

# Assembling the Leica Cube

A Quick How-to Guide for Leica Cubes  
DM-K, DM-R and DM-IRB



Leica LSC Cube

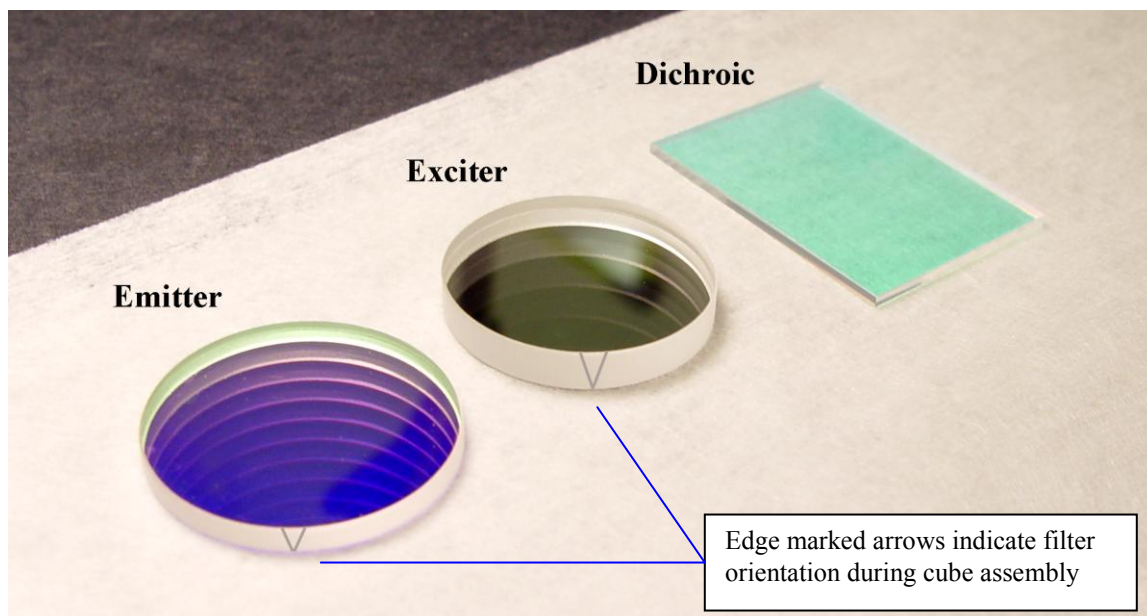


Semrock Cube Case



LSC -D Filter Set

Note that the Exciter and Emitter filters are marked with an arrow to indicate filter orientation in the cube assembly.



Step	Action
<b>1.1</b>	<b>Disassemble the Cube</b>
1.1.1	<p data-bbox="370 359 1068 386">Remove two Phillips screws to disassemble the LSC cube halves.</p>  <p data-bbox="370 1020 1252 1077">There are no washers or retaining rings in the Lieca LSC cube. All parts are shown below.</p> 

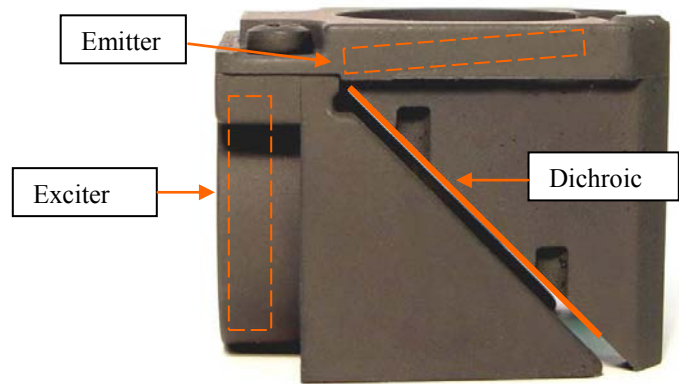
Step	Action
<p>1.1.2</p>	<p>The Exciter and Emitter /Dichroic housings are shown below to illustrate the filter mounting areas.</p> <p>The Exciter filter is installed to a ridge <i>inside</i> the housing and the Emitter is installed to a similar ridge on the outside. The ridges are the highest surface in the filter mounting area and are shown marked in the photo below.</p> <div style="display: flex; justify-content: space-around; text-align: center;"> <div data-bbox="521 474 699 506">Exciter Housing</div> <div data-bbox="867 474 1149 506">Emitter/Dichroic Housing</div> </div>  <p>Internal view of the Emitter/Dichroic housing showing the Dichroic mounting area. Note that the Dichroic is centered and positioned flush with the mounting ridge.</p> 

Step	Action
<b>1.2</b>	<b>Install the Semrock Filter Set</b>
1.2.1	The diagram below illustrates a cross section of the Leica cube for use in orienting and installing the Exciter, Dichroic and Emitter filters into the cube assembly. The cross section is for reference only to illustrate filter position and orientation.

**Filter Positions**

The Emitter is located at the top of the cube assembly. Notice it is mounted at a slight angle.

The Exciter is located at the left side (front) and the Dichroic is mounted diagonally at the center of the cube.



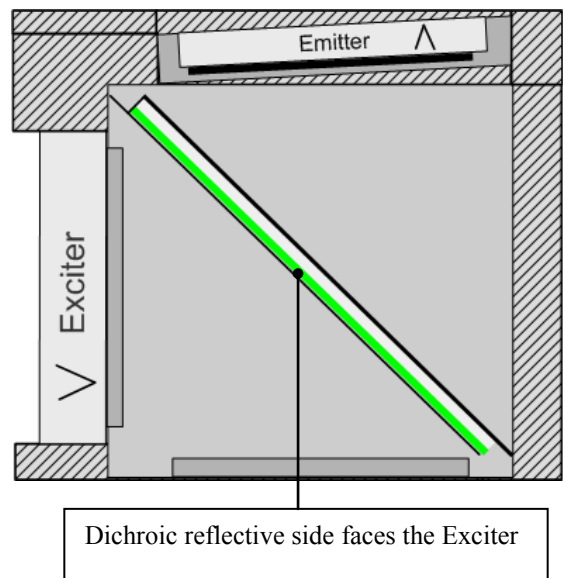
**Filter Orientation**

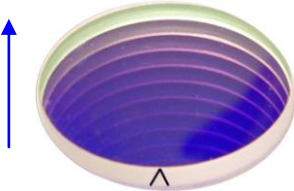
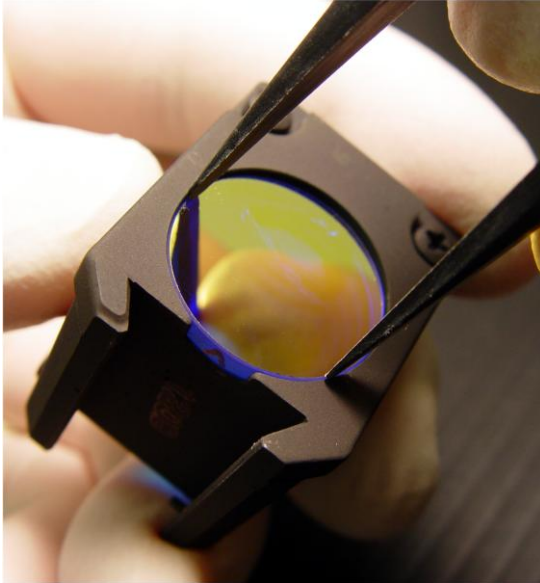

The filters are *oriented* in the assembly as follows:


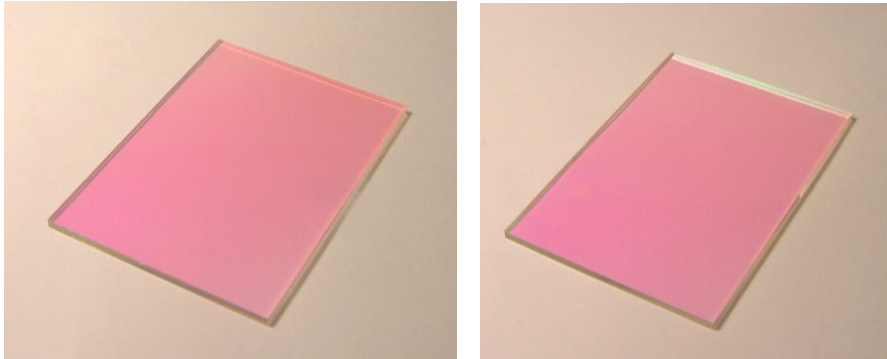
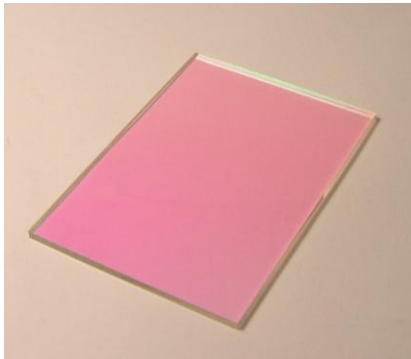
- The Exciter is mounted with its arrow pointing inward.
- The Dichroic Reflective side is mounted facing the Exciter.
- The Emitter is mounted with its arrow pointing outward.

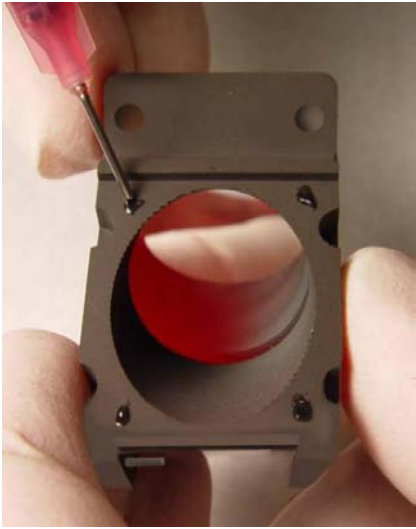

Light passes through the cube in the direction of the arrows. The arrows point toward the Anti-Reflective coatings on the Emitter and Exciter filters.

**Note:** The Dichroic Reflective coating must face the Exciter as shown in the cross section diagram.

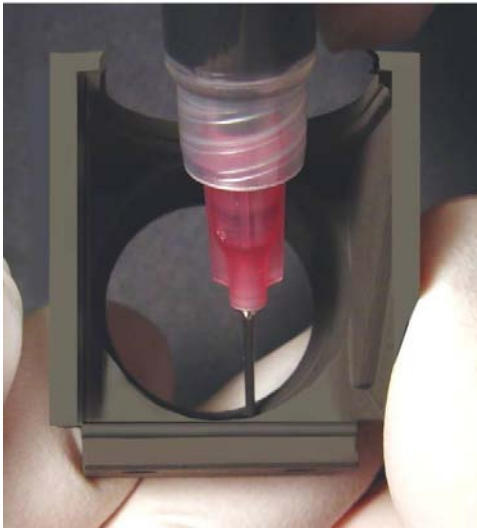
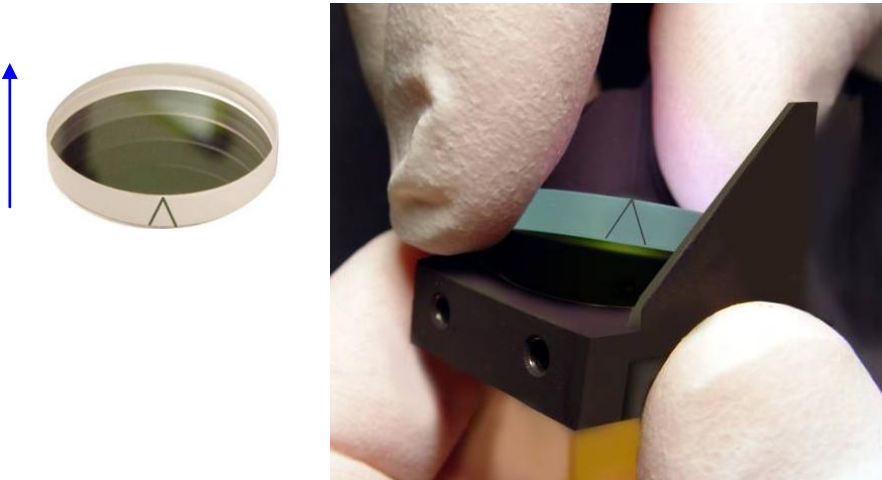


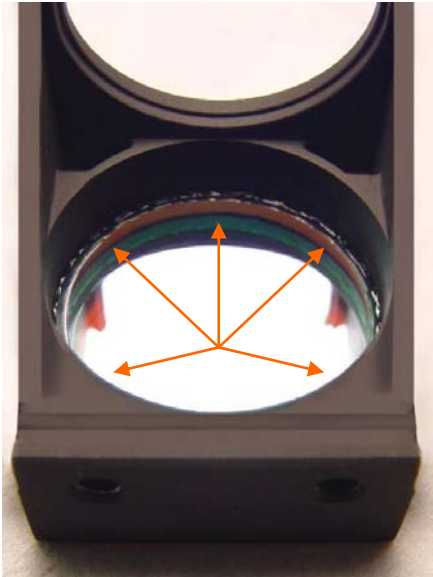
Step	Action
<p>1.2.2</p>	<p>Install the Emitter into the housing with its marked arrow pointing up.</p> <p>Using tweezers, gently press the filter into the housing until it is flush with the mounting ridge. Apply even pressure side to side to ensure the filter is seated flush in the housing.</p> <p>The Emitter arrow points up.</p> <div style="display: flex; align-items: center;">   </div>
<p>1.2.3</p>	<p>Use a drop of multi-purpose sealant such as RTV (Room Temperature Vulcanizing) Sealant which is 100% silicone rubber to the filter edge where it meets the housing wall. It would be helpful to use a syringe for the RTV as shown below. Keep the syringe moving to ensure the RTV is applied in a smooth and even layer around the entire circumference of the Emitter filter.</p> 

Step	Action
1.2.4	<p>Follow the drying time for the RTV sealant you are using. Normally, if you leave it at room temperature it will take about 1-2 hours to dry.</p> 
1.2.5	<p>Identify the <b>Reflective</b> side of the Dichroic for proper orientation in the cube.</p> <p>Reflective “Coated Side”: The filter edge is concealed by the reflective coating and appears colored all the way to the edge.</p> <p>Anti-Reflective “Uncoated Side”: The filter edge appears uncolored.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p><b>Reflective Side</b></p>  </div> <div style="text-align: center;"> <p><b>Anti-Reflective Side</b></p>  </div> </div>

Step	Action
1.2.6	<p>Deposit four drops of RTV to the corners of the Dichroic mounting area as shown below. Be careful not to spill over into the aperture when the Dichroic is installed.</p> 
1.2.7	<p>Place the filter on the diagonal mounting surface with the Reflective side <b>UP</b>. Apply slight downward pressure to the edges of the filter to fit in place. Ensure the edge of the filter is flush against the mounting ridge and no RTV has entered the aperture of the housing.</p> 



Step	Action
1.2.8	<p>Locate the Exciter housing. Apply a uniform bead of RTV to the mounting ridge inside the Exciter housing.</p> <p>Keep the syringe moving to ensure the RTV is applied in a smooth and even layer around the entire circumference of the Exciter mounting area.</p> 
1.2.9	<p>Place the Exciter into the housing with the marked arrow pointing into the housing as shown below.</p> <p>The Exciter arrow points in.</p> 
1.2.10	<p>Using the tweezers, gently press the filter into the housing until it is flush with the mounting ridge. Apply even pressure side to side to ensure the filter is seated flush in the housing.</p>

Step	Action
1.2.11	<p>Apply a uniform bead of RTV to the filter edge where it meets the housing wall.</p> <p>Keep the syringe moving to ensure the RTV is applied in a smooth and even layer around the entire circumference of the Exciter filter and housing wall.</p> 
1.2.12	Fasten the cube halves together using the screws removed previously.
1.2.13	<p>Completed Leica LSC Cube Assembly.</p> 