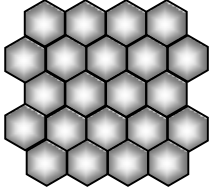
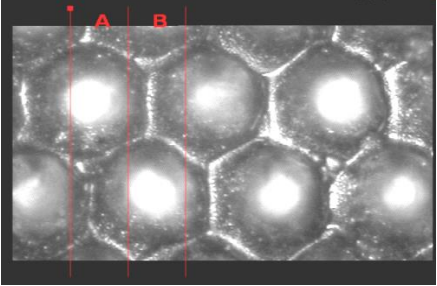
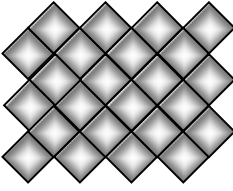
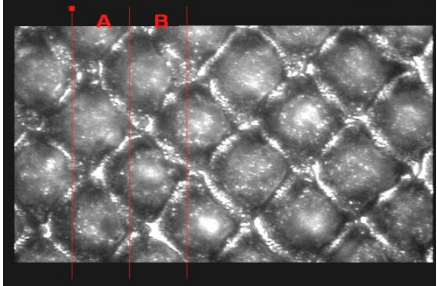
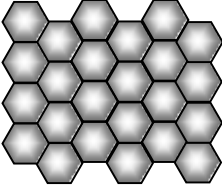
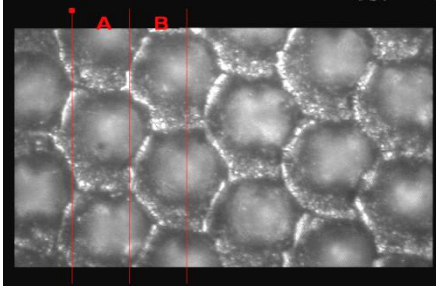
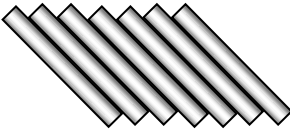
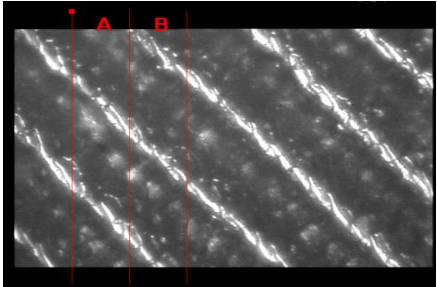
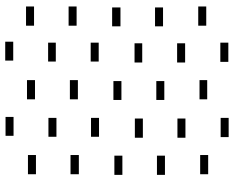
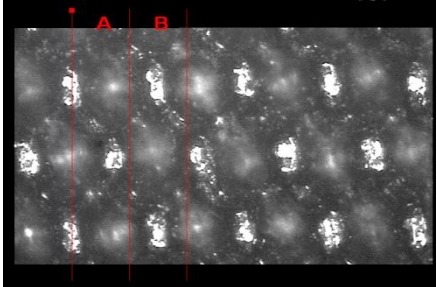
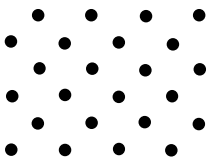
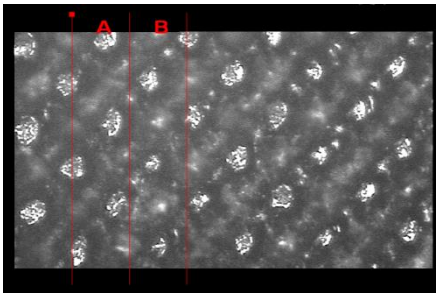
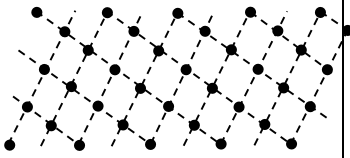
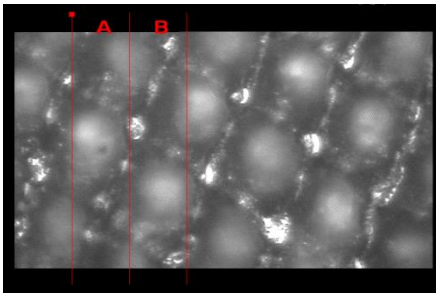
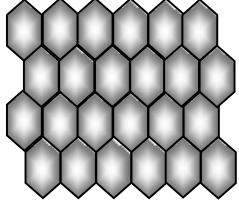
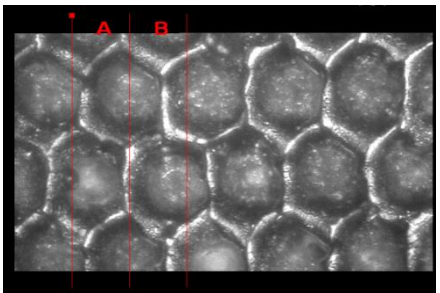
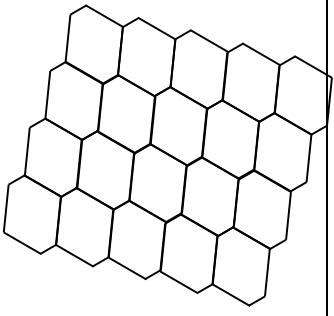
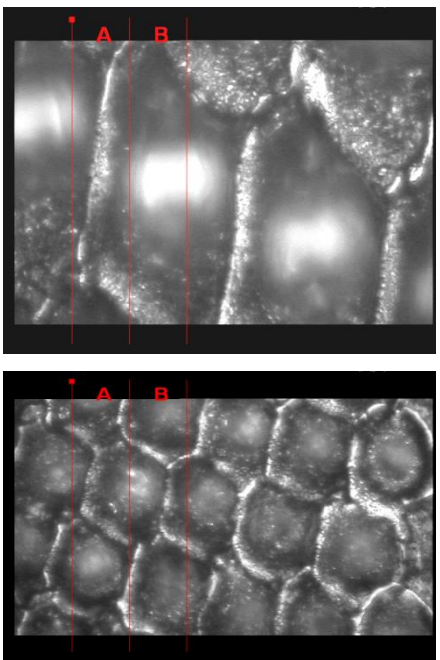
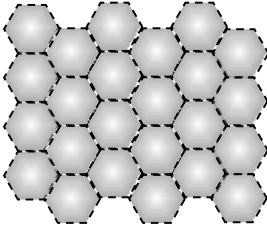
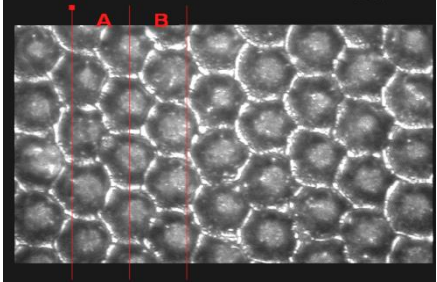
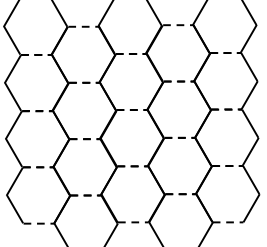
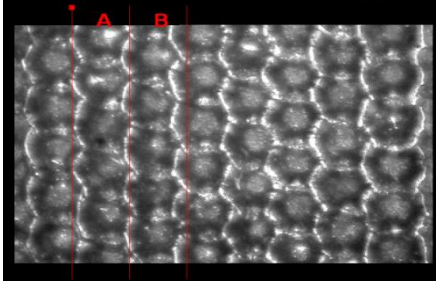
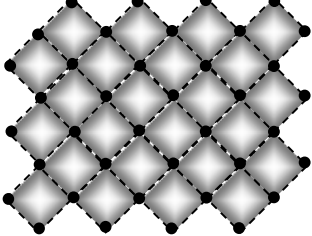
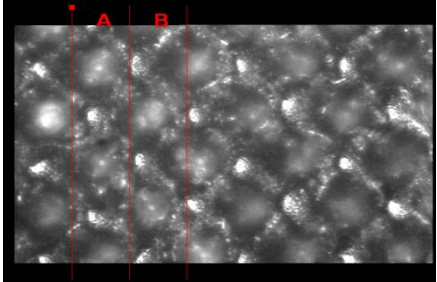
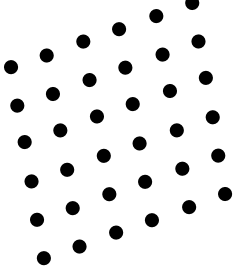
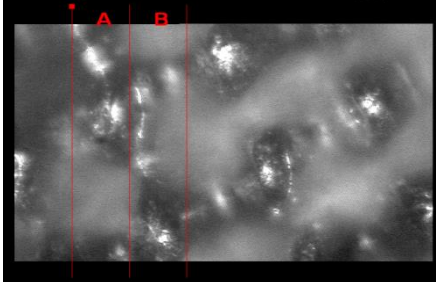
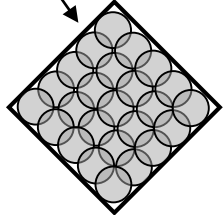
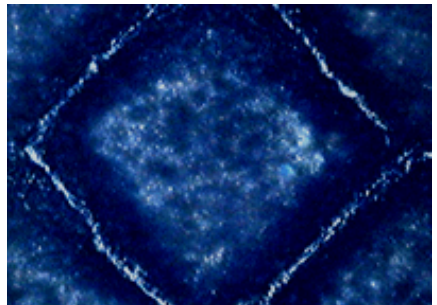


Standard Operating Procedure no.10 (SOP-10)

Title: List of engraving types

Name	Principle	Schematics	Photo
TeroMin	60° engraving		
TeroMin	45° engraving		
TeroMin	30° engraving		
TeroLine	Canal engraving Angle 45° or 60°		
TeroWhite	Double-helical: First pass at 60° Second pass at -62°		

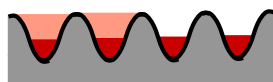
Name	Principle	Schematics	Photo
TeroDense	Double-helical: First pass at 45° Second pass at -49°		
TeroSpeed	Helical engraving 30° angle Large pitch (0.7-0.9)		
TeroMed	60° engraving Diameter reduced 20-30% Pulse 25-35%		
TeroMax	Helical engraving -72° angle Large pitch (1.2-1.5)		

Name	Principle	Schematics	Photo
TeroQuad	<p>Standard 30° engraving, with flat bottom and small channels</p> <p>It is done for fine screens, above 300 L/cm</p>		
TeroVis	<p>Standard 30° engraving</p> <p>Diameter increased</p> <p>Vertical channel</p>		
TerpPack	<p>Standard 45° engraving, with "summits" at the corners</p> <p>XPR off</p> <p>Short pulse</p> <p>High energy</p>		
TeroTop	<p>Double-helical:</p> <p>First pass at -30°</p> <p>Second pass at 70°</p> <p>Super flat bottom</p>	 <p>Each circle represents a laser shot</p>	
TeroPuls	<p>A square cell is engraved with several laser shots located at differet position on the cell</p> <p>The cell angle is 45°</p> <p>Engraving done for screen count from 20 to 80 L/cm</p>		

Characterization of the cell shape

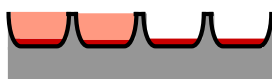
The "cell shape ratio" characterizes the cell shape: a value close to 1 means a very flat cell bottom, excellent U-shape. A value greater than 3.5 is characteristic of a bad engraving: peaked cell, poor ink release, difficult to clean.

$$\text{Cellshaperatio} = \frac{\text{depth (micron)}}{\text{volume (cm}^3\text{/m}^2\text{)}}$$



Average standard engraving

Ratio = 3 – 3.5



Optimized standard engraving

Ratio = 2.5



Litho-Advance engraving

Ratio = 1.4



Traditional offset: ink film on plain surface (no engraving)

Ratio = 1.0

Engraving type	Cell shape ratio
TeroMin, 30° (*)	2.5 – 3.0
TeroMin, 45° (*)	3.0 – 3.5
TeroMin, 30° (*)	2.5 – 3.0
TeroLine	2.0 – 2.5
TeroWhite	1.8 – 2.2
TeroDense	1.8 – 2.2
TeroSpeed	1.7 – 2.1
TeroMed	2.0 – 2.5
TeroMax	1.6 – 2.0
TeroQuad	2.0 – 2.5
TeroVis	1.9 – 2.3
TeroPack	2.0 – 2.5
TeroTop	1.4 – 1.5

(*) For standard engravings the values are given for our engraving technology, which is specially set-up to optimize the cell shape ratio.

