dimline
Technical dimension lines using PGF/TikZ

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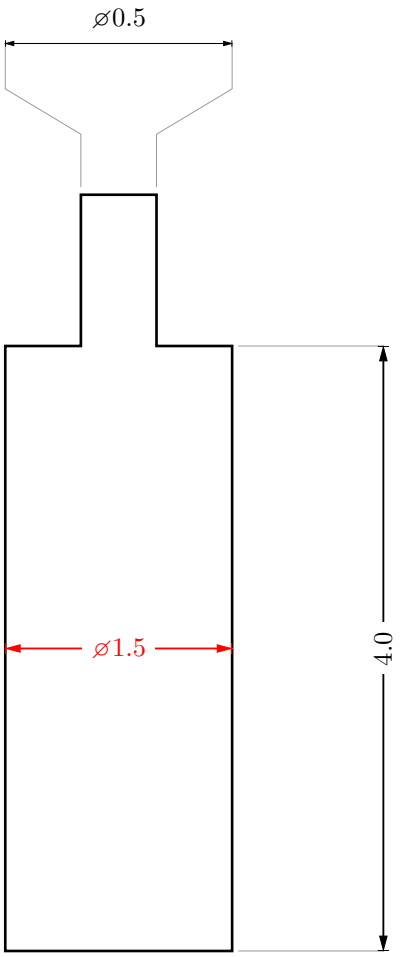
Dimension lines are drawn segments that indicate the measurement of a feature. The line has an arrow at both ends to show that the dimension displayed covers the entire span of that line. The direction of the line (vertical, horizontal or diagonal) shows the direction of the measurement. Dimension lines are kept outside of the object illustrated, typically connected to other lines that display the area where that measurement applies. This keeps the illustration clear.

Contents

This documentation was compiled on Mac OS X using XeLaTeX 0.9999, PGF 3.0.0, `tcolorbox` 3.21 on December 12, 2014.

1 Overview




```
\begin{tikzpicture}[scale=2]
  \draw[line width=1pt]  (0,0) -- (0,4) -- (.5,4) -- (.5,5) -- (1.,5)
  -- (1.,4) -- (1.5,4) -- (1.5,0) -- cycle;
  \draw node (A) at (2.5,0) {};
  \dimline[line style = {line width=0.7},
    extension start length=-0.24,
    extension end length=-0.24] {(A)}{($ (A) + (0,4) $)}{$4.0$};
  \dimline[line style = {red, line width=0.7},
    extension start length=0,
    extension end length=0] {(0,2)}{(1.5, 2)}{ $\diameter 1.5$};
  \dimline[label style={above=0.5ex,},
    extension start path = {(0,6) (0,5.7) (0.5,5.4) (0.5,5.05)},
    extension end path =  {(1.5,6) (1.5,5.7) (1,5.4) (1,5.05)},]
          {(0,6)}{(1.5,6)}{$\diameter 0.5$};
\end{tikzpicture}
```

The `wasysym` package is required to have `\diameter` command.

2 Installation

To install the `tkiz-dimline` package copy its directory to either to

- `$TEXHOME/tex/latex/`
- `$TEXMFHOME/tex/latex/`
- `~/texmf/tex/latex/`
- `~/Library/texmf/tex/latex/`

3 Usage

3.1 command

`\dimline[`⟨*key path*⟩`]{`⟨*start*⟩`}{`⟨*end*⟩`}{`⟨*label*⟩`}`

Creates a new dimension line from ⟨*start*⟩ to ⟨*end*⟩ with ⟨*label*⟩. An optional ⟨*key path*⟩ can be used to customise the dimension line.
This command has to be called within a `tikzpicture` environment.

3.2 options

`color`=⟨*color*⟩ (black)

Dimension line color.

`line style`=⟨*style*⟩ (not set)

Dimension line style, identical to PGF line style.

`label style`=⟨*style*⟩ (not set)

Dimension label style, identical to PGF label style.

`extension start length`=⟨*size*⟩ (1cm)

Length of the extention line at the start point.

`extension end length`=⟨*size*⟩ (1cm)

Identical to `extension start length`, but for the end point.

`extension start angle`=⟨*angle*⟩ (-90)

Angle between the dimension line and the extention line at the start point. You dont't want to change that value unless you really know what you are doing. You would rather have a look to `extension start path` and `extension end path`.

`extension end angle`=⟨*angle*⟩ (90)

Identical to `extension start angle`, but for the end point.

`extension start style`=⟨*style*⟩ (not set)

Style for the extension line at the start point.

`extension end style`=⟨*style*⟩ (not set)

Identical to `extension start style`, but for the end point.

`extension start path`=⟨*path*⟩ (not set)

Path (coordinates relative to the current `tkizpicture`) for the extension line at the start point.

`extension end path`=⟨*path*⟩ (not set)

Identical to `extension start path`, but for the end point.

`arrows`=⟨*arrows spec*⟩ (dimline-dimline)

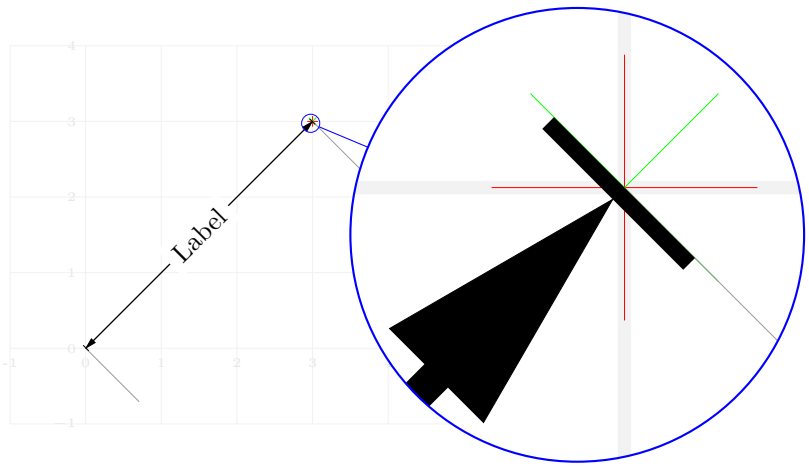
Arrows used for the dimension line. `dimline-dimline` is used for standard arrows. Use `dimeline reverse-dimline reverse` to reverse the arrow heads.

4 Examples

On following examples `\helpgrid` is only used for a labeled grid. This not mandatory you can dicard this line. See source of this documentation to see how `\helpgrid` command is defined.

4.1 Basic usage

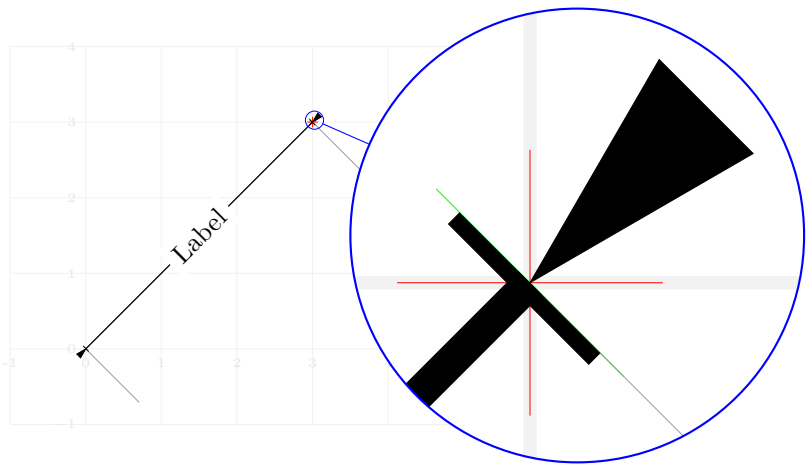
This is a very simple usage. It just draws a dimension line (using default values) between 2 points with a label on it. Note that the dimension starts at the border of the side tick mark, not at the end of the arrow.




```
\begin{tikzpicture}[spy using outlines={circle, magnification=25, size=6cm,
      connect spies}]
  \helpgrid{-1}{-1}{5}{4}
  \draw[line width=0.01,color=red] plot[mark=+] coordinates{(3,3)} {};
  \draw[line width=0.01,color=green] plot[mark=x] coordinates{(3,3)} {};
  \dimline[line style = {line width=0.5}]{(0,0)}{(3,3)}{Label};
  \spy [blue] on (2.975,2.975) in node [fill=white] at (6.5,1.5);
\end{tikzpicture}
```

4.2 Reverse arrows

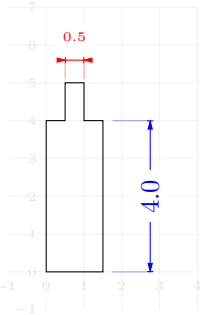
Sometimes, shuch as for very small dimensions, you need to reverse the arrows. You can then use a **dimeline reverse** arrow.




```
\begin{tikzpicture}[spy using outlines={circle, magnification=25, size=6cm,
      connect spies}]
  \helpgrid{-1}{-1}{5}{4}
  \draw[line width=0.01,color=red] plot[mark=+] coordinates{(3,3)} {};
  \draw[line width=0.01,color=green] plot[mark=x] coordinates{(3,3)} {};
  \dimline[line style = {line width=0.5,
  arrows=dimline reverse-dimline reverse}]{(0,0)}{(3,3)}{Label};
  \spy [blue] on (3.025,3.025) in node [fill=white] at (6.5,1.5);
\end{tikzpicture}
```

4.3 Styling your dimension lines

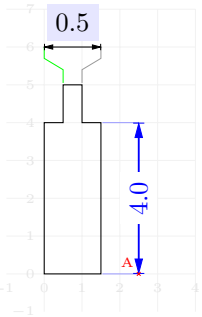
You can customize your dimension lines like any other TikZ environment.




```
\begin{tikzpicture}[scale=0.5]
  \helpgrid{-1}{-1}{4}{7}
  \draw (0,0) -- (0,4) -- (.5,4) -- (.5,5) -- (1.,5) -- (1.,4) -- (1.5,4) -- (1.5,0)
  -- cycle;
  \dimline[color=blue,
    extension start length=-0.25, extension end length=-0.25]{(2.75,0)}{(2.75,4)}{4.0};
  \dimline[color=red,
    line style={arrows=dimline reverse-dimline reverse},
    label style={above=0.8ex,font=\tiny},
    extension start length=1,
    extension end length=1]{(0.5,5.6)}{(1.0,5.6)}{0.5};
\end{tikzpicture}
```

4.4 Complex extension lines

This example shows you how to use both a **extension start path** and **extension end path**. This is useful if you want to enlarge a small dimension area.




```
\begin{tikzpicture}[scale=0.5]
  \helpgrid{-1}{-1}{4}{7}
  \draw  (0,0) -- (0,4) -- (.5,4) -- (.5,5) -- (1.,5) -- (1.,4) -- (1.5,4) -- (1.5,0)
  -- cycle;
  \draw[color=red] node (A) at (2.5,0) {} node [yshift=1ex,xshift=-1ex]
  at (A) {\tiny{A}};
  \dimline[color=blue,
    line style = {line width=0.7},
    extension start length=-0.24,
    extension end length=-0.24] {(A)}{($ (A) + (0,4) $)}{4.0};
  \dimline[label style={above=0.5ex, fill=blue!10,},
    extension start path = {(0,6) (0,5.7) (0.5,5.4) (0.5,5.05)},
    extension start style = { green },
    extension end path =  {(1.5,6) (1.5,5.7) (1,5.4) (1,5.05)},]
          {(0,6)}{(1.5,6)}{0.5};
  \draw[color=red,line width=0.01] plot[mark=x] coordinates{(A)} {};
\end{tikzpicture}
```

5 License