

Register

The program "TolPro" provides you with opportunities for calculation and evaluation of tolerances for injection molding in the plastics industry. This applies for components up to a length of 250 mm.

Startup, demo mode, registration	2
Buttons, symbols and functions	4
Tolerances / definition	8
program interface	9
- Network capability / settings of a central project directory (server)	9
- Display of active project / standard project	11
- Standard project	11
- Features and buttons for project management	12
- Calculate/save new values / material selection	13
- Calculate/save new values / input	14
- Save values / input	16
- Change/edit values	16
- Delete values	17
- Filter values	17
- Print values	18
Online-Update	19
System requirements	20
Contact	21

Startup, demo mode and Registration

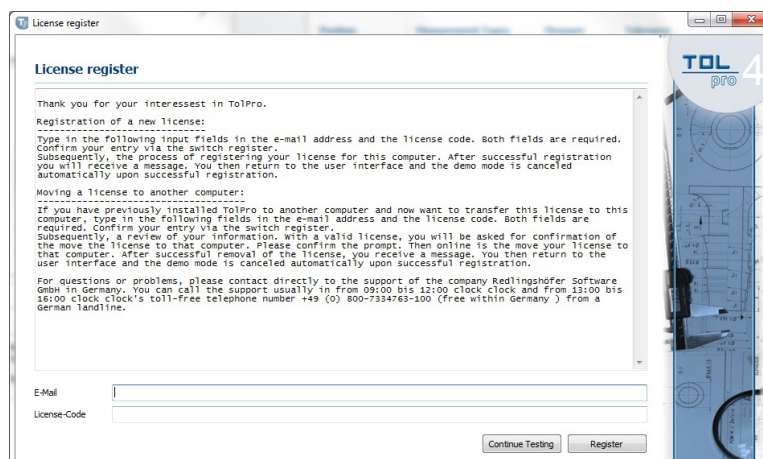
The program TolPro is provided to you for download in the most current version on website <http://www.tol-pro.com>

You are available to install this program on your computer. During installation, please follow the relevant instructions.

program start

Start TolPro from the Windows Start menu. As long as you have not registered for the TolPro license, this program will automatically start in a so called demo-mode.

The window for license registration will be shown to you at the start of the demo program, providing, you possess an active internet connection.



If you wish to evaluate TolPro, close the window via "further test" or the ESC key.

Demo-mode

In Demo-mode TolPro does not provide all functions. However, you can test and calculate partial data / readings, and record up to 4 values into the standard project.

License registration

Insure active internet connection.

For license registration please fill in the necessary data into the „email“ and „license code“ fields.

Confirm your data via "register"-key.

An online license check will follow.

After approval and successful registration, you will return to the main interface. The demo-mode will be reset to an active mode.

Transfer of license to a different computer (move)

Insure active internet connection.

If you wish to transfer an already existing license from another computer to this one, please still enter the necessary registration data.

Confirm your data via „register“ key.

After this, a survey and transfer of registration data to this computer will take place.

Buttons, symbols and functions

Symbol **Description (Project)**



Open TolPro project

(In the next dialog function, please select the desired TolPro project file).



Create a new TolPro project

(In the next dialog function, please enter the file name and a description of the new TolPro project).



Open/change project characteristics of a TolPro project

(In the next dialog function you may open or change characteristics of a TolPro project such as project name, project descriptions)

Note: The default/standard project can not be changed in its characteristics.









Delete TolPro project






(for doing so, the TolPro project must be open. By confirming to delete, the project is erased from the project folder)



Close TolPro project

(with this button you can close a previously opened TolPro project)

Symbol	Description (Project)
	<p>Reset tolerance values (this button resets the enter box for tolerance values to the initial state)</p>
	<p>Acquisition of selected material (with this dialog function you may apply tolerances and selected material into the enter box for further calculation) Note: For acquisition of material data, the area „ material selection“ has to be activated.</p>
	<p>Change selection of tolerances and / or material (with this button you may return to the selection area of material or tolerances) Note: To return to the selection area, the enter box must be activated</p>
	<p>Transfer of data into the project (With "Enter" you accept the calculated tolerances into the activated (open) project. With mode "Edit / Modify" you accept the changed data into the project.) Note: The acquisition of data into the project requires precalculation of the data.</p>
	<p>Discharge of data input/modification of data (this dialog function cancels the edit or modification of existing tolerance data. You will return to material selection)</p>
	<p>Calculation of tolerance values (this dialog function calculates tolerance values according to entered parameters and material selection.) After calculation you may receive appropriate notification if necessary.</p>

Symbol	Description (Project)
	Enlargement of project spreadsheet (Project spreadsheet will be shown enlarged at the lower rim of the display, while space of material selection and input will be reduced)
	Reset to normal size of project spreadsheet (this dialog function reduces enlarged display of project spreadsheet back to normal size)
	Edit measurement readings (this dialog function shows measurement readings while calculated and enables data processing mode)
	Delete measurement readings (this dialog function deletes selected measurement readings from project data)
	Print measurement readings (this dialog function generates a PDF document of presented measurement readings and displays the project report of these measurement readings via PDF preview.) Herefrom the measurement report may be printed

Symbol	Description (Project)
--------	-----------------------



Mode „material data“

When pin icon appears in material section, please select the tolerance parameter and favored material.
In this mode function, other sectors, such as „Input“ or „project data“ are disabled for use.



Mode „input“ (new)

When pin icon appears in register „input“, please enter desired measurement- or tolerance values.
In this mode function, other sectors, such as „Input“ or „project data“ are disabled for use.
By using the dialog function „save“, your data will be newly included into the project.



Mode“ input / project data“ (edit)

When pin icon appears in register „input“ as well as in „project data“, you are presently working in the edit mode.
Your selected project data is therefore now available for editing in register „input“.
By using the dialog function „save“, your selected project data is updated.

Tolerances / Definition

DIN 16901

Since characteristics of plastics differ, a classification with similar tolerance indications for all plastics is not possible.

It also needs to be differentiated between standard and high precision injection molding.

With DIN 16901 all plastics are classified into different tolerance groups, indicated by series with digits from 110 – 160. DIN 16901 also determines magnitudes of production related deviations of form-related and not form-related mold dimensions.

Tolerances of Swiss Watch Industry (TSU)

TSU classifies all plastics into tolerance groups, indicated by series with digits from 1-4. For example series with digit 4 = highest precision, series with digit 3 = standard tolerances, series with digits 0 are equivalent to DIN 16901 series 130.

Not tool bound

(not shape/form-related dimensions) are proportions/dimensions, which are formed by flexible/moving tool components, such as grafters, other mold halves for thickness and ground measurements, and so forth.

Tool bound

(shape/form-related dimensions) are proportions/dimensions within the same mold half.

Warpage

A tendency to warp is expected, if:

- core or spool/grafter is not tempered well
- cooling rate of a form component in molding is unbalanced
- longitudinal and transverse are different (anisotropic material)
- ...

Insert parts

(bushings, rings, pins, ...) are parts of metallic or non-metallic materials, which are injection-moulded. An insert part has to be tolerated in such a way, that there is no spill/loss of melted plastic during injection molding process. This means, the tools have to fit properly on top of the inserts and seal tightly without ridge/edge.

Program interface

Network capability / settings of a central project directory (server)

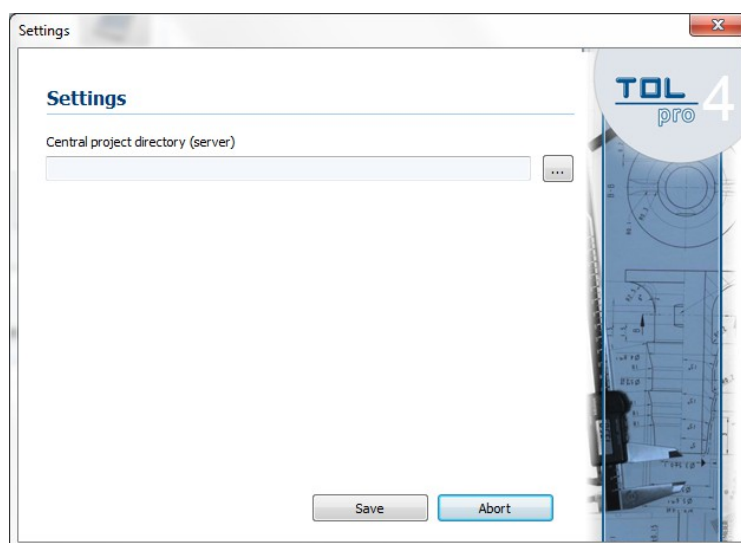
As of version 4.1, TolPro supports access to project data on a shared, central account, for example on the server. It is therefore possible, to file, open, edit and save project data on a central account, while several members of the staff are working with TolPro in a network. After first installation of TolPro, the project directory is applied under: ".C:\Users\Staff\Documents\TolPro\Projects".

In case you do not wish your project files to be filed centrally, no initial change of settings is necessary. Just continue working with TolPro as before. TolPro default automatically specifies this directory for opening and saving project data files.

If, however, you wish your project data files, worked on in a network, to be filed centrally, a configuration within TolPro is required.

Please change to „tools“ in the main menu and select the setting "Preferences."

In the following dialog function you may enter the central network directory as filing/storage area for your project data files.



Network capability / settings of a central project directory (server)

Select the filing directory for your project data on the server, via use of the button with the three dots.

Confirm your entry by clicking on the button „save“.

After installation of the central project directory, this directory will be automatically used in the future (by default) for creating and modifying project data files.

Note: *standard* projects are always originated from the *local* directory.

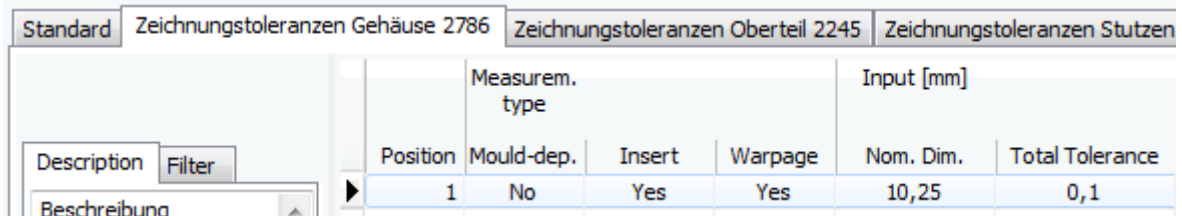
Display of the active project / standard project



The name of the currently selected project is displayed at the upper left of the screen, next to the title "project".

When working with multiple projects, several project data files are opened.

If you now click on a register below, which belongs to another project file than the currently selected one, the name of the activated project on the upper display will change.



Standard-Project

By launching TolPro, a so called standard project is created by default. This standard project is the first register of the project overview.

Note:

By using the licensed version of TolPro, you are able to create additional projects, which all may be opened at the same time.

Features and buttons for project management



Select this button to *open* an existing TolPro project.
In the next dialog function, select the desired TolPro project data file.
If you have already opened the project, this opened project will now turn into the active project.



To create a new TolPro project, please select this button.
In the next dialog function, you can enter a file name and a description for your TolPro project.
After being installed, this project will automatically be opened and used as the active project.
Note: the characteristics of the *standard* project can not be changed.



For *viewing and / or editing the characteristics* of a TolPro project, please select this button.
In the following dialog function, you may enter the new project name and project description. If you change the project name, the TolPro project data file will be automatically renamed.
Note: The characteristics of a *standard* project can not be changed.



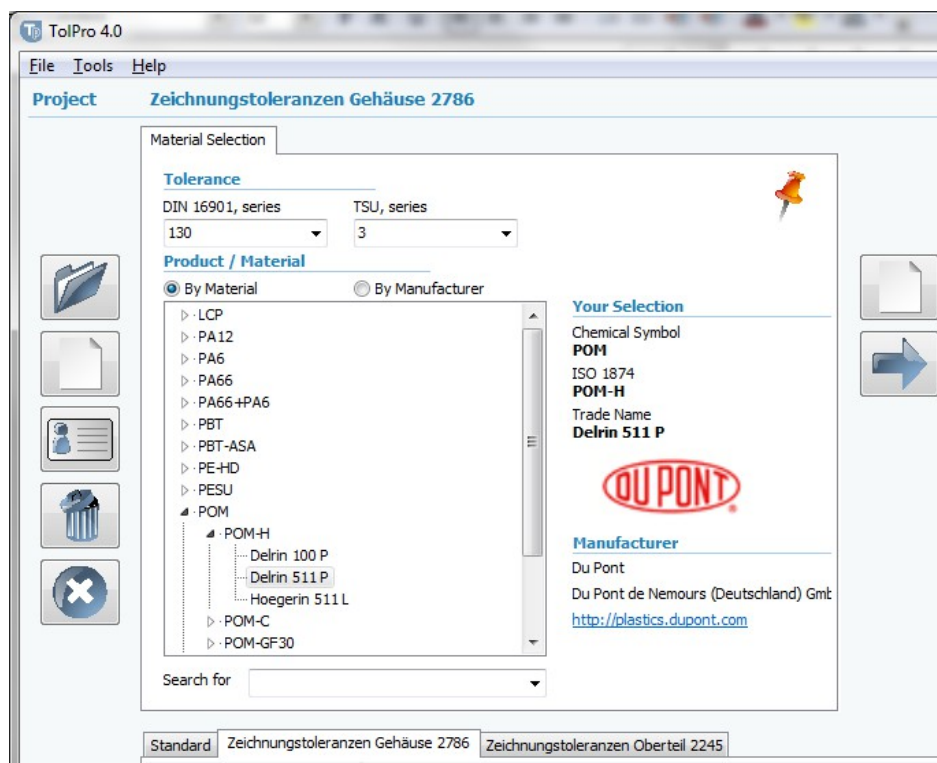
If you no longer need a TolPro project, you can *delete* it with this button.
For doing so, the project must be opened before.
After confirmation, the project will be deleted from the project folder.
Note: The *standard* project can not be deleted.



TolPro project close.
To close an open TolPro project, please use this button.

Calculate and save new values / material selection

First, select the project into you want to transfer the new measurements.
If necessary, you may then return to the enter mode "material selection" by using the "ESC"-key.



There, you primarily select the comparative tolerances DIN / TSU. Afterwards you mark the selected material in the material list. You may sort the material list according to material or manufacturer.

In case you do not find your favorite material immediately, you may type the complete or partial material name into the enter box "Search for".

Confirm your material search with „ENTER“ and select your desired material out of the results.



Accept your material selection with this button. The input mode will then switch to "input".

Calculate and save new values / input

After acceptance of the material, please enter the measurement values into the register "Input".

Under "Basics" in the upper register section, you will find a re-representation of your chosen material and tolerance measurements.

Input			
Basic Data		Material Data	DIN 16901, series TSU, series
		Delrin 511 P	130 3
Position		Measurement Types	Measure Tolerance
Item Number	<input type="checkbox"/> Mould-Dep. Dimension	Nominal Dimension	Total Tolerance
<input type="text" value="7"/>	<input checked="" type="checkbox"/> Insert	<input type="text" value="120"/> mm	<input type="text" value="0,36"/> mm
	<input checked="" type="checkbox"/> Warpage Tendency	CM-Value	
	<input type="checkbox"/> CM-value available	Acc. measur. rep.	<input type="text"/>
Tolerances			
DIN 16901	TSU	Minimum	Required Total Tolerance
<input type="text" value="0,82"/> mm	<input type="text" value="0,40"/> mm	<input type="text" value="0,26"/> mm	<input type="text" value=""/> mm
Bemerkung			
<input type="text"/>			

The item number is determined automatically, but can be adapted to your requirements.

Now please determine the parameters "tool bound", "insert part" and "warpage" which may affect the tolerance calculation/specification.

Now enter the nominal size up to 250 mm and the total tolerance in mm.

Optionally, you may enter your machine capability value into field "Cm-Value".



Now please calculate the input values to their tolerances.

If the tolerance values range outside of tolerable/allowable limits, you will receive relevant information messages displayed in red.

After performed calculation, the determined tolerance values are displayed:

Tolerances

Tolerance according to DIN 16901	0,48	mm
Tolerance according to TSU	0,20	mm
Minimum achievable tolerance	0,15	mm
Required Total Tolerance		mm

You may now decide whether you want to accept the measurement and tolerance values into the active project.



This button/switch applies and saves measurement and tolerance values, including active warnings into the active project.

Note:

The acceptance of data into the project requires a prior data calculation. After acceptance of measurement and tolerance values into the project, you automatically return to the edit mode "material selection".

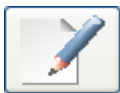
TolPro 4.2 Manual

Save values / input

By acceptance of the calculated measurement and tolerance values, these values are copied and filed into the active project.

Position	Measur. type			Input [mm]		CM-Value acc. measur. rep.	Achievable Tolerance [mm] Minimum	Req.Total Tolerance RTT	Comparative Tolerance [mm]	
	Mould-dep.	Insert	Warpage	Nom. Dim.	Total Tolerance				DIN 16901	TSU
1	No	Yes	Yes	10,25	0,1		0,21		0,46	0,08
2	Yes	No	Yes	45,7	0,18		0,17		0,48	0,2
3	Yes	No	No	45	0,18		0,15		0,48	0,2
4	Yes	Yes	Yes	120	0,36		0,26		0,82	0,4

Change values / edit



You may change and recalculate project values by marking the readings and then double-click.

Alternatively, you may mark project values and click onto the button "Edit".

Position	Measur. type			Input [mm]	
	Mould-dep.	Insert	Warpage	Nom. Dim.	Total Tolerance
1	No	Yes	Yes	10,25	0,1
2	Yes	No	Yes	45,7	0,18
3	Yes	No	No	45	0,18
4	Yes	Yes	Yes	120	0,36

In "Edit" mode, a pin icon is displayed in the project window.

Meanwhile, all other project values will be temporarily locked, and the cursor is placed at register "input".

You may now change the values, recalculate and save them.



To abort the edit mode, select this button, or press the ESC- key. Return to "material selection".

Now you may edit other measurement values from the project, or enter new ones.

Delete values

No longer needed values can be deleted from the project.



First, select the measurement values, which are to be deleted, from the project.

Then press this key, to delete the selected values. Thereafter the project data will be re-filed (saved)

Filter values

TolPro supports the filtering of measured values:

Please activate the option for filtering the data, in the categories "tool bound", "inserts" and "warpage". (In each category, you may activate own filter criterias).

Note: Depending on various activities such as entering new measurement values, the data filtering function will be deactivated.



Print values



As of version 4, TolPro generates a PDF document via report, for the output of measurement values. This PDF document is filed into the project directory and displayed on a PDF viewer. You may now print the document with a printer, by pressing this key.

Zeichnungstoleranzen Flansch 7823.pdf

TolPro-Project		Zeichnungstoleranzen Flansch 7823										
1	Material	Ultraform S2320 003									DIN 16901, Series 130	TSU, Series 3
Measr. Typ		Input			Tolerances by				Attention			
Mould-D.	Insert	Wp. T.	Norm. D.	Total T.	CM-Value	DIN	TSU	Minimal	RTT			
Yes	Yes	Yes	120	0,36		0,82	0,4	0,17				
2	Material	Ultraform S2320 003									DIN 16901, Series 130	TSU, Series 3
Measr. Typ		Input			Tolerances by				Attention			
Mould-D.	Insert	Wp. T.	Norm. D.	Total T.	CM-Value	DIN	TSU	Minimal	RTT			
Yes	No	No	12	0,08		0,26	0,08	0,07				
3	Material	Ultraform S2320 003									DIN 16901, Series 130	TSU, Series 3
Measr. Typ		Input			Tolerances by				Attention			
Mould-D.	Insert	Wp. T.	Norm. D.	Total T.	CM-Value	DIN	TSU	Minimal	RTT			
Yes	No	No	22,34	0,12		0,34	0,12	0,09				
4	Material	Ultraform S2320 003									DIN 16901, Series 130	TSU, Series 3
Measr. Typ		Input			Tolerances by				Attention			
Mould-D.	Insert	Wp. T.	Norm. D.	Total T.	CM-Value	DIN	TSU	Minimal	RTT			
Yes	Yes	No	22,34	0,12		0,34	0,12	0,1				
5	Material	Ultraform S2320 003									DIN 16901, Series 130	TSU, Series 3
Measr. Typ		Input			Tolerances by				Attention			
Mould-D.	Insert	Wp. T.	Norm. D.	Total T.	CM-Value	DIN	TSU	Minimal	RTT			
No	Yes	Yes	47,05	0,12		0,68	0,2	0,16	Achievable tolerance exceeds total tolerance			

11.12.2012 14:58:31 1 / 1

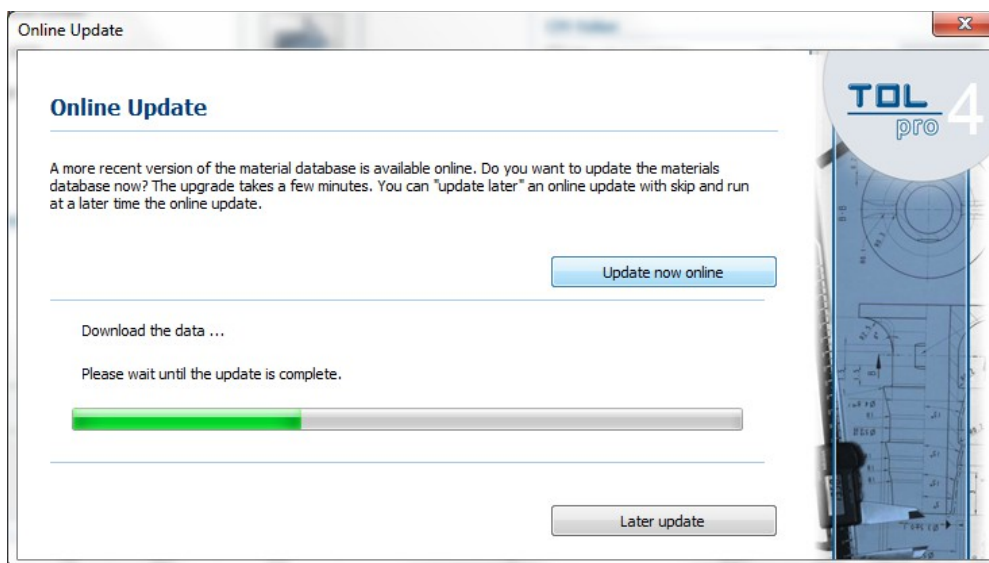
297 x 210 mm 1 / 1

Online-Update

Providing, you possess an active internet connection, an automatic online update check for newer versions and actuality of material database, will take place in short-term intervals after you start the program TolPro.

If there exists a newer version of TolPro, you will receive an informational message.

By confirming the informational message, a website for downloading the latest version of TolPro will be shown in the browser window.



If a newer version of material database is available for download, you will receive a message to update the material database.

By confirming this message, you can update the material database on the following screen. To perform the update, you activate the button "Update Now Online". Thereafter the download and update are taking place.

A re-start of TolPro is not required.

System Requirements

- Standard PC with at least 2GB memory
- Monitor with a minimum resolution of 1280 x 1024 px
- Windows operation system, Windows[®] XP, Windows[®] Vista, Windows[®] 7, Windows[®] 8
- Microsoft internet-explorer
- Windows compatible mouse
- Printer (optional)
- Active internet connection

Contact

In case of questions or problems with the software TolPro, you may contact our support center at:

Redlingshöfer Software GmbH
Technology Park 1
D-91522 Ansbach
Germany

Phone: +49 (0) 800-7334763-100 (free of charge, only when using German landline)
09:00 AM - 12:00 AM - MEZ
01:00 PM - 03:00 PM - MEZ

Email: info@tol-pro.com

Web: www.tol-pro.com

Translation: English: Jasmin Safari