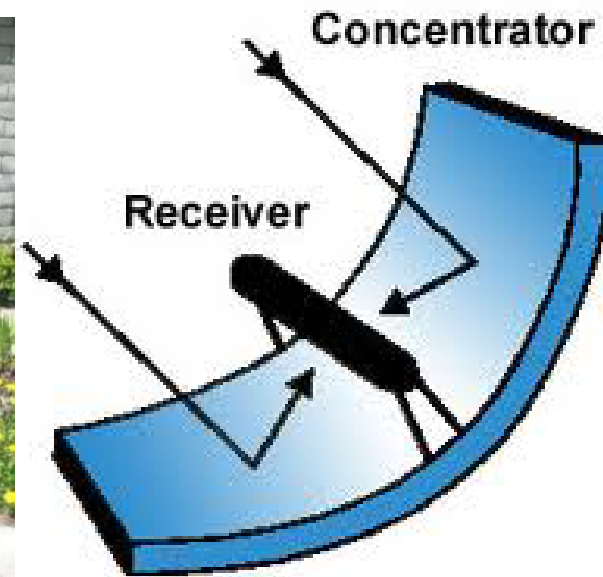


Parabolic Trough



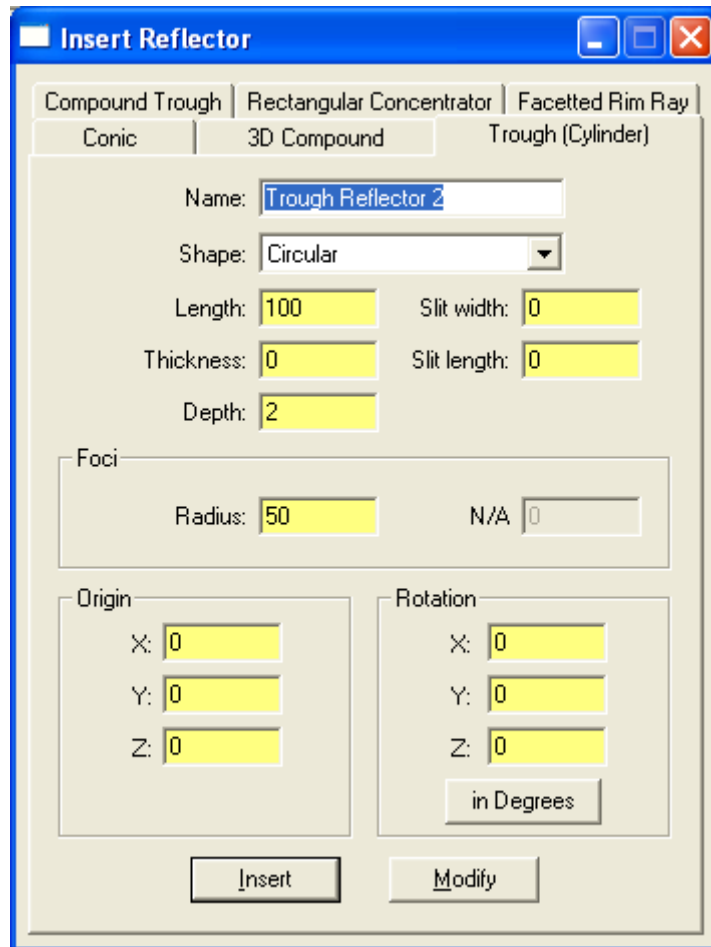
Introduction

- A **parabolic trough** is a type of solar thermal energy collector.
- Parabolic trough solar technology offers the lowest cost solar electric option for large power plant applications.
- It is constructed as a long parabolic mirror (usually coated silver or polished aluminum) with a Dewar tube running its length at the focal point.
- Sunlight is reflected by the mirror and concentrated on the Dewar tube.
- The trough is usually aligned on a north-south axis, and rotated to track the sun as it moves across the sky each day.

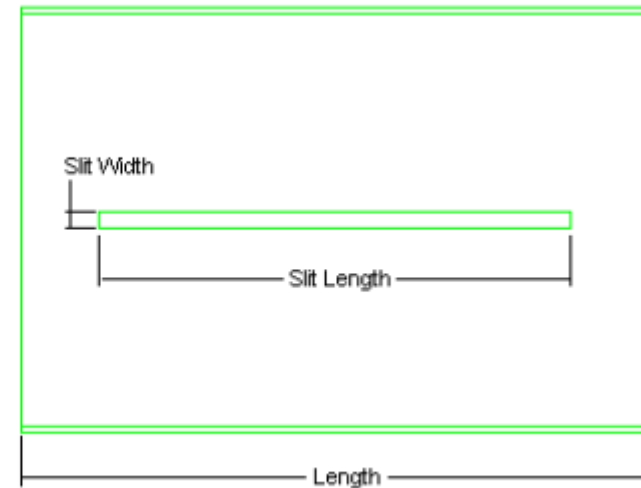
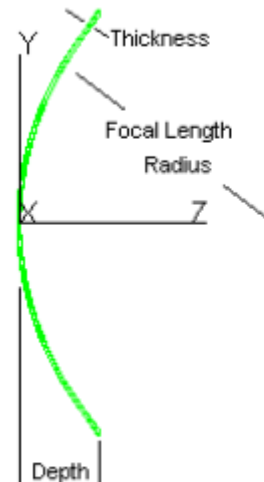
Trough Parameters

- Shape (Circular, Elliptical, Parabolic, or Hyperbolic)
- Length (the length along the cylinder axis)
- Thickness
- Depth (distance from the vertex to the outer edge of the reflector)
- Slit width
- Slit length
- Focal length (s) (or radius for a circular reflector)
- Origin (X, Y, Z coordinates of the vertex)
- Rotation (X, Y, Z rotation angles about the vertex)

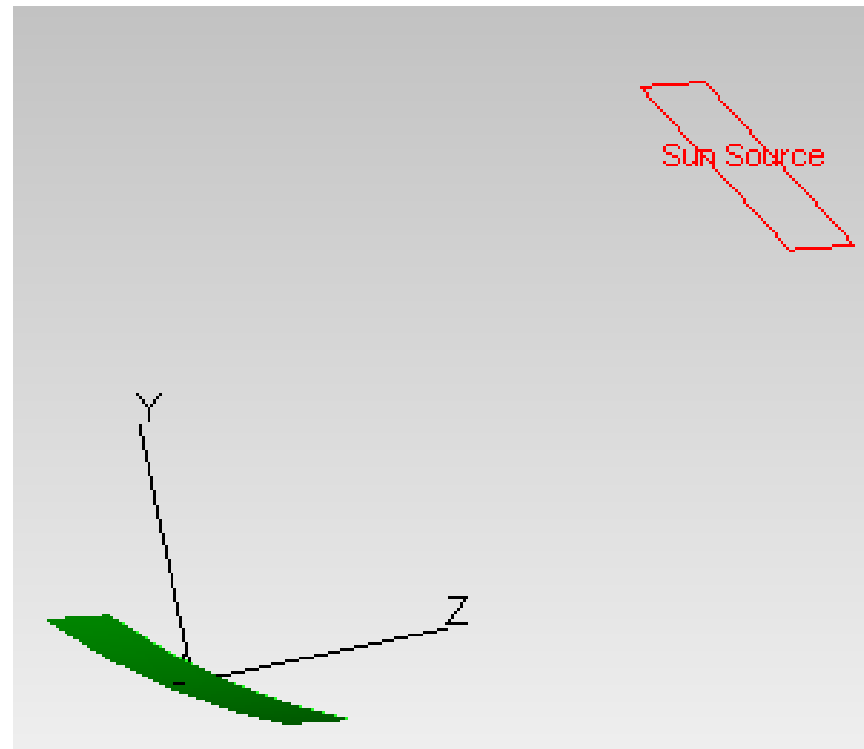
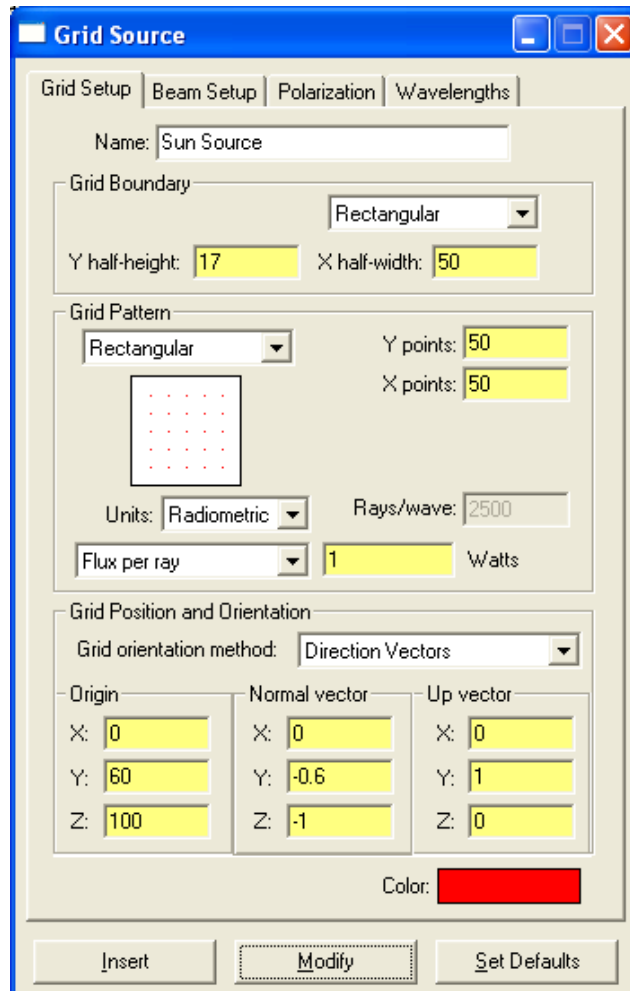
Trough Design



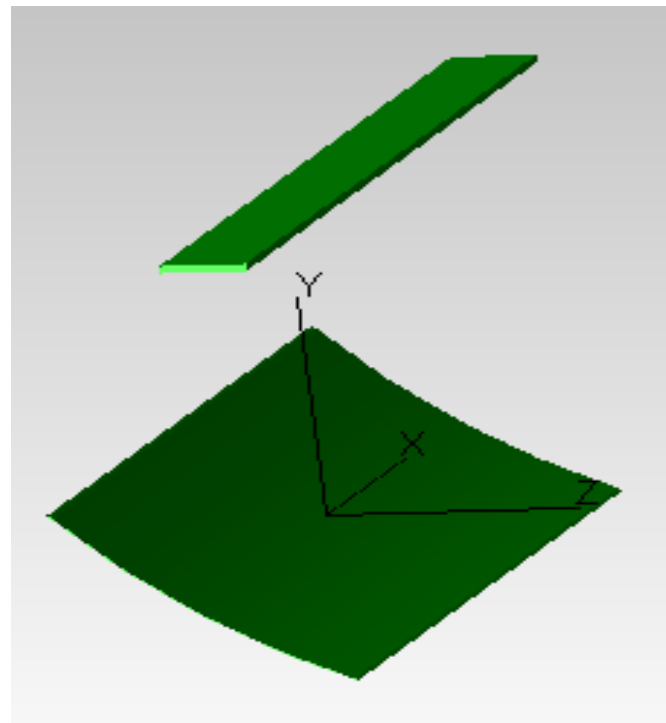
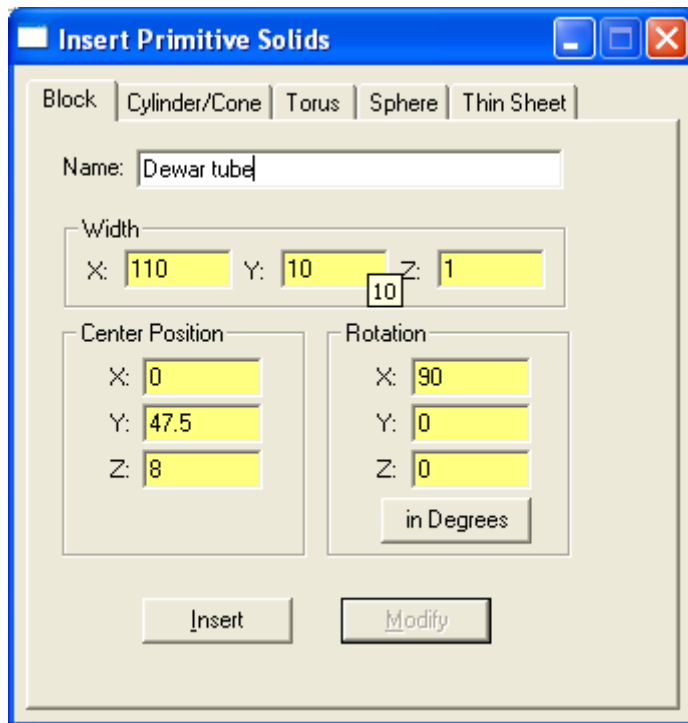
X rotation -55 and shape parabolic



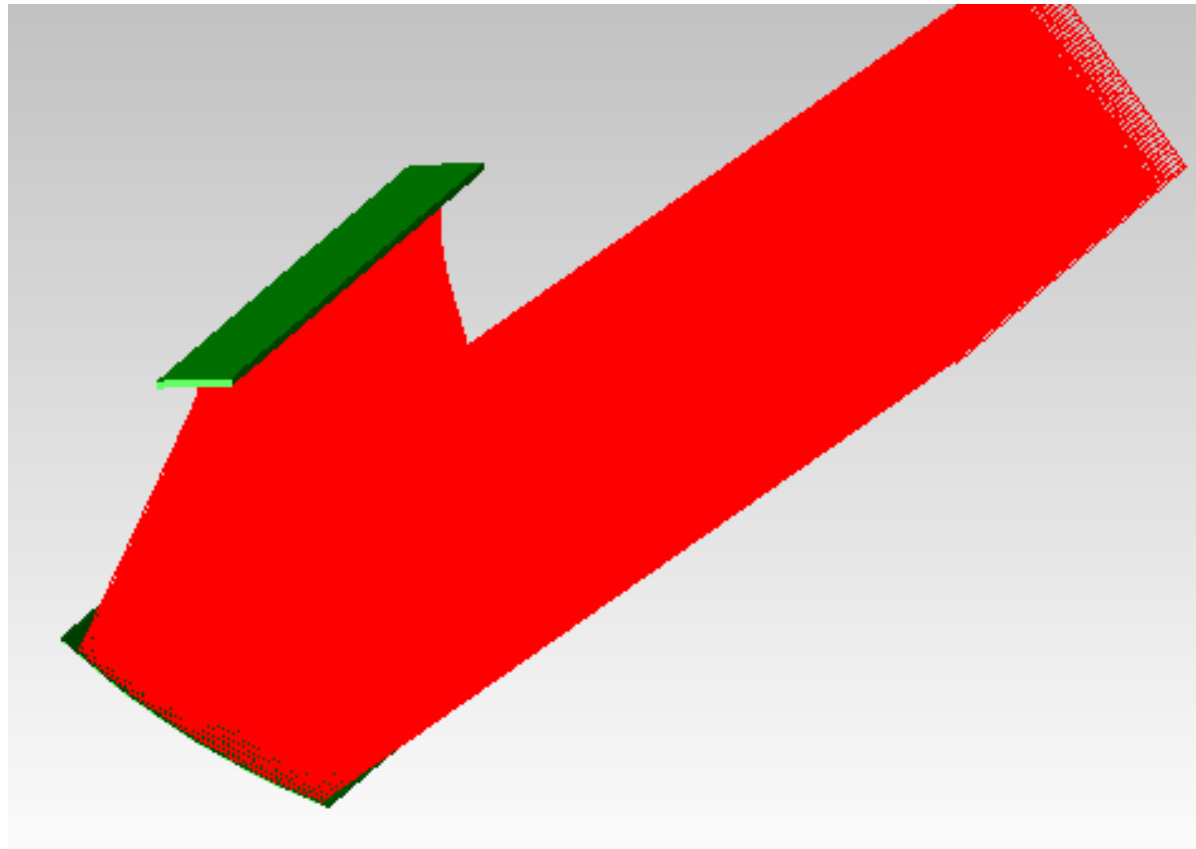
Source



Dewar Tube



Ray Trace



Analysis

