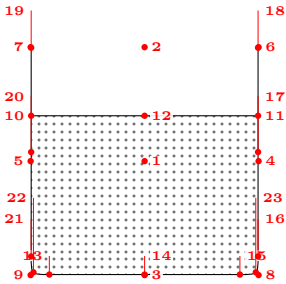


fluid tank

0 = start, 50 = midpoint, 100 = end

fluid tank (node)
Keys: defaults
fluid width 3cm
fluid height 3cm
fluid left level .7
fluid right level .7
Anchors: center, north, south, east, west, north east, north west, south east, south west, left-surface, right-surface, surface, text, base, base east, base west, mid, mid east, mid west
Families: surface-0..100, bottom-0..100, right-0..100, left-0..100, bottom-left-0..100, bottom-right-0..100
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width, minimum height, inner sep, outer sep.
Defaults hook: every fluid tank.
surface runs left to right. bottom, right, left and the two rounded bottom corners follow the drawn outline counterclockwise.
Use the manual for geometry rules and collision-safe aliases.

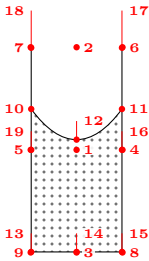


Anchors			
#	Name	#	Name
1	center	2	north
3	south	4	east
5	west	6	north east
7	north west	8	south east
9	south west	10	left-surface
11	right-surface	12	surface
10	surface-0	12	surface-50
11	surface-100	13	bottom-0
14	bottom-50	15	bottom-100
16	right-0	17	right-50
18	right-100	19	left-0
20	left-50	21	left-100
21	bottom-left-0	22	bottom-left-50
13	bottom-left-100	15	bottom-right-0
23	bottom-right-50	16	bottom-right-100

meniscus

0 = start, 50 = midpoint, 100 = end

meniscus (node)
Keys: defaults
fluid width 1.2cm
fluid height 2.7cm
fluid level .7
fluid bend .2
Anchors: center, north, south, east, west, north east, north west, south east, south west, left-surface, right-surface, surface, text, base, base east, base west, mid, mid east, mid west
Families: surface-0..100, bottom-0..100, right-0..100, left-0..100
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width, minimum height, inner sep, outer sep.
Defaults hook: every meniscus.
surface follows the cubic liquid boundary from left to right. bottom, right and left follow the vessel boundary counterclockwise.
Use the manual for geometry rules and collision-safe aliases.

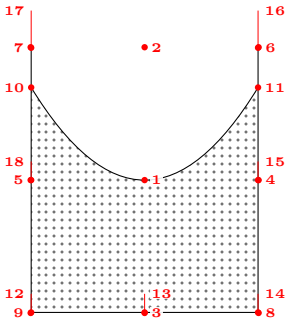


Anchors			
#	Name	#	Name
1	center	2	north
3	south	4	east
5	west	6	north east
7	north west	8	south east
9	south west	10	left-surface
11	right-surface	12	surface
10	surface-0	12	surface-50
11	surface-100	13	bottom-0
14	bottom-50	15	bottom-100
15	right-0	16	right-50
17	right-100	18	left-0
19	left-50	13	left-100

rotating fluid

0 = start, 50 = midpoint, 100 = end

```
rotating fluid (node)
Keys: defaults
fluid width      3cm
fluid height     3.5cm
fluid level      .5
fluid bend       .35
Anchors: center, north, south, east, west, north east, north west, south east, south
west, left-surface, right-surface, surface, text, base, base east, base west, mid, mid
east, mid west
Families: surface-0..100, bottom-0..100, right-0..100, left-0..100
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width,
minimum height, inner sep, outer sep.
Defaults hook: every rotating fluid.
surface follows the parabola from left to right. bottom, right and left follow the vessel
boundary counterclockwise.
Use the manual for geometry rules and collision-safe aliases.
```

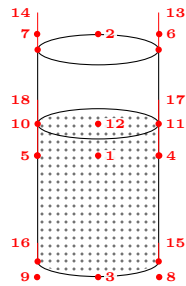


Anchors			
#	Name	#	Name
1	center	2	north
3	south	4	east
5	west	6	north east
7	north west	8	south east
9	south west	10	left-surface
11	right-surface	1	surface
10	surface-0	1	surface-50
11	surface-100	12	bottom-0
13	bottom-50	14	bottom-100
14	right-0	15	right-50
16	right-100	17	left-0
18	left-50	12	left-100

fluid cylinder

0 = start, 50 = midpoint, 100 = end

```
fluid cylinder (node)
Keys: defaults
fluid width      1.6cm
fluid height     3.2cm
fluid level      .65
Anchors: center, north, south, east, west, north east, north west, south east, south
west, left-surface, right-surface, surface, text, base, base east, base west, mid, mid
east, mid west
Families: surface-0..100, surface-rim-0..100, top-0..100, bottom-0..100, right-0..100,
left-0..100
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width,
minimum height, inner sep, outer sep.
Defaults hook: every fluid cylinder.
surface is the left-to-right diameter of the liquid ellipse; surface-rim, top and
bottom are full ellipse boundaries, starting at the rightmost point and running
counterclockwise. left and right cover the straight walls.
Use the manual for geometry rules and collision-safe aliases.
```

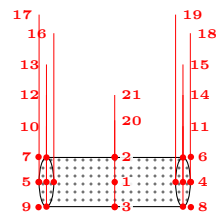


Anchors	
#	Name
1	center
2	north
3	south
4	east
5	west
6	north east
7	north west
8	south east
9	south west
10	left-surface
11	right-surface
12	surface
13	surface-0
14	surface-50
15	surface-100
16	surface-rim-0
17	surface-rim-50
18	surface-rim-100
19	top-0
20	top-50
21	top-100
22	bottom-0
23	bottom-50
24	bottom-100
25	right-0
26	right-50
27	right-100
28	left-0
29	left-50
30	left-100

pressure element

0 = start, 50 = midpoint, 100 = end

```
pressure element (node)
Keys: defaults
fluid width      2cm
fluid height     .65cm
Anchors: center, north, south, east, west, north east, north west, south east, south
west, inlet, outlet, text, base, base east, base west, mid, mid east, mid west
Families: inlet-0..100, outlet-0..100, inlet-rim-0..100, outlet-rim-0..100,
axis-0..100, top-0..100, bottom-0..100
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width,
minimum height, inner sep, outer sep.
Defaults hook: every pressure element.
inlet and outlet run bottom to top across their projected faces. inlet-rim and outlet-rim
run counterclockwise from the rightmost point. axis joins their centres left to right;
top and bottom cover the straight outline.
Use the manual for geometry rules and collision-safe aliases.
```

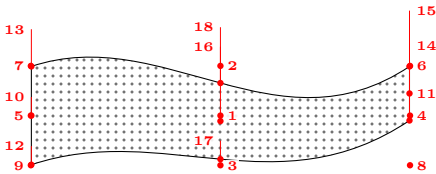


Anchors			
#	Name	#	Name
1	center	2	north
3	south	4	east
5	west	6	north east
7	north west	8	south east
9	south west	10	inlet
11	outlet	12	inlet-0
10	inlet-50	13	inlet-100
14	outlet-0	11	outlet-50
15	outlet-100	16	inlet-rim-0
17	inlet-rim-50	16	inlet-rim-100
18	outlet-rim-0	19	outlet-rim-50
18	outlet-rim-100	10	axis-0
1	axis-50	11	axis-100
15	top-0	20	top-50
13	top-100	12	bottom-0
21	bottom-50	14	bottom-100

flow tube

0 = start, 50 = midpoint, 100 = end

flow tube (node)
Keys: defaults
fluid width 5cm
fluid height 1.3cm
fluid bend .45
Anchors: center, north, south, east, west, north east, north west, south east, south west, inlet, outlet, text, base, base east, base west, mid, mid east, mid west
Families: inlet-0..100, outlet-0..100, axis-0..100, bottom-0..100, top-0..100
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width, minimum height, inner sep, outer sep.
Defaults hook: every flow tube.
inlet and outlet run bottom to top; axis follows their curved midline left to right.
bottom runs left to right, top right to left on the actual cubic outline. Curve percentages use the cubic parameter.
Use the manual for geometry rules and collision-safe aliases.

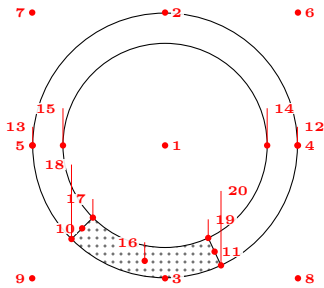


Anchors			
#	Name	#	Name
1	center	2	north
3	south	4	east
5	west	6	north east
7	north west	8	south east
9	south west	10	inlet
11	outlet	12	inlet-0
10	inlet-50	13	inlet-100
14	outlet-0	11	outlet-50
15	outlet-100	10	axis-0
16	axis-50	11	axis-100
12	bottom-0	17	bottom-50
14	bottom-100	15	top-0
18	top-50	13	top-100

liquid ring

0 = start, 50 = midpoint, 100 = end

liquid ring (node)
Keys: defaults
fluid width 3.5cm
fluid tube width .4cm
fluid angle 225
fluid sweep 70
Anchors: center, north, south, east, west, north east, north west, south east, south west, liquid-start, liquid-end, text, base, base east, base west, mid, mid east, mid west
Families: outer-0..100, inner-0..100, liquid-0..100, start-0..100, end-0..100
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width, minimum height, inner sep, outer sep.
Defaults hook: every liquid ring.
outer and inner run counterclockwise from the rightmost point. liquid follows the filled sector centreline from liquid-start to liquid-end; start and end run radially from inner to outer boundary.
Use the manual for geometry rules and collision-safe aliases.

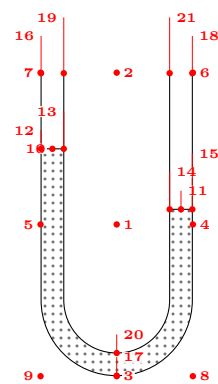


Anchors		
#	Name	# Name
1	center	2 north
3	south	4 east
5	west	6 north east
7	north west	8 south east
9	south west	10 liquid-start
11	liquid-end	12 outer-0
13	outer-50	12 outer-100
14	inner-0	15 inner-50
14	inner-100	10 liquid-0
16	liquid-50	11 liquid-100
17	start-0	10 start-50
18	start-100	19 end-0
11	end-50	20 end-100

u tube

0 = start, 50 = midpoint, 100 = end

```
u tube (node)
Keys: defaults
fluid width      2cm
fluid height     4cm
fluid tube width  .3cm
fluid left level  .75
fluid right level .55
Anchors: center, north, south, east, west, north east, north west, south east, south west, left-surface, right-surface, surface, text, base, base east, base west, mid, mid east, mid west
Families: surface-0..100, left-surface-0..100, right-surface-0..100, outer-0..100, inner-0..100
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width, minimum height, inner sep, outer sep.
Defaults hook: every u tube.
left-surface and right-surface independently run left to right across the liquid in each arm. surface selects the left arm, never the empty gap. outer and inner follow the U outline by distance from the left lip down through the bend to the right lip.
Use the manual for geometry rules and collision-safe aliases.
```

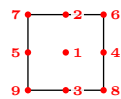


Anchors	
# Name	# Name
1 center	2 north
3 south	4 east
5 west	6 north east
7 north west	8 south east
9 south west	10 left-surface
11 right-surface	10 surface
12 surface-0	10 surface-50
13 surface-100	12 left-surface-0
10 left-surface-50	13 left-surface-100
14 right-surface-0	11 right-surface-50
15 right-surface-100	16 outer-0
17 outer-50	18 outer-100
19 inner-0	20 inner-50
21 inner-100	

block

0 = start, 50 = midpoint, 100 = end

```
block (node)
Keys: defaults
minimum width      1cm
minimum height     1cm
Size aliases: block width = minimum width; block height = minimum height.
Anchors: center, north, south, east, west, north east, north west, south east, south
west, base, base east, base west, mid, mid east, mid west, text
Families: bottom-0..100, right-0..100, top-0..100, left-0..100; Bare numeric anchors
remain angles in degrees, as in ordinary TikZ.
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width,
minimum height, inner sep, outer sep.
Defaults hook: every block.
bottom, right, top, left follow the boundary counterclockwise. Use 0 for an edge start, 50
for its midpoint, 100 for its end.
Use the manual for geometry rules and collision-safe aliases.
```

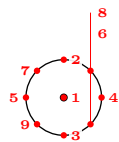


Anchors			
#	Name	#	Name
1	center	2	north
3	south	4	east
5	west	6	north east
7	north west	8	south east
9	south west	9	bottom-0
3	bottom-50	8	bottom-100
8	right-0	4	right-50
6	right-100	6	top-0
2	top-50	7	top-100
7	left-0	5	left-50
9	left-100		

pulley

0 = start, 50 = midpoint, 100 = end

```
pulley (node)
Keys: defaults
minimum size          1cm
pulley axle radius     1.5pt
pulley axle color      black
Size aliases: pulley diameter = minimum size.
Anchors: center, north, south, east, west, north east, north west, south east, south
west, base, base east, base west, mid, mid east, mid west, text
Families: rim-0..100; Bare numeric anchors remain angles in degrees, as in ordinary TikZ.
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width,
minimum height, inner sep, outer sep.
Defaults hook: every pulley.
rim starts at the rightmost point and runs counterclockwise around the circle. 25 is
north, 50 west, 75 south, and 100 returns to the start.
Use the manual for geometry rules and collision-safe aliases.
```

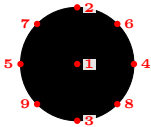


Anchors			
#	Name	#	Name
1	center	2	north
3	south	4	east
5	west	6	north east
7	north west	8	south east
9	south west	4	rim-0
2	rim-25	5	rim-50
3	rim-75	4	rim-100

particle

0 = start, 50 = midpoint, 100 = end

```
particle (node)
Keys: defaults
minimum size      3mm
Anchors: center, north, south, east, west, north east, north west, south east, south
west, base, base east, base west, mid, mid east, mid west, text
Families: rim-0..100; Bare numeric anchors remain angles in degrees, as in ordinary TikZ.
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width,
minimum height, inner sep, outer sep.
Defaults hook: every particle.
rim starts at the rightmost point and runs counterclockwise around the circle. 25 is
north, 50 west, 75 south, and 100 returns to the start.
Use the manual for geometry rules and collision-safe aliases.
```

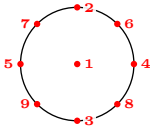


Anchors	
# Name	# Name
1 center	2 north
3 south	4 east
5 west	6 north east
7 north west	8 south east
9 south west	4 rim-0
2 rim-25	5 rim-50
3 rim-75	4 rim-100

disk

0 = start, 50 = midpoint, 100 = end

disk (node)
Keys: defaults
minimum size 15mm
Anchors: center, north, south, east, west, north east, north west, south east, south west, base east, base west, mid, mid east, mid west, text
Families: rim-0..100; Bare numeric anchors remain angles in degrees, as in ordinary TikZ.
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width, minimum height, inner sep, outer sep.
Defaults hook: every disk.
rim starts at the rightmost point and runs counterclockwise around the circle. 25 is north, 50 west, 75 south, and 100 returns to the start.
Use the manual for geometry rules and collision-safe aliases.

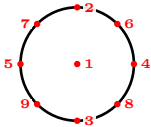


Anchors	
# Name	# Name
1 center	2 north
3 south	4 east
5 west	6 north east
7 north west	8 south east
9 south west	4 rim-0
2 rim-25	5 rim-50
3 rim-75	4 rim-100

ring

0 = start, 50 = midpoint, 100 = end

ring (node)
Keys: defaults
minimum size 15mm
Anchors: center, north, south, east, west, north east, north west, south east, south west, base east, base west, mid, mid east, mid west, text
Families: rim-0..100; Bare numeric anchors remain angles in degrees, as in ordinary TikZ.
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width, minimum height, inner sep, outer sep.
Defaults hook: every ring.
rim starts at the rightmost point and runs counterclockwise around the circle. 25 is north, 50 west, 75 south, and 100 returns to the start.
Use the manual for geometry rules and collision-safe aliases.

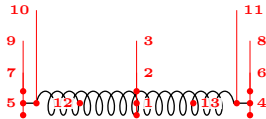


Anchors	
# Name	# Name
1 center	2 north
3 south	4 east
5 west	6 north east
7 north west	8 south east
9 south west	4 rim-0
2 rim-25	5 rim-50
3 rim-75	4 rim-100

spring

0 = start, 50 = midpoint, 100 = end

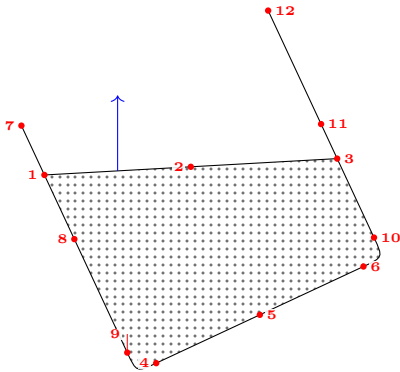
```
spring (node and path)
Keys: defaults
minimum width      3cm (node)
minimum height     0pt (node)
pre length         5pt
post length        5pt
amplitude          4.5pt
segment length     4.5pt
aspect             0.5
Size aliases: spring length = minimum width.
Anchors: center, start, end, coil-start, coil-end, north, south, east, west, north east,
south west, north west, south east, text
Families: axis-0..100
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width,
minimum height, inner sep, outer sep.
Defaults hook: every spring.
Use draw[spring] (A)--(B) for a two-point connection, or node[spring] (S) for a
positioned coil. Node length defaults to 3cm; spring length and minimum width set its
length. start/end are exact axis attachments, coil-start/coil-end delimit the leads, and
axis-0..100 samples the straight axis, not the coil wire. show anchors/show keys apply to
nodes; physicshelpspring describes both forms. Lead lengths may be zero; their sum must
be smaller than the node length. amplitude and segment length must be positive.
Use the manual for geometry rules and collision-safe aliases.
```



Anchors			
#	Name	#	Name
1	center	2	north
3	south	4	east
5	west	6	north east
7	north west	8	south east
9	south west	5	start
4	end	10	coil-start
11	coil-end	5	axis-0
12	axis-25	1	axis-50
13	axis-75	4	axis-100

Transformed free surface

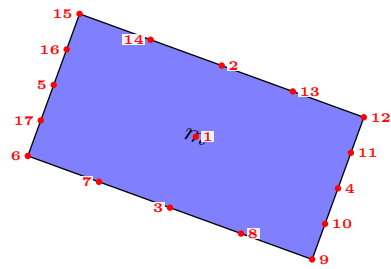
```
fluid tank (node)
Keys: defaults
fluid width      3cm
fluid height     3cm
fluid left level .7
fluid right level .7
Anchors: center, north, south, east, west, north east, north west, south east, south
west, left-surface, right-surface, surface, text, base, base east, base west, mid, mid
east, mid west
Families: surface-0..100, bottom-0..100, right-0..100, left-0..100, bottom-left-0..100,
bottom-right-0..100
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width,
minimum height, inner sep, outer sep.
Defaults hook: every fluid tank.
surface runs left to right. bottom, right, left and the two rounded bottom corners follow
the drawn outline counterclockwise.
Use the manual for geometry rules and collision-safe aliases.
```



Anchors			
#	Name	#	Name
1	left-surface	2	surface
3	right-surface	1	surface-0
2	surface-50	3	surface-100
4	bottom-0	5	bottom-50
6	bottom-100	7	left-0
8	left-50	9	left-100
10	right-0	11	right-50
12	right-100		

Filled block: markers above the fill

```
block (node)
Keys: defaults
minimum width      1cm
minimum height     1cm
Size aliases: block width = minimum width; block height = minimum height.
Anchors: center, north, south, east, west, north east, north west, south east, south west, base east, base west, mid, mid east, mid west, text
Families: bottom-0..100, right-0..100, top-0..100, left-0..100; Bare numeric anchors remain angles in degrees, as in ordinary TikZ.
Also: draw, fill, line width, color, opacity, rotate, scale, anchor, minimum width, minimum height, inner sep, outer sep.
Defaults hook: every block.
bottom, right, top, left follow the boundary counterclockwise. Use 0 for an edge start, 50 for its midpoint, 100 for its end.
Use the manual for geometry rules and collision-safe aliases.
```



Anchors	
#	Name
1	center
2	north
3	south
4	east
5	west
6	bottom-0
7	bottom-25
8	bottom-75
9	bottom-100
10	right-0
11	right-25
12	right-50
13	right-75
14	right-100
15	top-0
16	top-25
17	top-50
18	top-75
19	top-100
20	left-0
21	left-25
22	left-50
23	left-75
24	left-100