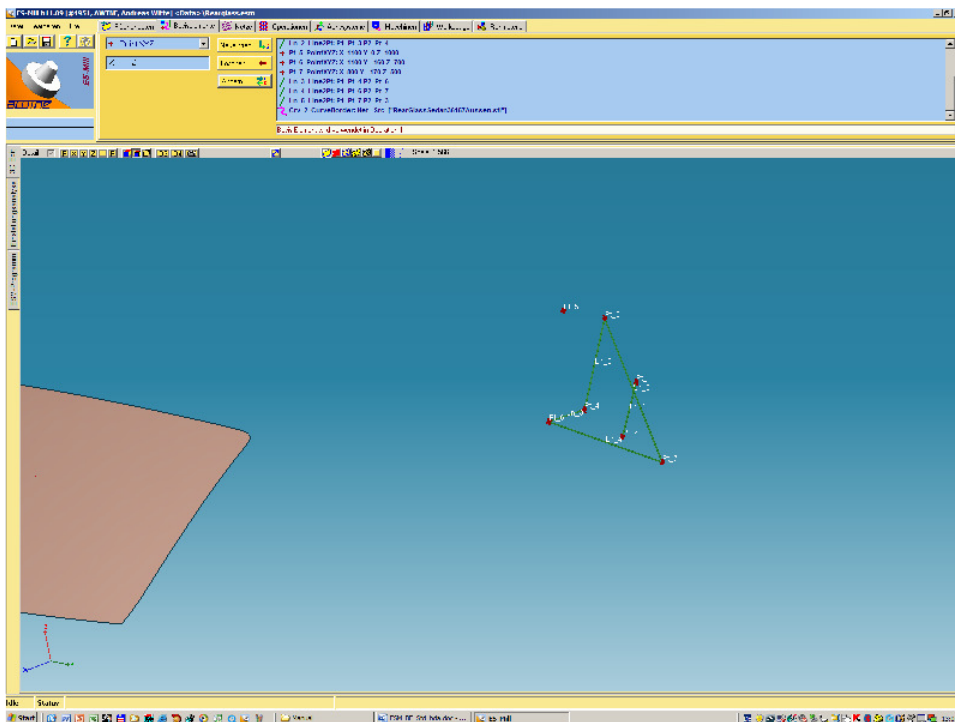
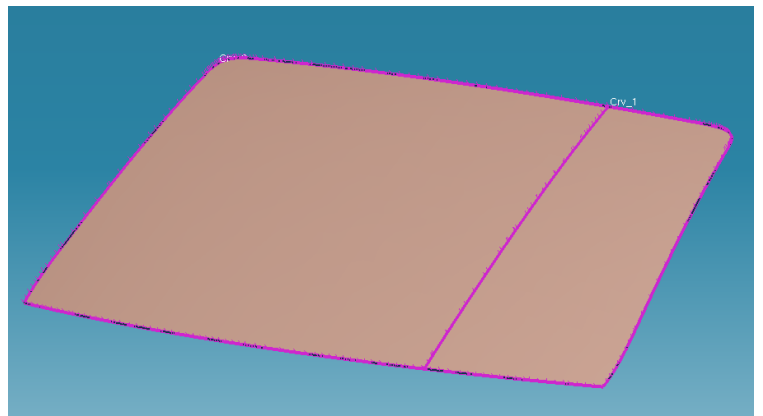
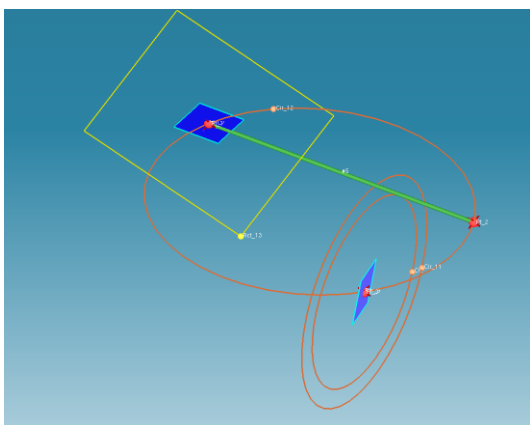


## 5-axis standard machining using basic elements

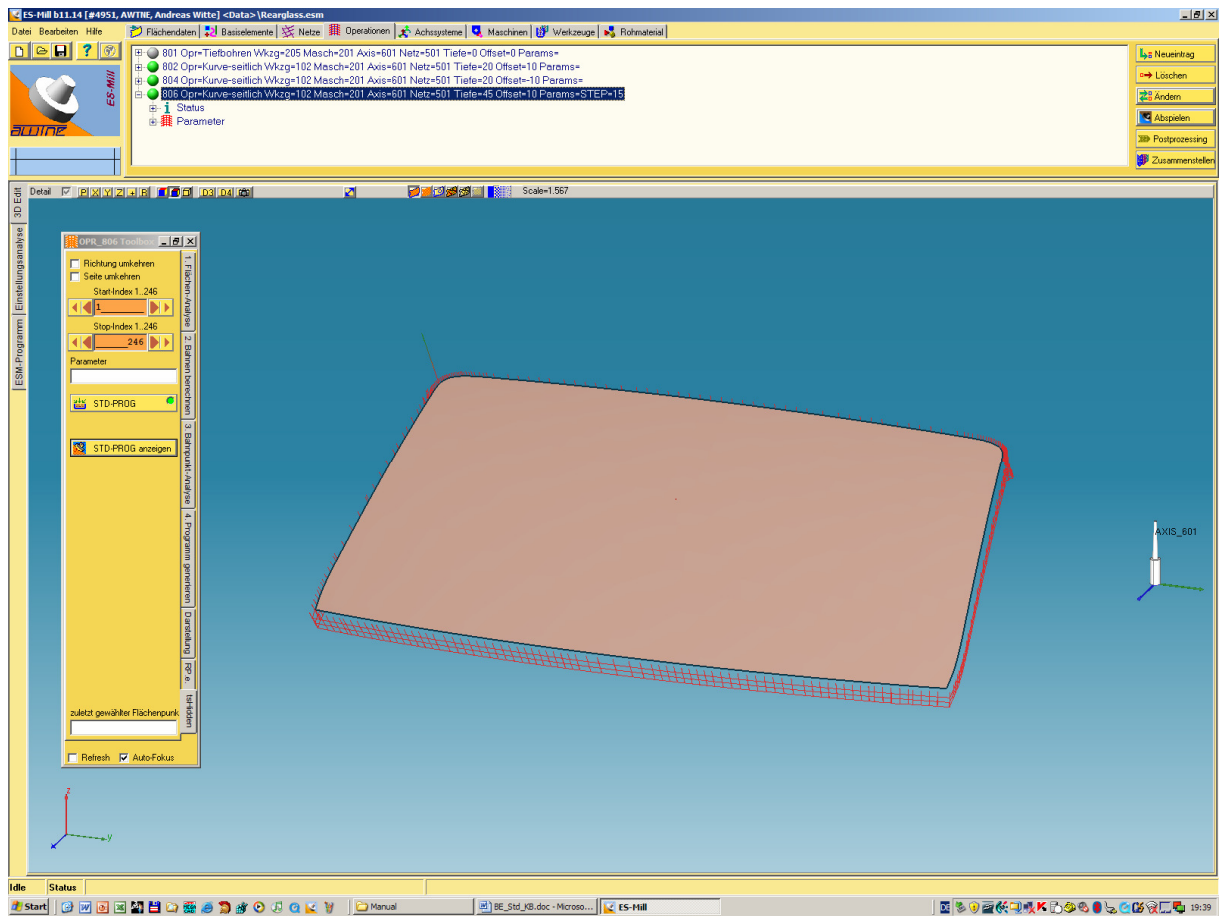


### Basic element options:

- points (coordinate points, intersection points)
- lines (point to point, cut lines)
- levels (3-point, coordinate system parallels, line-based)
- circle (3-point, centre + radius, axis + radius)
- rectangle
- curve (line-based, surface cut, surface projection, surface outline)



## 5-axis standard operations



### Machining options:

- inclined drilling, reaming, threading
- inclined contour milling
- inclined circle and rectangle pocket milling

## Description of different operations

### 1. Drilling

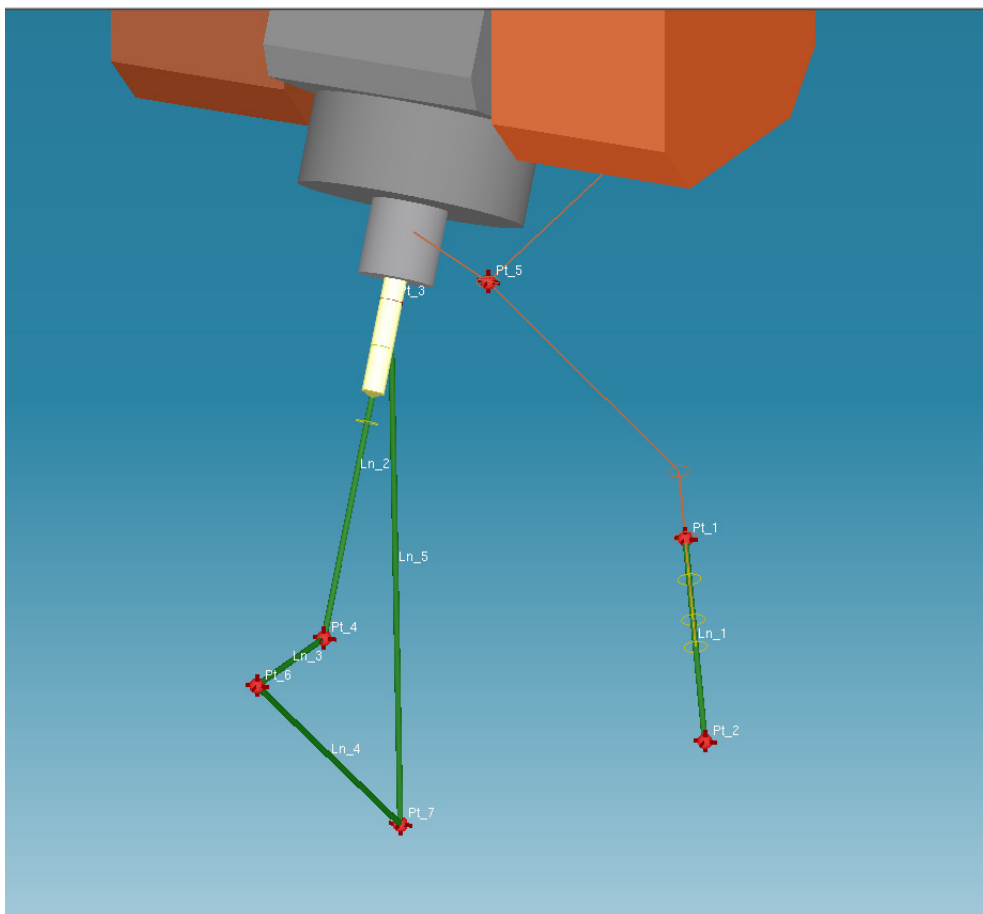
Along a line; machining direction corresponds to the defined direction of the line and can be changed by checking "reverse direction" in the toolbox.

If depth indicated as 0, length of the line is used as depth.

The fork head and/or workpiece are aligned to the angles of the line.

An additionally selected point is interpreted as safety position and started before and after drilling in rapid traverse.

- simple: one feed motion to final depth and retreat in rapid traverse
- deep: several feed motions (STEP) with retreats in rapid traverse
- breaking: several feed motion (STEP) with short take offs
- reaming: one feed motion to final depth and retreat with same feed
- threading: like reaming, feed motion must correspond with RPM (pitch), reverse of rotation direction on return movement



## 2. Milling curves

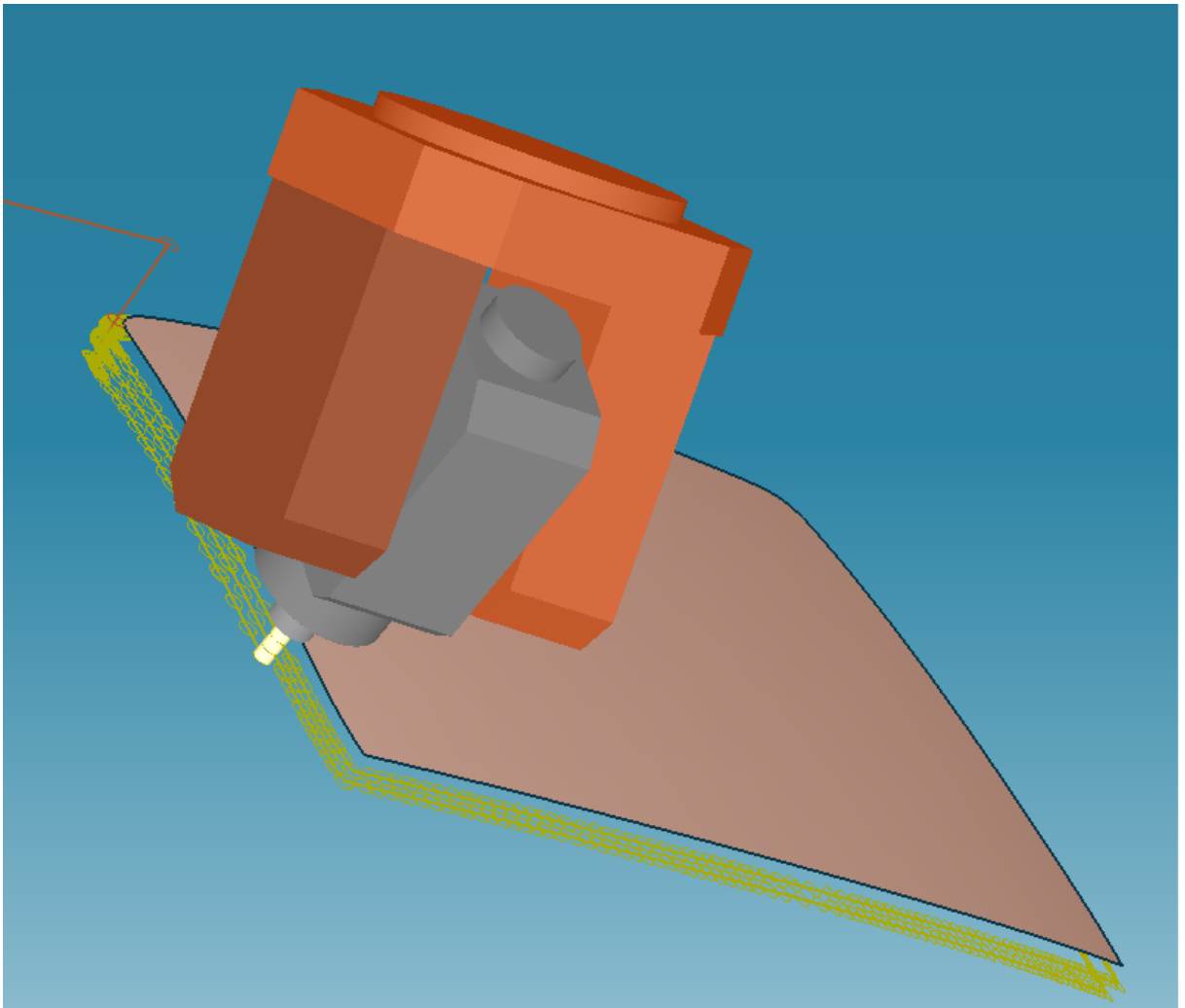
Along one or several lines or curves; the machining direction corresponds to the defined direction of the line/curve and can be changed by checking "reverse direction" in the toolbox.

The machining side can be changed by checking "reverse side" in the toolbox.

For closed curves the start/stop element can be determined in the toolbox "start index, stop index".

By using "STEP=Value" in the parameter key-in several loops machining the curve can be created.

An additionally selected point is interpreted as safety position and started before and after milling in rapid traverse



- Laterally along one or more lines (which must match together): a plane **must** be defined, according to which the head and/or the workpiece is aligned. Working depth is either constant to the plane (ZCONST) or in a fixed distance (depth) to the lines

- Laterally along an open or closed curve (surface cut, surface projection, surface outline):  
a plane **can** be defined, according to which the head and/or the workpiece is aligned. The working depth is either constant to the plane (ZCONST) or in a fixed distance (depth) to the curve.  
If no plane is defined, the alignment is changed permanently according to the surface vectors (5-axis milling). Relative angle offset to surface vector is possible (ANGL) and is calculated before the computation of the offset and depth value.