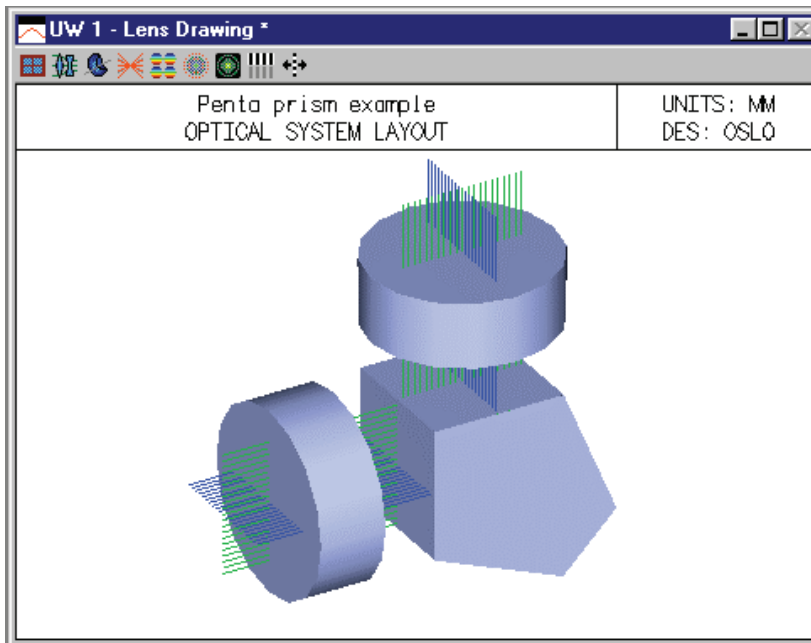


Pentaprism

A pentaprism changes the direction of a beam by 90 degrees. It is straightforward to enter such a system using the bend command in OSLO. However, to draw a picture of the system requires special work because of the nature of the prism. The system shown here uses OSLO's boundary data information (**bdi**) to draw the prism, as shown in the figure below.

The pentaprism system included here is intended as a base system into which you can insert your own optics as required. Blank pieces of glass are placed in front and behind the prism for demonstration. The data are shown in the following list.



```
*LENS DATA
Penta prism example
```

SRF	RADIUS	THICKNESS	APERTURE	RADIUS	GLASS	SPE	NOTE
0	--	1.0000e+20	1.0000e+14		AIR		
1	--	1.000000	1.414214	A	BK7	C *	
2	--	1.000000	1.414214		AIR		Your lens
3	--	2.414214	1.000000	X	BAK1	C *	
4	--	-2.000000	1.082400	X	REFLECT	*	
5	--	2.414214	1.082400	X	REFLECT	*	
6	--	1.000000	1.000000	X	AIR		* Penta prism
7	--	1.000000	1.414214		BK7	C *	
8	--	--	1.414214		AIR		Your lens
9	--	--	1.414214				

From an optical standpoint, the interesting surfaces are 3-6. The orientation of the surfaces is straightforward and easily handled by the **ben** command. The sides of the prism are rectangular, so each surface must have a rectangular special aperture, calculated according to the standard pentaprism geometry. Since the actual prism surfaces are to be represented by **bdi** information (in contrast to being enclosed in a bounding box, it is important that the drawing information accurately represent the true situation.

```
*TILT/DECENTER DATA
```

SRF	DT	BEN	DCX	TLA	DCY	TLB	DCZ	TLC
4	1		--	--	--	--	--	--
5	1		22.500000	--	--	--	--	--

```
*APERTURES
```

SRF	TYPE	APERTURE	RADIUS
0	SPC	1.0000e+14	
1	SPC	1.414214	

```

2   SPC      1.414214
3   SPC      1.000000
   Special Aperture Group 0:
A   ATP      Rectangle AAC      Transmit  AAN      --
   AX1      -1.000000 AX2      1.000000 AY1      -1.000000 AY2      1.000000
4   SPC      1.082400
   Special Aperture Group 0:
A   ATP      Rectangle AAC      Transmit  AAN      --
   AX1      -1.082400 AX2      1.082400 AY1      -1.082400 AY2      1.082400
5   SPC      1.082400
   Special Aperture Group 0:
A   ATP      Rectangle AAC      Transmit  AAN      --
   AX1      -1.082400 AX2      1.082400 AY1      -1.082400 AY2      1.082400
6   SPC      1.000000
   Special Aperture Group 0:
A   ATP      Rectangle AAC      Transmit  AAN      --
   AX1      -1.000000 AX2      1.000000 AY1      -1.000000 AY2      1.000000
7   SPC      1.414214
8   SPC      1.414214
9   SPC      1.414214
    
```

For the drawing, surfaces 3-6 are marked “not drawn” in the special data surface control spreadsheet:

```

*SURFACE TAG DATA
1   LMO ELE (2 surfaces)
3   LMO ELE (4 surfaces)
3   DRW OFF
4   DRW OFF
5   DRW OFF
6   DRW OFF
7   LMO ELE (2 surfaces)
    
```

There is no spreadsheet for entering boundary data. You can use the normal lens editor in command mode, giving the commands

```

len upd
gto 3
bdi 16 9
vx 1 -1 -1 0 0
vx 2 -2 2 0 0
.
pf 1 1 2 3 4
pf 2 5 6 7 8
.
    
```

etc. according to the list below:
end

In connection with the input of bdi data, please note that the data must be preceded by a bdi command that states how many vertices and how many polygon faces are to be used.

The last number in each vertex record is the surface number relative to the current surface. In the output listing, this is converted into an absolute surface number reference.

```

*BOUNDARY DRAWING DATA
SRF 3:
VX NBR      X      Y      Z      COORD SURF
1      -1.000000 -1.000000 --      3
2      -1.000000 1.000000 --      3
...etc.
PF NBR      VX1      VX2      VX3      VX4
1      1      2      3      4
2      5      6      7      8
...etc.
    
```