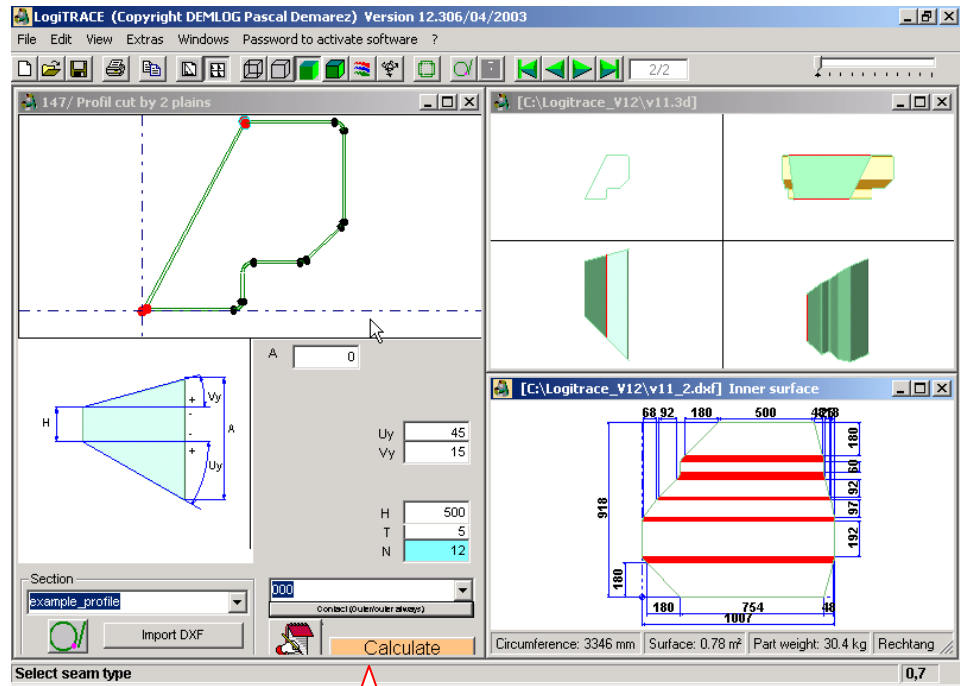
IMPORTANT:

You have to adjust the contact on neutral zone accordingly.
See below



Using open contours you should probably set "contact on neutral zone".

Example of an open contour (sometimes closed automatically by LogiTRACE):



Technical Support

Send us your problem via email

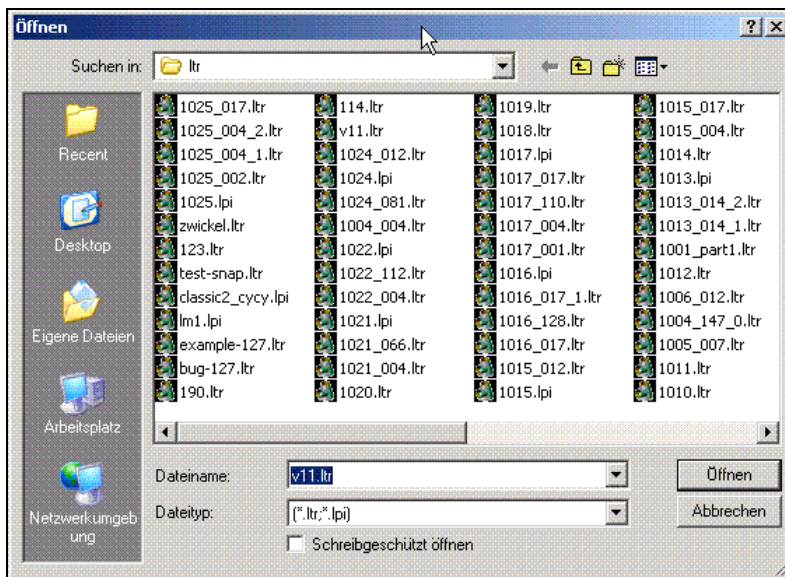
In rare cases LogiTRACE, like all other software, leads to crashes or wrong calculations.

In this case, it is advisable to send us an exact error description and the connected files.

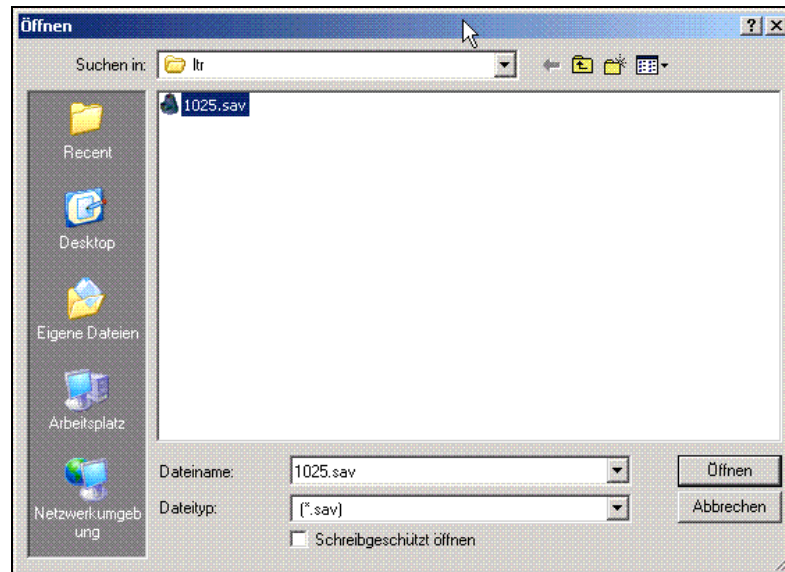
LogiTRACE offers a very good function to make this work easier.

Go to "**FILE**", "**Backup files for email**".

The following window appears:



Choose the file which caused the error and you want so save.
Then click on "open".



Adjust filename and path and click on “open” to save.

The created file ends with **.SAV** and can be zipped and send via Email. All information which are necessary for the debugging are included.

Please compress the .SAV files (for example with WinZip), before sending them to us. Send the files to your distributor or directly to info@tolsoftware.com

FAQ's – frequently asked questions

My Computer is too slow

LogiTRACE is a 3D CAM program that does a lot of number crunching. If possible you should use LogiTRACE on as good a PC as possible. Here are a few tips as to how to get LogiTRACE running best on slower machines:

Number of segments

The modules "rotated profiles" and other modules where the parts are formed from rotated segments need not always make a part with 360°. Often a small number of segments and a small angle is sufficient to create a 3D file for intersection purposes.

In modules with a display button you should use this button before you click on calculate to make sure the part is okay.

Number of construction lines of folds

When trying things out the first try can be done with a small number of folds. When the final calculation is to be made then change to the appropriate values.

Close other programs

Keep a minimum of programs running when using LogiTRACE so that LogiTRACE can use as much memory as possible.

Minimal hardware configuration

LogiTRACE version 12 runs on the following hardware configuration:

- WINDOWS 95, WIN 98/ME, WINDOWS NT, WINDOWS 2000 and XP
- at least 64 MB RAM, we recommend 256 MB
- 100 MB free hard disk memory
- You need at least Pentium III 350 MHz, with patience the software runs on a Pentium II 200MHz.

Changing size of paper , printer or plotter under Windows NT

Under Windows NT changes of the size of paper, printer or plotter in the software are not done properly and can only be done this way:

Quit program

Choose the preferred printer as standard printer

Choose the preferred size of paper

Start program

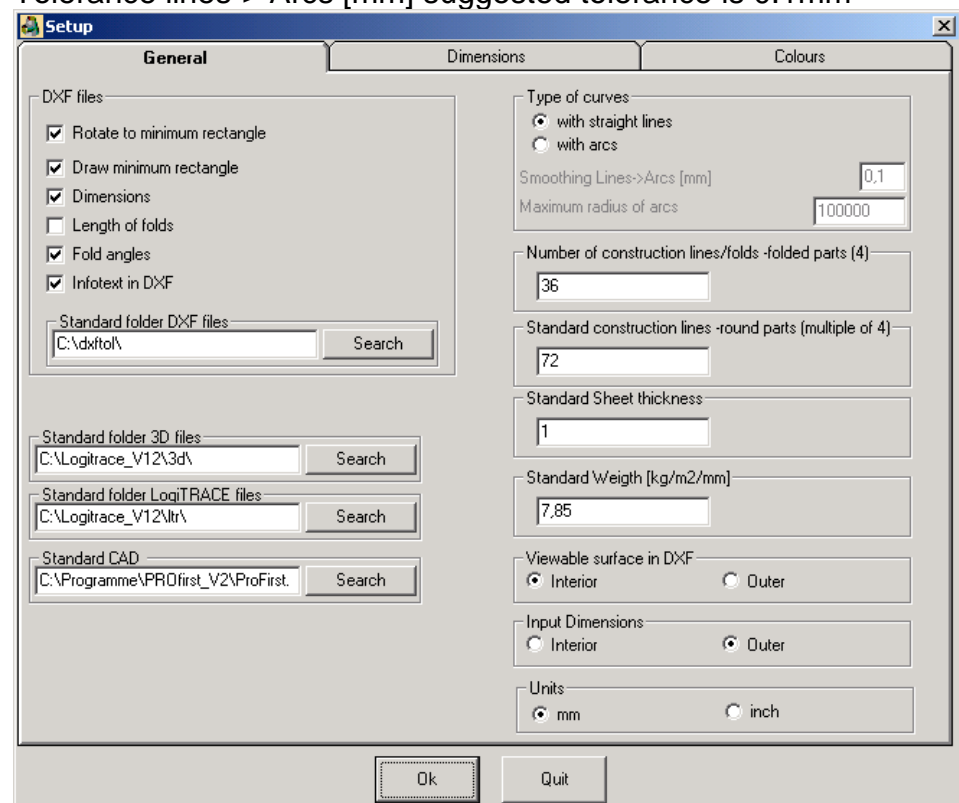
Conversion of lines to curves

In most cases a development comprises of complex curves. These curves consist of lots of straight lines which make up the curves. In CNC technology it is a great advantage to be able to reduce the amount of data by converting the large number of lines into as few curves as possible. This reduces the data that needs to be processed, nested, transmitted, stored, etc. on CNC machines. The calculation of the kerf or cutting diameter compensation is also easier with a reduced amount of data.

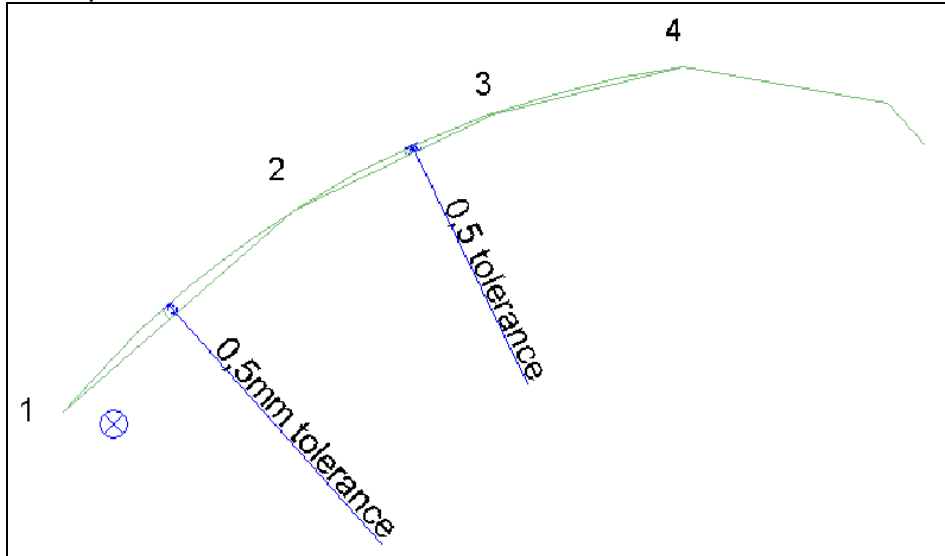
LogiTRACE has an advanced option which reduces the large number of lines to a minimum of curves within a specifiable accuracy tolerance.

Set the option in "EXTRAS", "OPTIONS": Type of curves to "with arcs".

Tolerance lines-> Arcs [mm] suggested tolerance is 0.1mm



Example: tolerance set to 0.5 mm



LogiTRACE calculates the curve that passes through points 1 to 3. When it sees that the tolerance of 0.5mm is exceeded with a single arc between points 1, 2, 3 and 4 it stops the arc at point 3 and starts the calculation from point 3 onwards.

Another important setting in the menu "Extras", "Options" is:



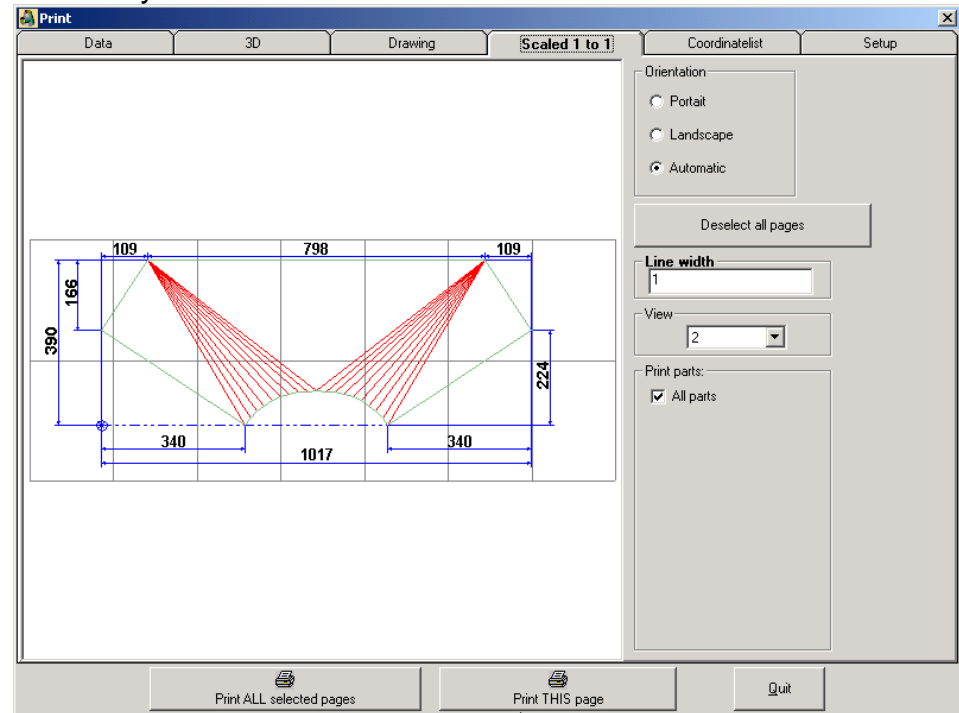
The maximum allowed radius depends on your CNC control, but we suggest a standard value of 100 000 mm

Maximum radius of arcs means that if an arc should be generated with a radius larger than that which is set and corresponds to the maximum value of the radius that your CNC control accepts. Then no conversion is carried out.

Marking out a part manually scaled 1 to 1 printouts from LogiTRACE

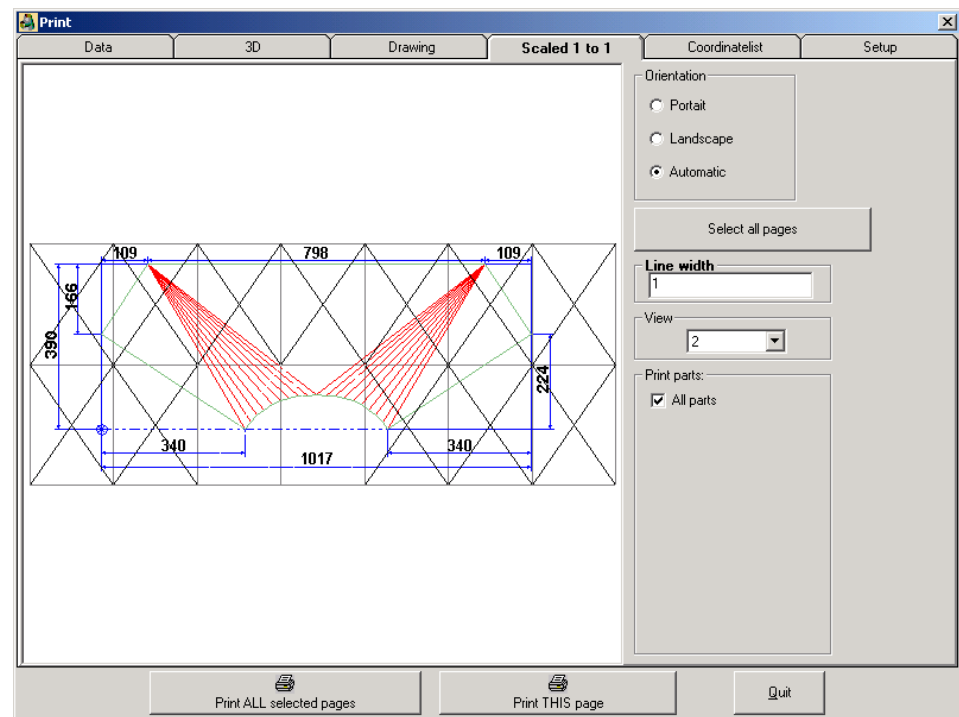
Example: rectangle / round

Choose "FILE", "PRINT" in the menu. The following screen is shown if you then wait and click on scaled 1 to 1:



Click on the icon to the left : "Deselect all pages"

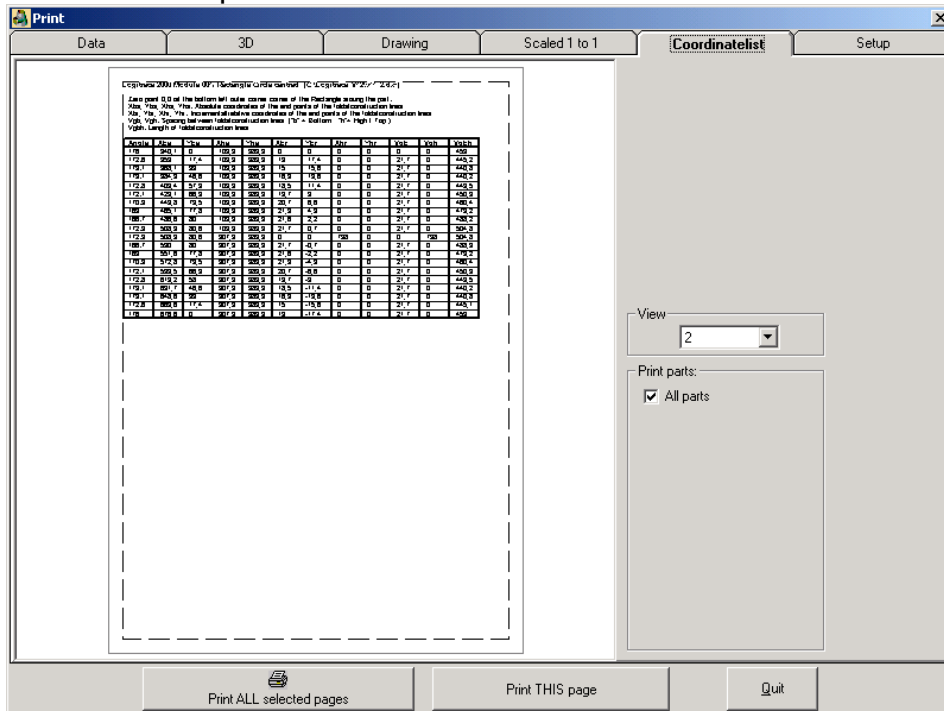
An X on the page means that the page has been DESELECTED and will not be printed.



In our example only 2 pages will be printed. The 2 pages contain the important part of the curve scaled 1 to 1. They can be laid out on the sheet and punched though to mark the complex curve. The other parts of the curve can be quickly measured out.

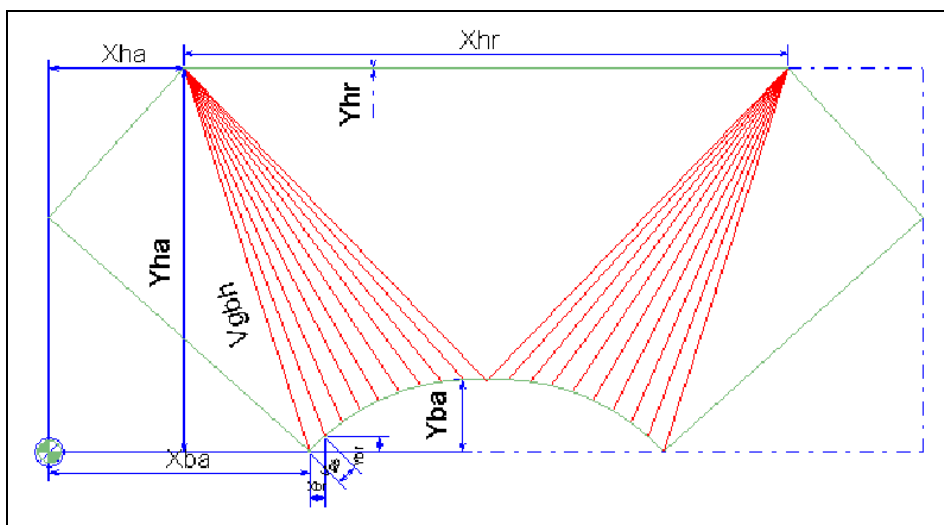
Coordinate list

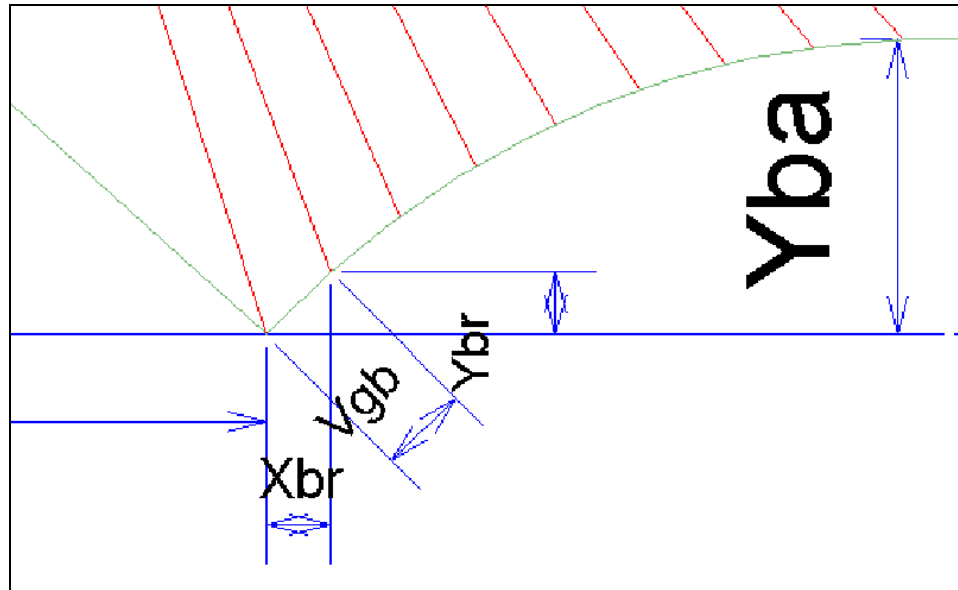
LogiTRACE can also print out a list of the important coordinates on a part. The coordinates are the end points of the marking lines or folds on the part.



You can select which list of coordinates should be printed.

Explanation to the coordinate list
 Example: 001/ Rectangle Circle centred





The zero point or origin 0,0 is the bottom left corner of the rectangle around the part.

Xba, Yba, Xha, Yha: Absolute coordinates measured each from the original. They are the end points of the construction lines or folds ($Xba = \text{bottom}(b)$ / $Xha = \text{top high}(h)$).

Winke	Xba	Yba	Xha	Yha	Xbr	Ybr	Xhr	Yhr	Vgb	Vgh	vgbh
175,1	257,4	0	133,5	380,4	0	0	0	0	0	0	400,1
171,1	272,7	15,4	133,5	380,4	15,3	15,4	0	0	21,7	0	390,6
171,8	289,4	29,3	133,5	380,4	16,7	13,8	0	0	21,7	0	384,2
172,1	307,4	41,3	133,5	380,4	18,1	12	0	0	21,7	0	381,1
172	326,7	51,3	133,5	380,4	19,2	10	0	0	21,7	0	381,6
171,6	346,9	59,2	133,5	380,4	20,2	7,9	0	0	21,7	0	385,6
170,9	367,8	65	133,5	380,4	20,9	5,8	0	0	21,7	0	392,9
169,7	389,2	68,8	133,5	380,4	21,4	3,8	0	0	21,7	0	403,1
168,2	410,8	70,8	133,5	380,4	21,6	2	0	0	21,7	0	415,7
173,4	432,5	71,3	133,5	380,4	21,7	0,5	0	0	21,7	0	430,1
173,4	432,5	71,3	731,5	380,4	0	0	598	0	0	598	430,1
168,2	454,2	70,8	731,5	380,4	21,7	-0,5	0	0	21,7	0	415,7
169,7	475,8	68,8	731,5	380,4	21,6	-2	0	0	21,7	0	403,1
170,9	497,2	65	731,5	380,4	21,4	-3,8	0	0	21,7	0	392,9
171,6	518,1	59,2	731,5	380,4	20,9	-5,8	0	0	21,7	0	385,6
172	538,3	51,3	731,5	380,4	20,2	-7,9	0	0	21,7	0	381,6
172,1	557,5	41,3	731,5	380,4	19,2	-10	0	0	21,7	0	381,1
171,8	575,6	29,3	731,5	380,4	18,1	-12	0	0	21,7	0	384,2
171,1	592,3	15,4	731,5	380,4	16,7	-13,8	0	0	21,7	0	390,6
175,1	607,6	0	731,5	380,4	15,3	-15,4	0	0	21,7	0	400,1

Xbr, Ybr, Xhr, Yhr: Relative coordinates

Winkel	Xba	Yba	Xha	Yha	Xbr	Ybr	Xhr	Yhr	Vgb	Vgh	vgbh
175,1	257,4	0	133,5	380,4	0	0	0	0	0	0	400,1
171,1	272,7	15,4	133,5	380,4	15,3	15,4	0	0	21,7	0	390,6
171,8	289,4	29,3	133,5	380,4	16,7	13,8	0	0	21,7	0	384,2
172,1	307,4	41,3	133,5	380,4	18,1	12	0	0	21,7	0	381,1
172	326,7	51,3	133,5	380,4	19,2	10	0	0	21,7	0	381,6
171,6	346,9	59,2	133,5	380,4	20,2	7,9	0	0	21,7	0	385,6
170,9	367,8	65	133,5	380,4	20,9	5,8	0	0	21,7	0	392,9
169,7	389,2	68,8	133,5	380,4	21,4	3,8	0	0	21,7	0	403,1
168,2	410,8	70,8	133,5	380,4	21,6	2	0	0	21,7	0	415,7
173,4	432,5	71,3	133,5	380,4	21,7	0,5	0	0	21,7	0	430,1
173,4	432,5	71,3	731,5	380,4	0	0	598	0	0	598	430,1
168,2	454,2	70,8	731,5	380,4	21,7	-0,5	0	0	21,7	0	415,7
169,7	475,8	68,8	731,5	380,4	21,6	-2	0	0	21,7	0	403,1
170,9	497,2	65	731,5	380,4	21,4	-3,8	0	0	21,7	0	392,9
171,6	518,1	59,2	731,5	380,4	20,9	-5,8	0	0	21,7	0	385,6
172	538,3	51,3	731,5	380,4	20,2	-7,9	0	0	21,7	0	381,6
172,1	557,5	41,3	731,5	380,4	19,2	-10	0	0	21,7	0	381,1
171,8	575,6	29,3	731,5	380,4	18,1	-12	0	0	21,7	0	384,2
171,1	592,3	15,4	731,5	380,4	16,7	-13,8	0	0	21,7	0	390,6
175,1	607,6	0	731,5	380,4	15,3	-15,4	0	0	21,7	0	400,1

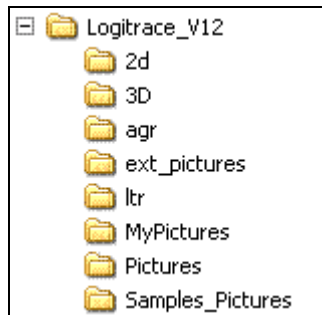
Vgb, Vgh: Spacing between the folds
Vgbh: Length of the folds

Winkel	Xba	Yba	Xha	Yha	Xbr	Ybr	Xhr	Yhr	Vgb	Vgh	vgbh
175,1	257,4	0	133,5	380,4	0	0	0	0	0	0	400,1
171,1	272,7	15,4	133,5	380,4	15,3	15,4	0	0	21,7	0	390,6
171,8	289,4	29,3	133,5	380,4	16,7	13,8	0	0	21,7	0	384,2
172,1	307,4	41,3	133,5	380,4	18,1	12	0	0	21,7	0	381,1
172	326,7	51,3	133,5	380,4	19,2	10	0	0	21,7	0	381,6
171,6	346,9	59,2	133,5	380,4	20,2	7,9	0	0	21,7	0	385,6
170,9	367,8	65	133,5	380,4	20,9	5,8	0	0	21,7	0	392,9
169,7	389,2	68,8	133,5	380,4	21,4	3,8	0	0	21,7	0	403,1
168,2	410,8	70,8	133,5	380,4	21,6	2	0	0	21,7	0	415,7
173,4	432,5	71,3	133,5	380,4	21,7	0,5	0	0	21,7	0	430,1
173,4	432,5	71,3	731,5	380,4	0	0	598	0	0	598	430,1
168,2	454,2	70,8	731,5	380,4	21,7	-0,5	0	0	21,7	0	415,7
169,7	475,8	68,8	731,5	380,4	21,6	-2	0	0	21,7	0	403,1
170,9	497,2	65	731,5	380,4	21,4	-3,8	0	0	21,7	0	392,9
171,6	518,1	59,2	731,5	380,4	20,9	-5,8	0	0	21,7	0	385,6
172	538,3	51,3	731,5	380,4	20,2	-7,9	0	0	21,7	0	381,6
172,1	557,5	41,3	731,5	380,4	19,2	-10	0	0	21,7	0	381,1
171,8	575,6	29,3	731,5	380,4	18,1	-12	0	0	21,7	0	384,2
171,1	592,3	15,4	731,5	380,4	16,7	-13,8	0	0	21,7	0	390,6
175,1	607,6	0	731,5	380,4	15,3	-15,4	0	0	21,7	0	400,1

Where are all the files stored?

Folder and path settings

The folder and path settings can be set in the menu under "EXTRAS", "OPTIONS".



LogiTRACE uses the following types of files:

The **data entry file LTR**

A	700	Tx	-100
B	400	Ty	50
C	250	Ux	0
		Vx	0
		Uy	0
		Vy	0
		Uz	0
		Vz	0
		H	300
		T	2
		N	32
		000	

is stored in DXF-folder *.LTR”.

*.**LTR** Files contain the data entry values of all modules, except for module combi-figure.

These are usually stored in the output DXF-folder **LTR** .

IMPORTANT:

Do not change the folder for these files when storing the file, otherwise features of combi-figure will not work later.

The development of the parts are automatically stored in DXF format when the LTR file is stored

*.**DXF** are dxf files containing the drawing of the development. This file can be read into almost any CAD program. We use the standard set by AutoCAD. The files can then be further processed for cutting on CNC machines. The standard folder for these files is **C:\DXFTOL**.

*.**LPI** files contain the input data for the module combi-figure and are stored with the LTR files together in the folder

*.**3D** are 3D view of the parts.

These files are stored in the folder **\3D**

Some of these files can be read into combi-figure to create new more complicated parts with penetrations.

**Do not delete the following two files from this folder:
CONEOB.3D, CYL300.3D**

*.**REV** are converted DXF files that are used by the module rotation profile. These files are stored in the folder **2D** .

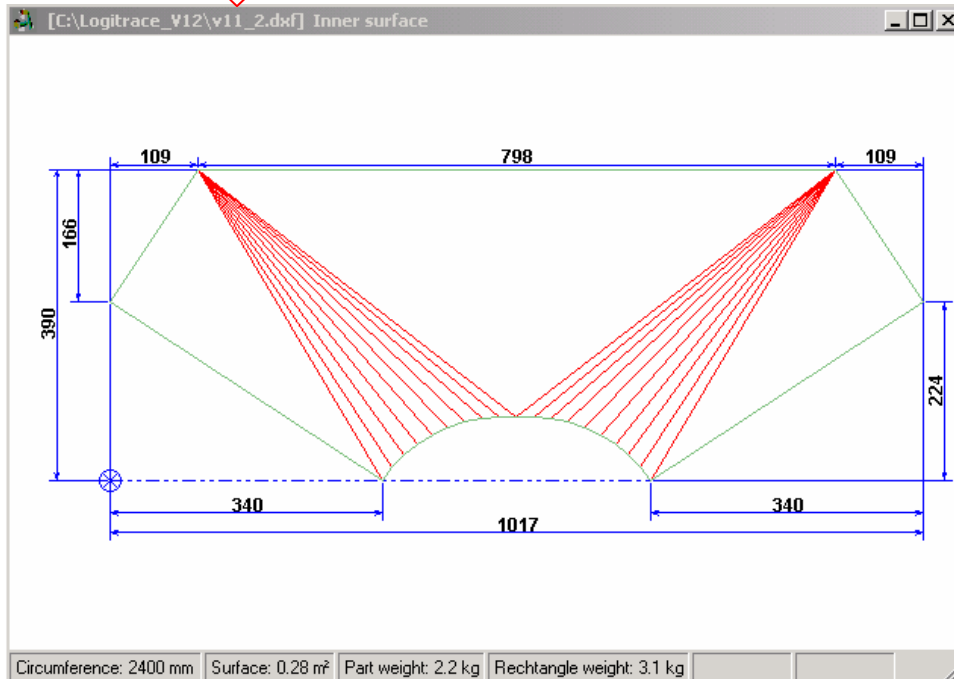
*.**AGR** files are the setup files for the seams or folds.

The user can store these files with user defined names in the folder **\ AGR**

IMPORTANT:

Saving DXF files

If you have calculated a development LogiTRACE creates automatically DXF files of this development. This file is saved temporary in the folder ...\\Logitrace_v12 with the name LT_Modul_x.DXF.



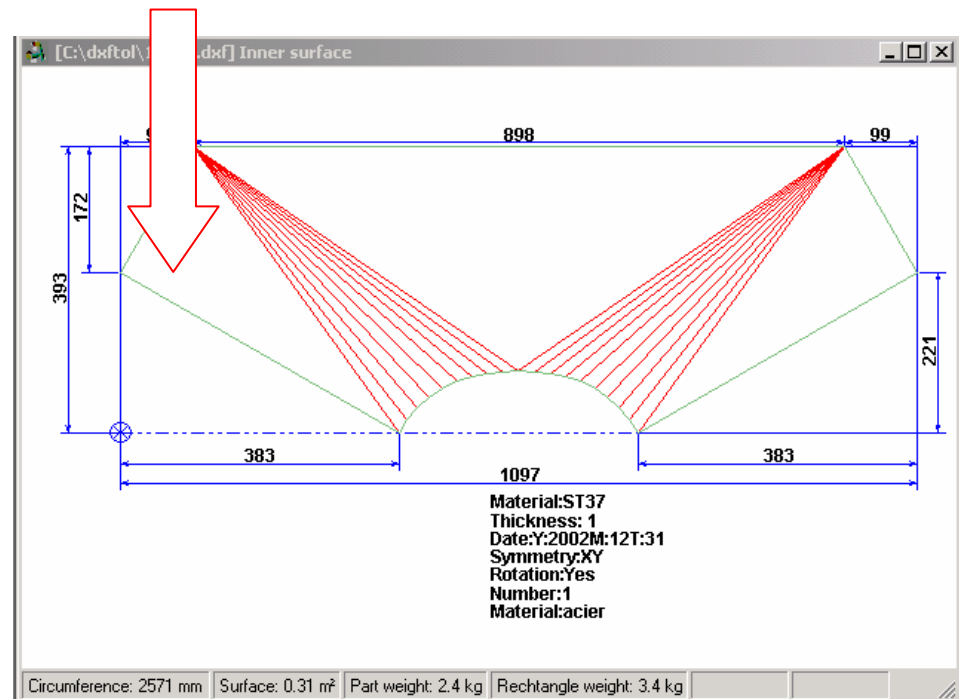
If you now change the development and calculate it, the file.DXF will be automatically overwritten.

You can enter a path in the menu under “EXTRAS”, “OPTIONS” where the final dxf files should be saved, for example C:\\DXFTOL. This folder is created automatically with the installation of LogiTRACE. If you want you can enter you preferred path here.

After the development has been calculated and you want to save it under a specific name, you have to click on “file”, “save” in the menu. Now you are asked to enter a name for the file, which you enter and click on save.

Now you save a file as LTR type with the given name. LogiTRACE creates automatically a DXF file with this name in the folder you chose under extras, options.

Name of file and path are now shown in the window of the development.



In this case the name of the file was "123".

LogiTRACE saved the following files:

C:\Dxftol\123.LTR = data entry value for this module

C:\Dxftol\123.3D = 3D file (3D part)

C:\Dxftol\123_1.DXF = 1. development in DXF

C:\Dxftol\123_2.DXF = 2. development in DXF

Direct call up of AutoCAD, MegaCAD and PROfirst

The drawing program PROfirst **CAN** be installed with LogiTRACE if purchased. We can setup LogiTRACE to work automatically with other CAD/CAM programs such as AutoCAD, MegaCAD, etc.

The following steps are necessary:

In "EXTRAS", "OPTIONS", "Standard CAD " can be set to:

For AUTOCAD:

C:\Programme\<Autocad folder>\ACAD.EXE

For MegaCAD:

\LogiTRACE_V12\LOGIMCADDLL.BAT

This batch file is supplied but may need to be modified for your specific installation of MegaCAD.

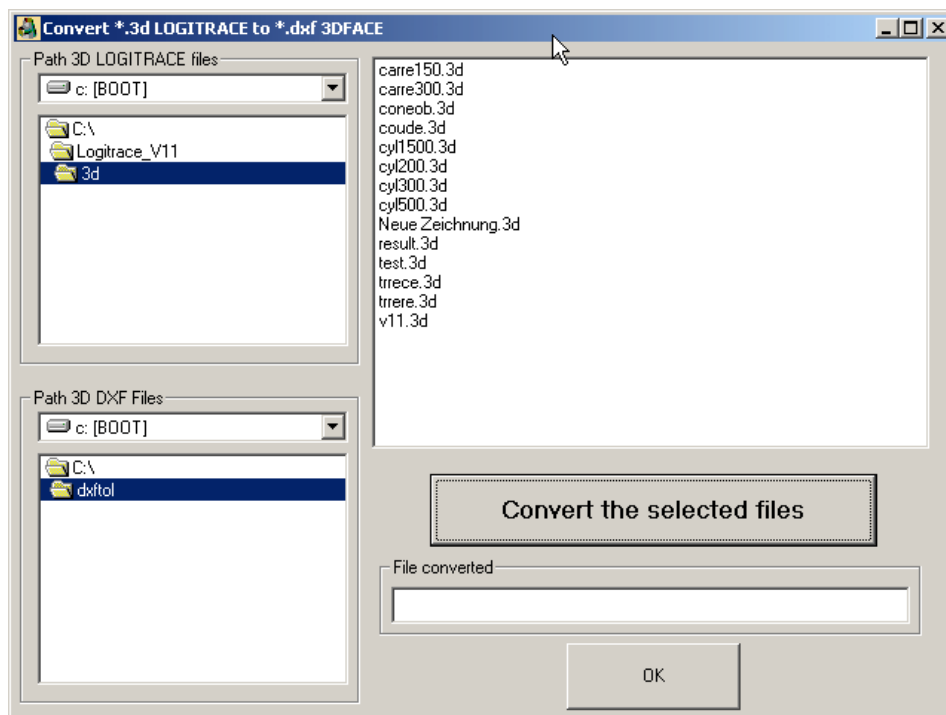
In one line

```
c:\programme\MegaCAD_unfoldSF_2007\ntmega3d.EXE -EXEC:"LoadDll (space)
```

```
c:\programme\MegaCAD_unfoldSF_2007\convert\dwgdxfl.dll /ReadAsPrt \"% 1%2%3 \\"
```

3D-DXF Output

All modules in LogiTRACE generate a 3D file that can be displayed and sometimes developed by LogiTRACE. The files can also be converted into 3D-DXF format to be read into other CAD programs like AUTOCAD MEGACAD or PROfirst. Choose **"File"**, **"Export"** in the menu and you get the following screen:



Now you can choose the files which should be converted and then click on **"Convert the selected files"**

IMPORTANT: Existing files will be automatically overwritten



Common mistakes made by users

Entering crazy dimensions

When crazy dimensions that are not mathematically possible are entered it is easy to get the system to crash. Try to think about the dimensions you are entering.

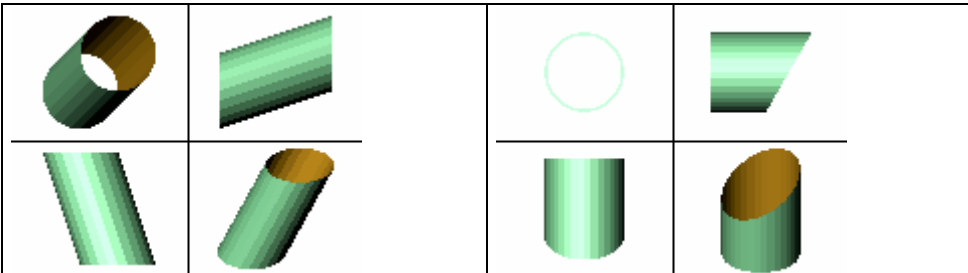
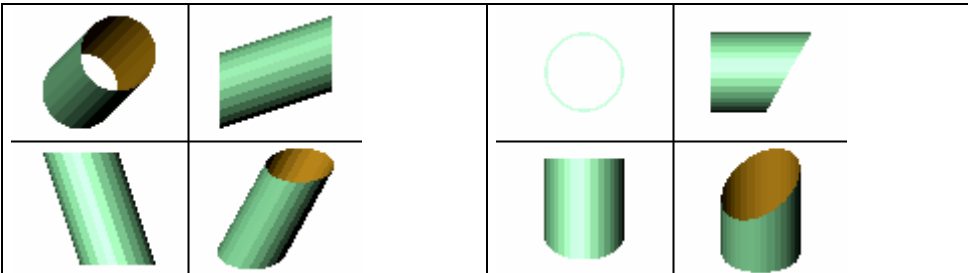
3D view disappears

In the module combi-figure sometimes the 3D display disappears.

Click on the icons  4 views or  1 view to reset the display.

Pipe at an angle Module 005

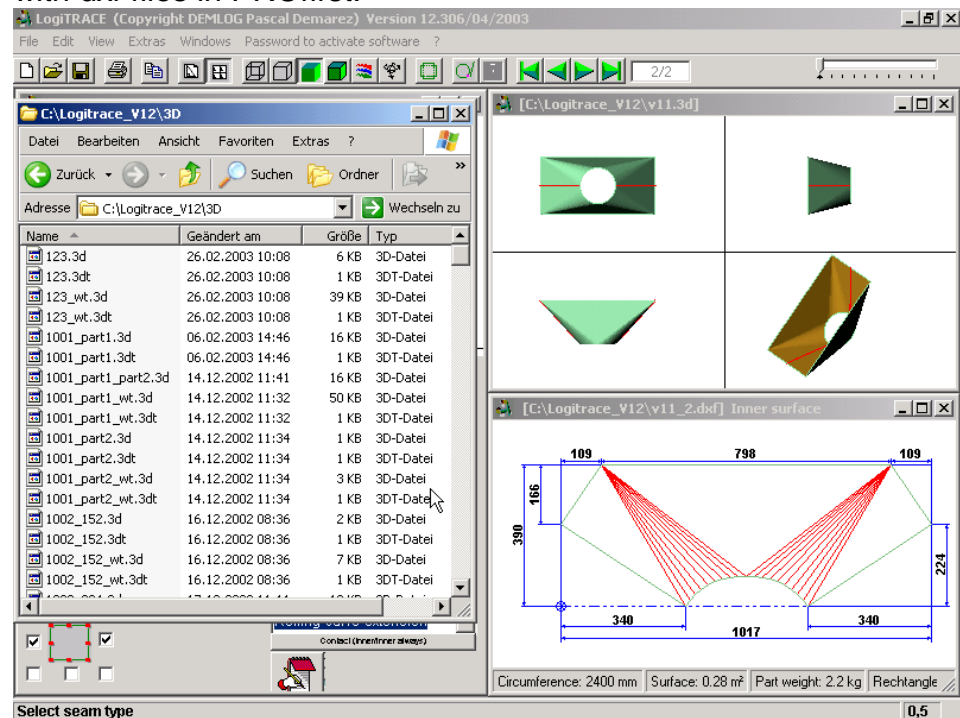
Do not use the module 005 to make a pipe with a surface at an angle. Use the modules 081 or 082.

	
005: Circle Circle	081: Pipe cut by surface
Do not use Output is a circle	GOOD Output is ELLIPSE Pipe remains circular

Using „Drag and Drop“ to display 3D files

LogiTRACE allows you to display 3D files with drag and drop from the windows explorer. Your screen could look as shown below.

Drag 3D files from the **3D** and move the mouse in the 3D window of LogiTRACE. You will then see the parts. This is also possible with dxf files in PROfirst.



Starting the module with the module number

In the main screen from LogiTRACE you can enter the module number to select a module quickly:



It is possible to enter the module number and then confirm with the "ENTER" button.

Each module of LogiTRACE has an own module number which you can see under the icons of the modules.

What are my favourites?

You can select the modules that you usually use and copy them into the favourites. Then you can start the modules from the favourites instead of hunting for them each time in the large list of available parts. To put a part in the favourites hold the <Ctrl> key and left click the module.

Problems with activation under WIN NT / WIN 2000?

You need administrator rights in Registry

Problem: Software is activated with administrator rights, but the user isn't activated nevertheless.

Solution:

Click on "Start", "Command" and enter "Regedit":

Go to the path „HKEY_CURRENT_USER\SOFTWARE\VB and VBA Program Settings\LogiTRACE”

Delete all LogiTRACE keys.

Then give full rights (read, write, delete) for everybody for the following key:

HKEY_CURRENT_USER\SOFTWARE\VB and VBA Program Settings

For NT „Start”, „Command“, „REGEDT32“, rights
 For W2000/XP “Start”, „Command“, „REGEDIT“, edit, rights

Error message with entry fields in modules 127,134,146

Problem: The file "MSCOMCT2.OCX" is missing