

# PSTricks

---

## **pst-text**

Manipulate text and characters; v.1.06

December 11, 2008

Documentation by  
**Herbert Voß**

Package author(s):  
**Timothy Van Zandt**  
**Herbert Voß**

## Contents

<b>1 Text manipulations</b>	<b>4</b>
1.1 Examples . . . . .	5
<b>2 Character manipulations</b>	<b>7</b>
2.1 \pscharpath . . . . .	7
2.2 \pscharclip . . . . .	8
<b>References</b>	<b>10</b>

In general PostScript does not know lines in the proper meaning of the word, but only paths and those can have any arbitrary form. Along such paths arbitrary text may be arranged. The package `pst-text` supports the setting of text along a path and other character manipulations, where several characters naturally result in a text again of course.

It should be noted that the correct result is not guaranteed with every dvips driver. This package was written for Rokicki's dvips programme, which is practically part of every T<sub>E</sub>X distribution.

Thanks to: Lars Kotthoff, Geoff Mercer

## 1 Text manipulations

The package `pst-text` defines only one macro for text manipulations.

```
\pstextpath [(l)] x,y{Graphic object}{Text}
```

*position* specifies the alignment of the text referring to the path.

*l* text starts at the beginning of the path (default).

*c* text is aligned symmetrically to the middle of the path.

*r* text ends at the end of the path.

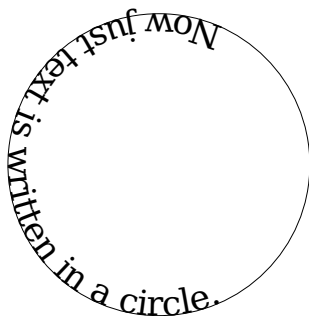
As a basic principle it is to be kept in mind that when the text is longer than the path this option has no effect since the path is filled with text and any overflowing text disappears.

$(x,y)$  is an offset and denotes the values by which the particular characters shall be translated in  $x$  and  $y$  direction relative to the path.  $(x,y)$  have to be cartesian coordinates as the support for special coordinates allowed by `PSTricks` is not possible here. The dimensions of  $x$  and  $y$  refer to the current scale. The default is  $(0,\TPoffset)$ , where `\TPoffset` is set to a length of  $-0.7ex$ .

*Graphic object* any arbitrary object which creates a path.

*Text* the text to set, which may only consist of alphanumeric characters. No macros are possible within the text, but the text may be put into a `\parbox`.

PostScript does not reserve any space for the output, so that the current text is overwritten if corresponding white space has not been provided by `TEX`. This can be achieved with a vertical feed (`\vspace`) or with a `pspicture` environment.



```
1 \begin{pspicture}(-2,-2.5)(2,2.5)
2 \psset{linewidth=0.2pt}
3 \pstextpath[c](0,0){\pscircle{2}}%
4   {\Large Now just text is written in a circle.}
5 \end{pspicture}
```

This first example shows the relatively easy use of the macro. If the path is not required to be drawn the line style can be set to `none`. The following example shows the use of the offset option. It is clear that every single character is translated, because the beginning and the end of the text stayed the same. Since the text was written in a circle, a positive specification for `\TPoffset` causes a translation towards the centre of the circle.



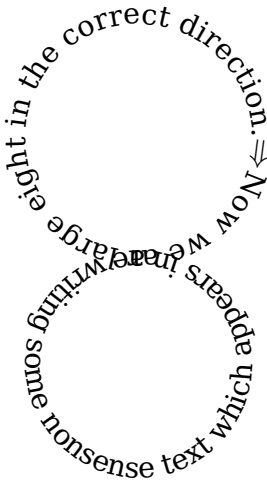
```

1 \begin{pspicture}(-2,-2.5)(2,2.5)
2 \psset{linewidth=0.2pt}
3 \pstextpath[c](0,2ex){\pscircle{2}}%
4   {\Large Now just text is written in a circle.}
5 \end{pspicture}

```

## 1.1 Examples

With `\pscustom` one is offered unlimited possibilities for paths. The following example uses the circle again, but forms an eight, which is composed of four circle parts to get a continuous path. In the second example a square has been appended to a circle. The starting point of the path is always the circle at 0, here marked by  $\Rightarrow$ .

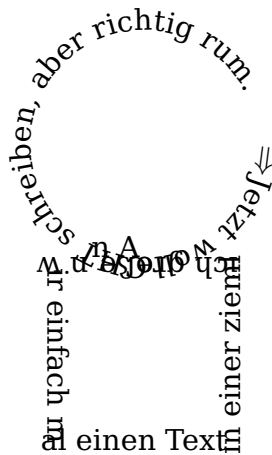


```

1 \psset{unit=0.75,linestyle=none}
2 \begin{pspicture}(-2,-4)(2,4)
3 \pstextpath[l](0,0){%
4   \pscustom{
5     \psarcn(0,2){2}{0}{-90}
6     \psarc(0,-2){2}{90}{0}
7     \psarc(0,-2){2}{0}{90}
8     \psarcn(0,2){2}{-90}{0}
9   }%
10}{\large $\Rightarrow$Now we are writing some nonsense text
11  which appears in
12  a large eight in the correct direction.}
13 \end{pspicture}

```

It can be easily seen that in the above example the upper circle is larger than the lower. This is because the text is always written on the path, which faces towards the inner on the upper circle and towards the outer on the lower circle (or square) due to the change in direction.



```

1 \begin{pspicture}(-2,-3.25)(2,3.25)
2 \psset{linestyle=none}
3 \pstextpath[l](0,0){%
4   \pscustom[unit=0.75]{
5     \psarcn(0,2){2}{0}{-90}
6     \pspolygon(0,0)(-1.7,0)(-1.7,-3.4)(1.7,-3.4)(1.7,0)
7     (0,0)
8     \psarcn(0,2){2}{-90}{0}
9   }%
10 }{\large $\Rightarrow$Jetzt wollen wir
11 einfach mal einen Text in einer
12 ziemlich gro\ss en ACHT schreiben,
13 aber richtig rum.}
14 \end{pspicture}

```

The setting of the text along a path is very memory and calculation intensive on the PostScript side, so that with longer texts some seconds may pass until the desired result appears even on faster computers. This is shown in the following example. Note how the text is truncated as the path is too short to fit the entire text in.



```

1 %\usepackage{pst-plot}
2
3 \begin{pspicture}(-3,-3)(3,3)
4 \psset{linestyle=none}
5 \pstextpath[l](0,0){%
6   \parametricplot[plotstyle=curve,%
7     plotpoints=500]{0}{3000}{%
8     /r {t 1000 div} def t sin r mul t cos r mul }
9 }{
10 Du nimmst alles wahr, die Augen sind offen -
11 Doch Du verstehst nichts, du bist zu betroffen -
12 Die Angst bestimmt dein Handeln -
13 Es ist, als w\urdest du dich verwandeln -
14 Ein anderer Mensch scheint es sehr -
15 Bist du nun und es geht gar nichts mehr -
16 Verzweifelt legst du dich nieder -
17 Doch der Frieden, er kommt nicht wieder -

```

```

18 Die Augen sind hellwach -
19 Es beginnt doch erst die Nacht -
20 Leicht d\mmerst du in den Schlaf -
21 und kommst dir vor, wie in einem Grab -
22 Mit einem Mal bist du hellwach -
23 Es ist, als h\testest du dauernd gedacht, -
24 Nun verstehst du alles, wie es war \dots
25 }
26 \end{pspicture}

```

## 2 Character manipulations

With character manipulations the same issue with the DVI-PS driver applies, namely that the results are only guaranteed for Rokicki's dvips programme.

### 2.1 \pscharpath

Although the macro `\pscharpath` has a name similar to `\pstextpath`, it has a completely different meaning.

```

\pscharpath [Options] {Text}
\pscharpath* [Options] {Text}

```

*Options* All PSTricks parameters, insofar as they make sense, may be specified here.

*Text* The text to set, which may only consist of alphanumeric characters, therefore no macros are possible within the text.

Normally, one will define ones own font size, which is best done with `\DeclareFixedFont`, since this macro is very fast because it simply sets the size without having to look up any font tables.

The image shows three instances of the word "TeXnik". The top instance is a white outline on a light gray background. The middle instance is a light gray fill on a light gray background. The bottom instance is a multi-colored gradient fill (red, cyan, and brown) on a light gray background.

```

1 %\usepackage{pst-grad}
2 \DeclareFixedFont{\RM}{T1}{ptm}{b}{n}{2cm}
3 \pscharpath{\RM TeXnik}\
4 \pscharpath[linecolor=lightgray]{\RM TeXnik}
5 \psset{fillstyle=gradient,gradbegin=red,
6 gradend=cyan}
7 \pscharpath[gradangle=90]{\RM TeXnik}\
8 \pscharpath[linestyle=none,gradangle=-90]{\
9 RM TeXnik}

```

Normally the path, here the outer line of the characters, is deleted after the macro `\pscharpath` has ended. With the asterisk version it is preserved and can be used for other "baubles", for instance for `\pstextpath`, where the saved path can be used as input for the text to set.



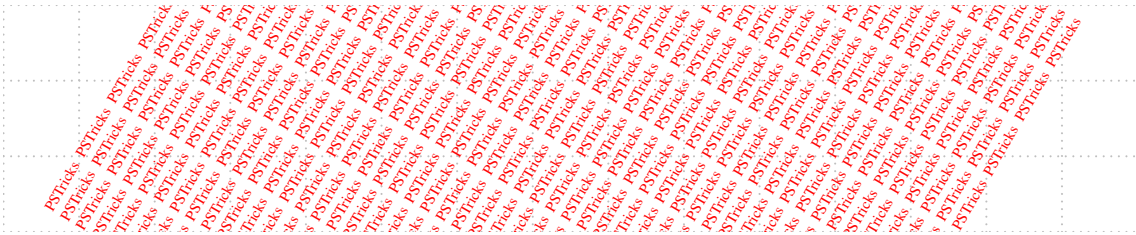


```

1 \DeclareFixedFont{\RM}{T1}{ptm}{b}{n}{3cm}
2 \begin{pspicture*}[showgrid=true](\linewidth,3cm)
3   \begin{pscharclip}[linewidth=0.1pt]{%
4     \rput(0.5\linewidth,1.5){\RM PSTricks}}%
5   \end{pscharclip}
6 \end{pspicture*}

```

The text “lying below” the font is put into a minipage of the width `\linewidth`. Since this text underlies the clipping path, it does not matter how long it really is, the essential thing is that the whole area is covered. This is especially important when the text is further manipulated such as rotated. So one may view the following example with `\begin{minipage}{\linewidth}`.



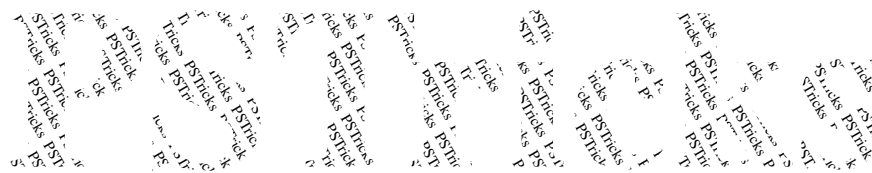
```

1 \DeclareFixedFont{\Rm}{T1}{ptm}{m}{n}{2mm}
2 \begin{pspicture*}[showgrid=true](\linewidth,3cm)
3   \rput{60}(0.5\linewidth,1.5){%
4     \begin{minipage}{0.6\linewidth}
5       \setstretch{0.5}
6       \color{red}
7       \multido{\i=1+1}{500}{\Rm PSTricks }
8     \end{minipage}%
9   }
10 \end{pspicture*}

```

Both of these can be overlaid where, because of the clipping path, only the inner of the large letters seems transparent. In the second example the minipage has been additionally rotated, the line colour was ignored and the line spacing within the minipage was halved (package `setspace`).

PSTricks



```

1 \DeclareFixedFont{\RM}{T1}{ptm}{b}{n}{3cm}

```

```

2 \DeclareFixedFont{\Rm}{T1}{ptm}{m}{n}{2mm}
3 \begin{pspicture*}(\linewidth,3cm)
4   \begin{pscharclip}[linewidth=0.1pt]{%
5     \rput(0.5\linewidth,1.5){\Rm PSTricks}}%
6     \rput{60}(0.5\linewidth,1.5){%
7       \begin{minipage}{0.6\linewidth}
8         \setstretch{0.5}
9         \color{red}
10        \multido{\i=1+1}{500}{\Rm PSTricks }
11      \end{minipage}%
12    }
13  \end{pscharclip}
14 \end{pspicture*}
15
16 \begin{pspicture*}(\linewidth,3cm)
17   \begin{pscharclip}[linewidth=0.1pt,linestyle=none]{%
18     \rput(0.5\linewidth,1.5){\Rm PSTricks}}%
19     \rput{-60}(0.5\linewidth,1.5){%
20       \begin{minipage}{0.6\linewidth}
21         \setstretch{0.5}
22         \multido{\i=1+1}{500}{\Rm PSTricks }
23       \end{minipage}%
24     }
25   \end{pscharclip}
26 \end{pspicture*}

```

Generally it is not of interest what one bases `\pscharclip` on. Using things such as a graphic can lead to some interesting possibilities. It should be kept in mind that alternatively `\pscharpath` may be used in conjunction with `\psboxfill`.

## References

- [1] Denis Girou. Présentation de PSTricks. *Cahier GUTenberg*, 16:21–70, April 1994.
- [2] Michel Goossens, Frank Mittelbach, Sebastian Rahtz, Dennis Roegel, and Herbert Voß. *The L<sup>A</sup>T<sub>E</sub>X Graphics Companion*. Addison-Wesley Publishing Company, Reading, Mass., second edition, 2007.
- [3] Nikolai G. Kollock. *PostScript richtig eingesetzt: vom Konzept zum praktischen Einsatz*. IWT, Vaterstetten, 1989.
- [4] Herbert Voß. *PSTricks – Grafik für T<sub>E</sub>X und L<sup>A</sup>T<sub>E</sub>X*. DANTE – Lehmanns, Heidelberg/Hamburg, fifth edition, 2008.
- [5] Timothy Van Zandt. *multido.tex - a loop macro, that supports fixed-point addition*. [CTAN:/graphics/pstricks/generic/multido.tex](http://CTAN:/graphics/pstricks/generic/multido.tex), 1997.
- [6] Timothy Van Zandt and Denis Girou. Inside PSTricks. *TUGboat*, 15:239–246, September 1994.

## Index

clipping path, 8, 9

`\DeclareFixedFont`, 7

Dimension

`\linewidth`, 8, 9

`\TPoffset`, 4

dvips, 3, 7

`\endpscharclip`, 8

Environment

minipage, 8, 9

pscharclip, 8

pscharclip\*, 8

pspicture, 4, 8

pspicture\*, 8

line style, 4

`\linewidth`, 8, 9

Macro

`\DeclareFixedFont`, 7

`\endpscharclip`, 8

`\parbox`, 4

`\psboxfill`, 10

`\pscharclip`, 8, 10

`\pscharclip*`, 8

`\pscharpath`, 7, 8, 10

`\pscharpath*`, 7

`\pscustom`, 5

`\pstextpath`, 4, 7

`\rput`, 8

`\vspace`, 4

minipage, 8, 9

none, 4

offset, 4

outline font, 7

Package

pst-text, 3, 4

setspace, 9

`\parbox`, 4

path, 3

Program

dvips, 3, 7

`\psboxfill`, 10

`\pscharclip`, 8, 10

pscharclip, 8

`\pscharclip*`, 8

pscharclip\*, 8

`\pscharpath`, 7, 8, 10

`\pscharpath*`, 7

`\pscustom`, 5

pspicture, 4, 8

pspicture\*, 8

pst-text, 3, 4

`\pstextpath`, 4, 7

Rokicki, 3, 7

`\rput`, 8

setspace, 9

`\TPoffset`, 4

Value

none, 4

`\vspace`, 4