Label and bar code printers   11.03.2024

There are many manufacturers of label printers. So there is a huge variety of methods how to control such printers.

The RoeTest software supports two different control modes:

	1. Printers with EPL/ZPL control language	2. Windows label printers
Printer example:	Zebra-Printer	Many models of Brother printers
Printer control:	Textual commands (print the letter X using font...at position...)	Graphical commands (print a pixel at position...)
Advantage:	• Low amount of data transfer (fast) • Printer built in features can be used (e.g. generating bar codes) • more comfortable • mostly professional printers	• All installed Windows fonts can be used • Low cost printers available
Editor	Zebradesigner	Simple label editor built into the RoeTest software
Label file extension	‚prn'	‚lab'

Alongside the many manufacturers have created still more control methods that are not supported by the RoeTest software (e.g. storing of patterns/templates inside the printer).

1. Printers with EPL/ZPL printer language (zebra printers)

First:

The RoeTest software supports label printing. You can then put these labels on tube boxes. Many printers also allow you to print bar codes that can be read and processed using commercially available bar code scanners. This may be of interest for tube collectors and tube sellers.

Label printing can also be enabled in batch processing so labels are printed automatically as tubes are tested.

System requirements:

You'll need a label printer that supports a common label printer control language such as ZPL or EPL. These printers are not controlled using a Windows driver but they receive commands as supported by the printer control language, in the same way earlier DOS printers worked.

Examples are the Zebra thermal transfer label printers which are available in industrial versions (with prices to match, obviously) and that are also available in simpler versions.

Labels:

You can design these any way you want. Most of the label printers come with editors that allow you to design your labels. Zebra printers come with „Zebradesigner" software, that can also be downloaded from the internet (don't pick the pro-demo version but look for the regular version without „pro").

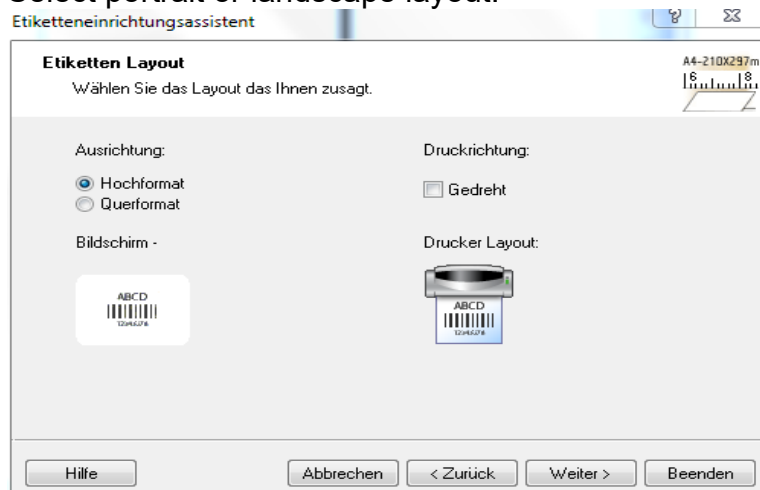**Design of an example label using Zebradesigner:**

Start Zebradesigner and select new label (I'm assuming that you have already installed Zebradesigner and the appropriate drivers for your label printer). The following pictures are from Zebradesigner 2. In the meantime the V3 is available.
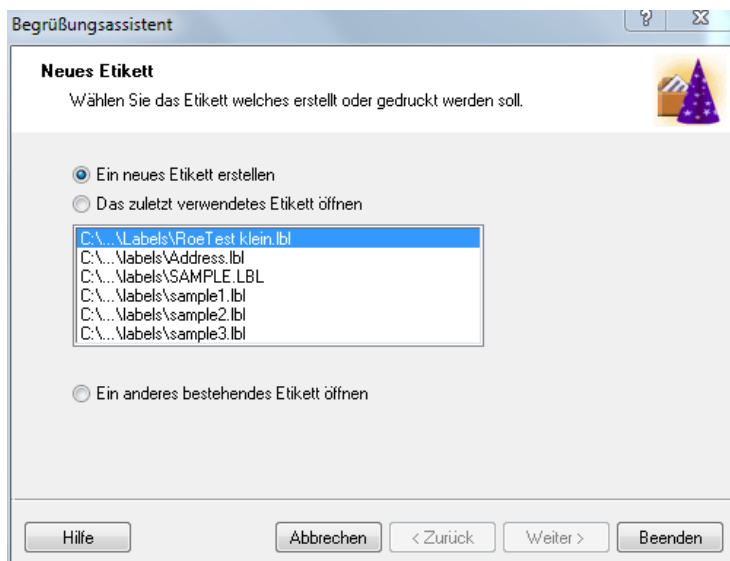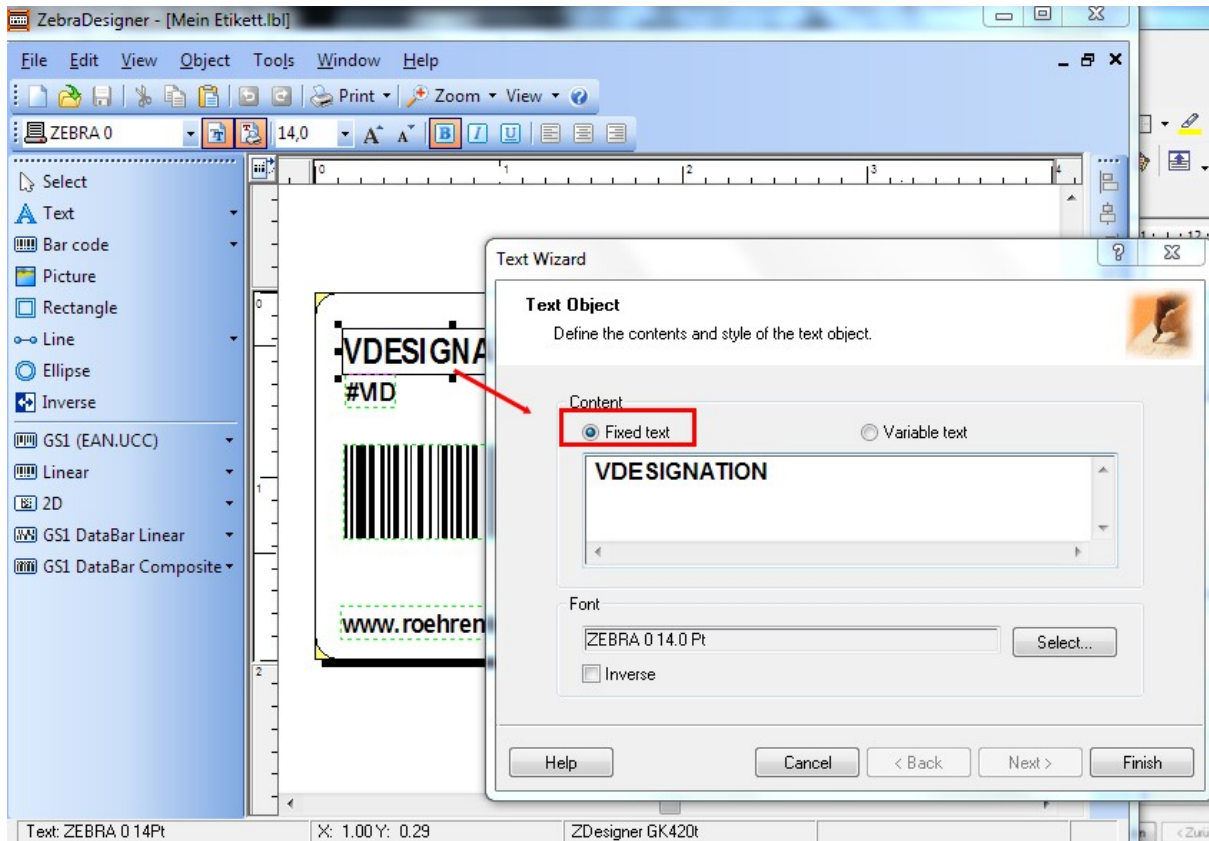

Select the printer and label size:
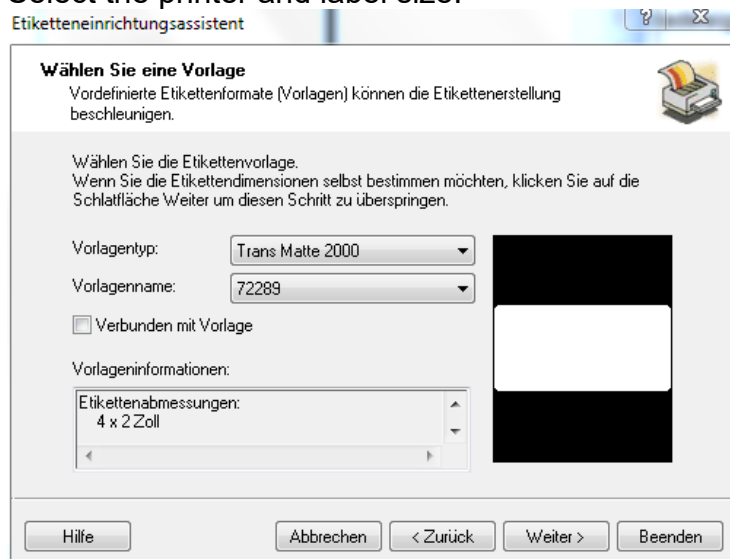

Select portrait or landscape layout:

Enter text, bar codes or other graphics on the screen:

Always use **fixed text**, never variable text, including for values to be printed by the RoeTest software. For these values, define variables simply by using variable names. A list of supported variable names follows.

You can also print bar codes. Variable names can also be used here:
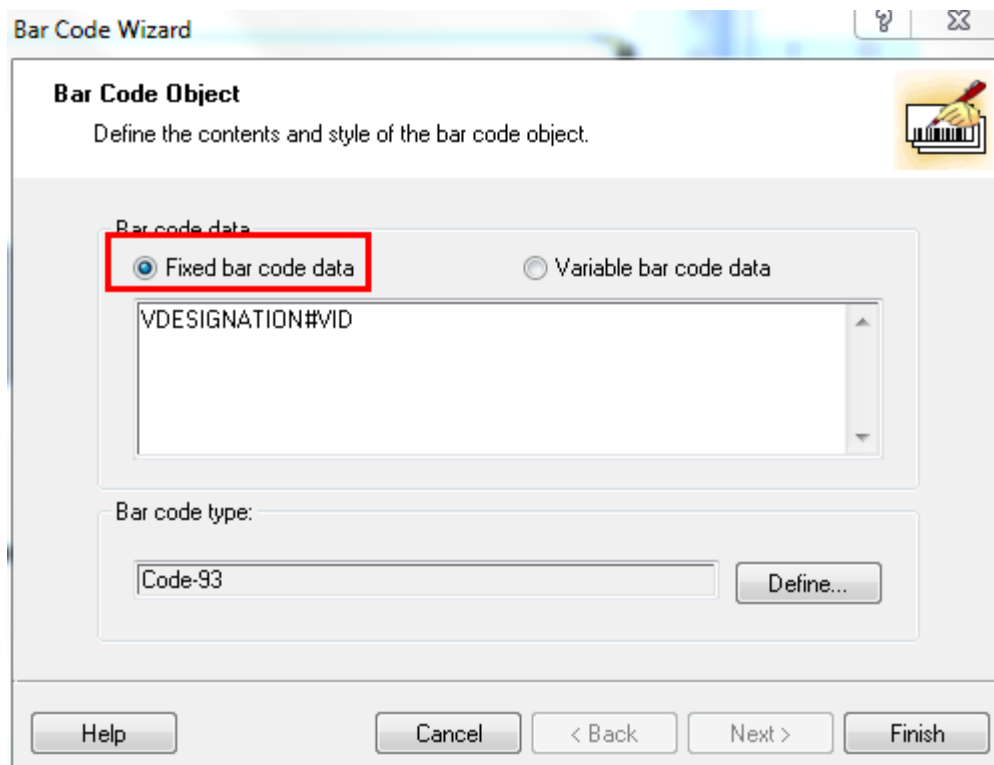
When using bar codes only use bar code types supported by your printer. You can't print bar codes as straight graphics.
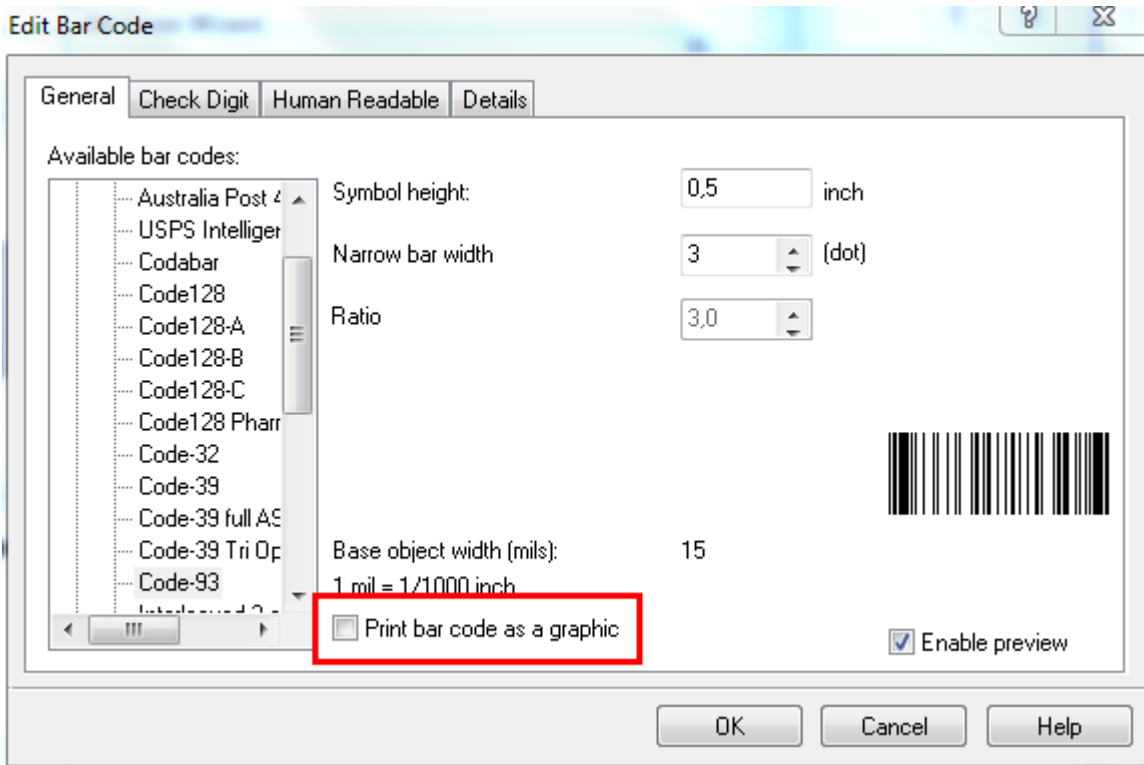
This is an example label that I've saved as „Mein Etikett.lbl" (my label.lbl): it uses the variables ‚VDESIGNATION' and ‚VID' that can also be inserted in the bar code. As bar code type I selected ‚code93' because that supports all characters including German umlauts and so on.
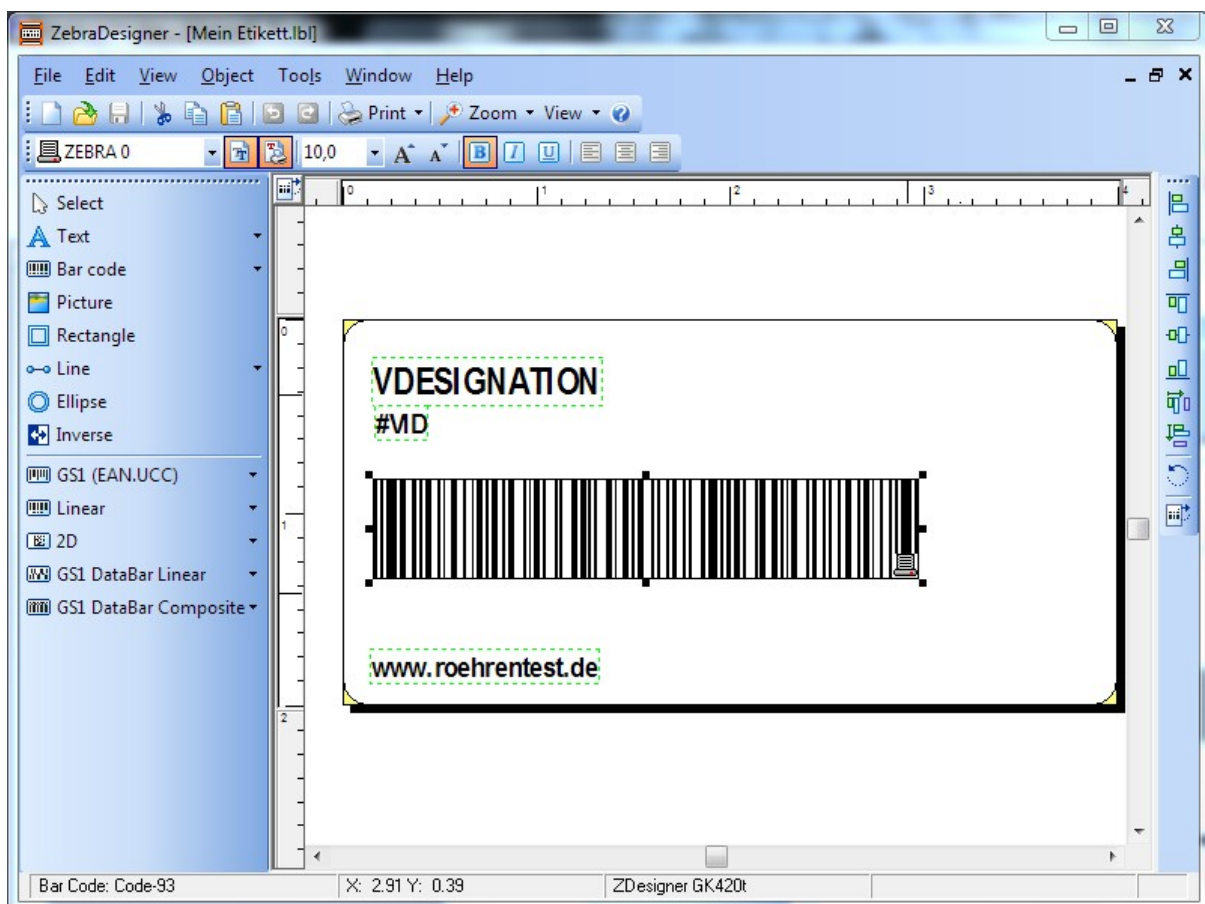
To enable the RoeTest software to use the label, you have to save it as a file:
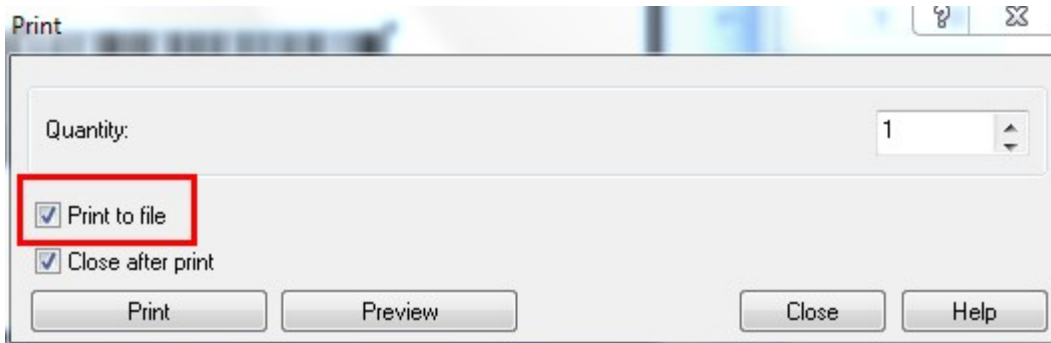
Here's what the print window in Zebra Designer V3 looks like:

Use informative and meaningful names. For this example I used „Mein Etikett.prn".

Let's take a look at the „Mein Etikett.prn" file. Open the file in your Windows editor and what you see should look like the example below (the exact commands depend on the printer and the printer command language you use). **In any case, the variable names that you used should be plainly visible:**
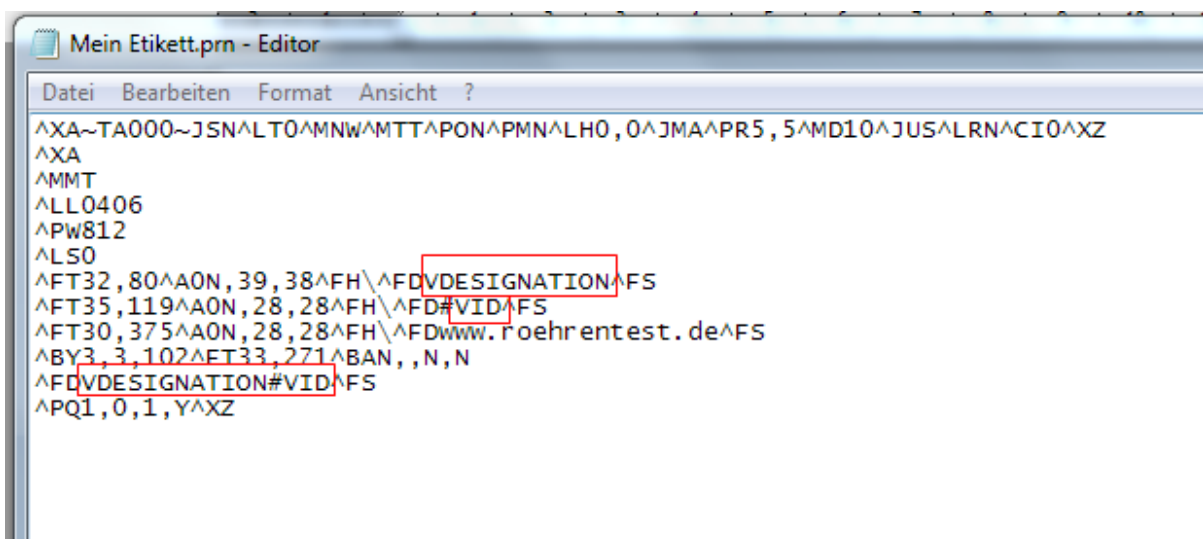
➔ This looks good. This label can now be used.

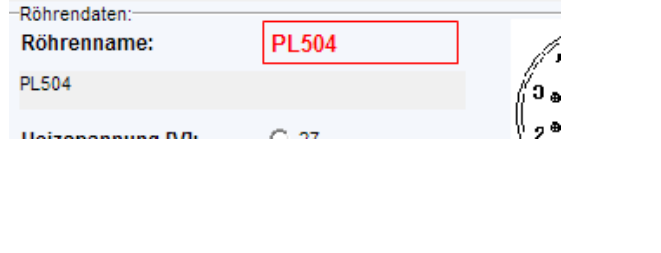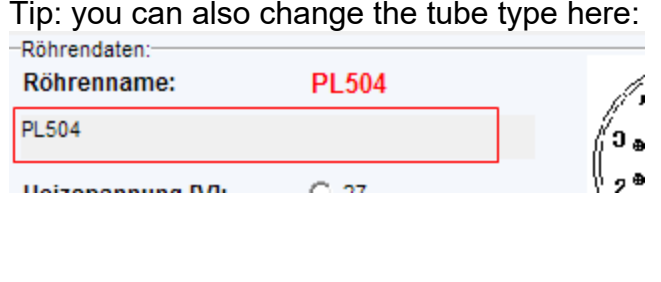Of course you can make your labels more complex and add as much data as you want – this is just an example.

Tip: Zebra-Designer also stores the basic printer settings. In general these are specifically for the printer model you selected (for example print quality, label type etc). You'll need to modify the label data before you can use another printer and or label type.

Hint: The Zebradesigner 2 stores the layout files with file extension 'lbl'. The Zebradesigner 3 stores the layout files with file extension 'nlbl'. The Zebradesigner 3 can also open the old format.

Variable names:

You can use the following variable names (always use upper case):

VDESIGNATION	Tube type/name as printed on the tube	
VDESIG	Short Form (stops at first blank space)	
VDESIGNATIONORIG **VDESIGORIG** (favored variable for tube name)	Reference tube name (in case you loaded reference tube data to compare)	Tip: you can also change the tube type here:
VID VPREFIX	ID number (every tube has a different ID) Prefix (e.G. order no)	
VDB_MANUFACT VDB_COND VDB_CAT	Manufacturer Condition Category	
VTYPE1 VTYPE2 VTYPE3	Function (Diode, Triode…) (System 1-3)	
VTY1 VTY2 VTY3 VDB_TY4	Tube function acronym (as used in database)	
VUh VIh VTh VTh1 VTh2 VTh3 <VTh1> <VTh2> <VTh3>	Measured heater voltage [V] Measured heater current [mA] Heater time [s] for the first heated system Heater time (System 1-3) this is printed as „Th(n)=xx s". If there is no value, nothing is printed.	
VA1 VA2 VA3 <VA1> <VA2> <VA3>	mA Anode/plate (System 1-3) this is printed as „Ia=xx mA". If there is no value, nothing is printed.	
VS1 VS2 VS3 <VS1> <VS2> <VS3>	mA Screen (System 1-3) this is printed as „Ig2=xx mA". If there is no value, nothing is printed.	
VP1 VP2 VP3	% (System 1-4)	

VDB_VP4 <VP1> <VP2> <VP3> <VDB_VP4>	this is printed as „%=xx". If there is no value, nothing is printed.
VB1 VB2 VB3	Symbol indicating %-value as indicated below: <table><tr><td>0%</td><td>1%-39%</td><td>40-59%</td><td>60-74%</td><td>75-89%</td><td>>=90%</td></tr><tr><td>o</td><td>-</td><td>?</td><td>+</td><td>++</td><td>+++</td></tr></table>
VT1 VT2 VT3 <VT1> <VT2> <VT3>	transconductance ma/V (System 1-3) This is printed as „S=xx mA/V". If there is no value, nothing is printed.
VMu1 VMu2 VMu3 <VMu1> <VMu2> <VMu3>	Gain/Mu This is printed as „mu=xx". If there is no value, nothing is printed.
VRI1 VRI2 VRI3 <VRI1> <VRI2> <VRI3>	Ri (System 1-3) This is printed as „Ri=xx k". If there is no value, nothing is printed.
VIg1 VIg2 VIg3 <VIg1> <VIg2> <VIg3> VIg1n VIg2n VIg3n <VIg1n> <VIg2n> <VIg3n>	Grid current in µA (System 1-3) This is printed as „Ig=xx µA". If there is no value, nothing is printed. The same, but Ia in nA with one decimal place
VIS VUS VUZ	Istab Ustab Uignition for stabilizers
VREMARKS	Remarks field – Tip: you can print additional data for tubes with more then 3 functions here

	status	heater	testing for shorts	static data	vacuum	curves	**remarks**
	remarks about measured tube: ID: # `0` (Remarks and id will be saved in the data file for measured values and printed on the test protocol)
VDB_REMARKS	Remarks field from tubestock database
VDATE VTIME VDB_DAT	Current date and time Date from tubestock.dbf
VSOFTWARE VFIRMWARE	The RoeTest software and firmware versions

Remark: If printing from roetest.exe: All fields are available. If printing from roetestdatabase.exe: Only the saved data fields in the tubestock.dbf are available.

Notes	
V…	Data comes from the measurement software. You can also load previous saved measurement data. If you load from 'tubestock.dbf' and no measurement data attachment exists, then the %-values from the 'tubestock.dbf' are used. Tip: With the 'F2' key you can quickly load data from 'tubestock.dbf.'
VDB_..	Data comes from the tubestock database. This data is only available if the tube ID and data are stored in the database and the data is manually entered. You can recognize these because the variable names for this type of data starts with VDB_..

Conditional printing - tags:
Data between the start symbol <n> and end symbol </n> is not printed when the tube function is not available. N indicates the tube function. You can use this functionality to only print specific data for types that support specific functions e.g. only print transconductance for triodes or pentodes.

Example:

Bla bla bla<2>whatever text</2>bla bla bla

If the tube doesn't support function 2, then „whatever text" is not printed. This also works for bar codes.

2. Windows label printers (Printing is done as graphics using a standard Windows printer driver)

(Example: Brother QL-570)

System Requirements:

You'll need a label printer that can be controlled as a standard Windows printer (e.g. from Word, Excel or arbitrary other applications).
There is a vast number of printers available from different manufacturers (e.g. many printers from Brother like the QL-570, that I have tested).

Labels:

The labels can be designed freely. However it is not possible to use printer built in features e.g. bar code creation, as the printer data are transferred as graphical data; therefore the printer built in options for bar code generation cannot be used.
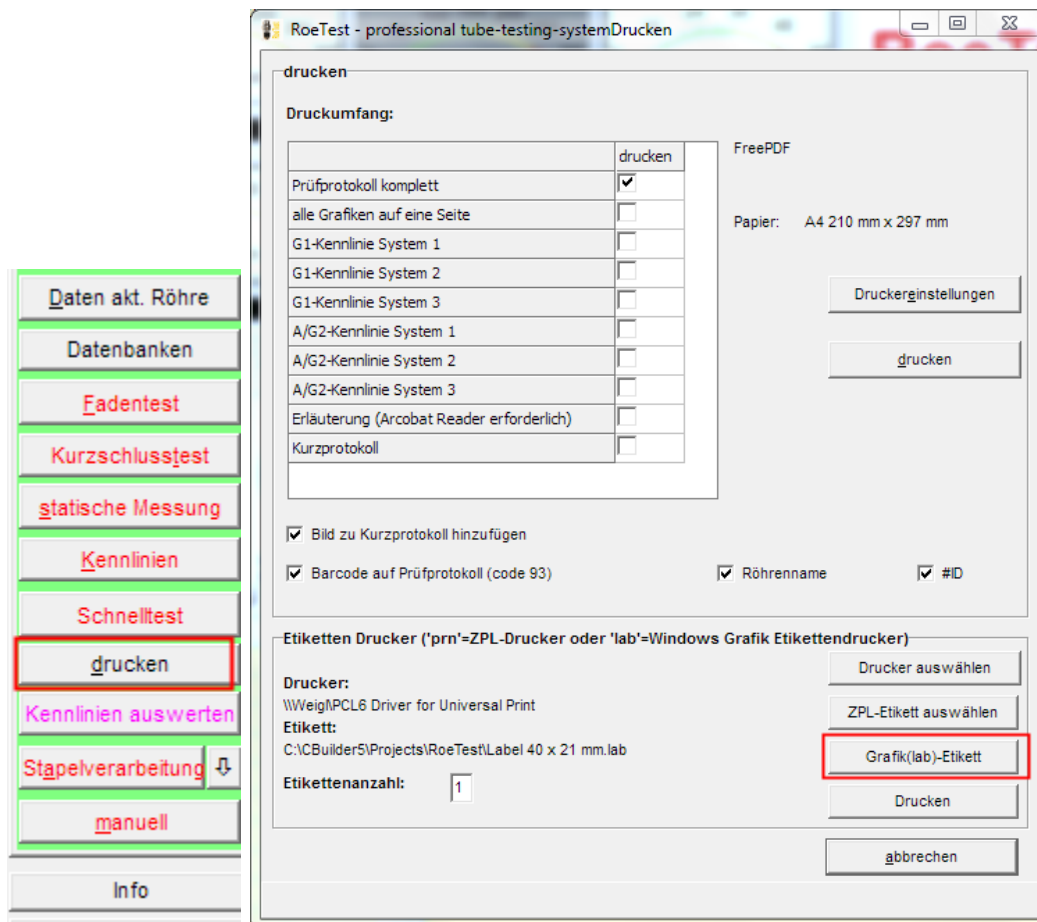
For this type of printer control there is a simple editor built into the RoeTest software.

Variables:

The same variables as described in the above section for ZPL-printers can be used.

Using the label editor:

The editor is accessible from the printer menu:

RoeTest - professional tube-testing-system - Etiketteneditor (für Windows-Grafikdrucker - nicht ZPL-Druc...

VDESIGORIG
VTY1:VP1 % #VID
<2>VTY2:VP2 %VDB_COND
<3>VTY3:VP3 %DB_MANUFACT
<4>VDB_TY4:VDB_VP4 %></4>

preview - Vorschau

add texts/variables, position (mm) and style of fonts to the table

hier Texte/Variablen, deren Position (in mm) und die Schriftart erfassen

size of label + offset

Etikettengröße + Offset

Text	pos x	pos y	Fontsize	Schriftart	F	I	U
VDESIGORIG	1	1	10	Arial	✔	☐	✔
VTY1:VP1 %	1	5	8	Arial	☐	☐	☐
<2>VTY2:VP2 %</2>	1	9	8	Arial	☐	☐	☐
<3>VTY3:VP3 %</3>	1	13	8	Arial	☐	☐	☐
<4>VDB_TY4:VDB_VP4 %></4>	1	17	8	Arial	☐	☐	☐
#VID	20	5	10	Arial	✔	☐	☐
VDB_COND	20	9	10	Arial	☐	☐	☐
VDB_MANUFACT	20	13	8	Arial	☐	☐	☐

mm | pixel

Breite: 62   238
Höhe: 25   96
Offset x: 1
Offset y: 2

<- Schriftart

speichern

laden

zurück

Hintergrundgrafik:

Note:

As the variable names are often longer than the size of the text, the label's draft is displayed different compared to the printout (the variables names are replaced with the shorter variables contents when printing from the RoeTest software).

Druckeinstellungen für Brother QL-570

Druckmedium | Grafiken | Optionen | Support

Format: Normalformat

Bandbreite: 62mm

Länge: 25,0 mm   Min: 12,7 -- Max: 1000,0

Bandvorschub: 3,0 mm   Min: 3,0 -- Max: 127,0

Ausrichtung: ○ Querformat
            ● Hochformat

Exemplare: 1   ☐ Sortiert
            ☐ Umgekehrte Reihenfolge

Qualität: ● Der Druckgeschwindigkeit Vorrang geben
        ○ Der Druckqualität Vorrang geben

Auflösung: ● 300 x 300 dpi
        ○ 300 x 600 dpi

Def.Etikettenformat...   Standard

OK   Abbrechen   Übernehmen

(label graphic: 25,0mm height, 3,0mm top margin, 62mm width, letter "A")

Note: You must select printer specific data like strip width, length, orientation etc. in the associated printer driver settings, as the RoeTest does not supply these data when printing the labels.

Label printing using the RoeTest software:

The print screen has the following options as shown below::

1. ZPL-Printer

2. Windows Graphics Printer

Note: The file type (extension) must match the selected printer type:

Label type:	Printer type:
File extension ‚prn'	Select ZPL-label printer
File extension ‚lab'	Select Windows label printer

It does not make sense to send a ‚prn'-file to a Windows printer neither to send a ‚lab'-file to a ZPL-printer!

Select the label type (prn file). Select the number of labels to print.

Your selections are saved.

Use the print button to print the label using the currently loaded measurement data.
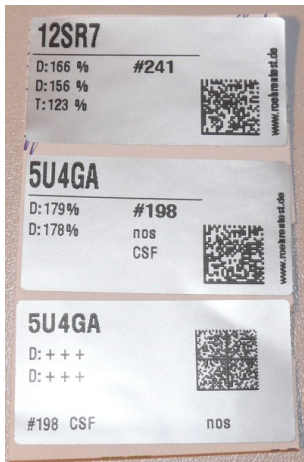
Label printing can also be included in the Roetest batch processing function.

Starting with software version 8.2.0.0 labels can also be printed from the tube stock database. However only fields saved to the tube stock data base are available for printing.
Starting with software version 8.3.0.0 for stabis are extra labels useable.

sample label with Zebra printer:

sample label with Windows graphic label printer (Brother QL-570):