ESRF	**Experiment title:** Tests of tensile machine designed for ID13 environment	**Experiment number**: IN-1035
Beamline: ID13	**Date of experiment**: from: 2018/03/06 to: 2018/03/07	**Date of report**: 2018/03/26
Shifts: 2	**Local contact(s)**: Michael Sztucki	*Received at ESRF:*

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Report:

As announced in our proposal (Ref n° 81569), we carried out some preliminary tests during a proprietary shift on March 6th. The aim was to ensure that our tensile machine fits well with the environment of ID13 beamline and provides satisfactory results when synchronized with X-rays diffraction.
The machine is custom built in our lab. It consists in two jaws moving symmetrically on a rail, equipped with a force sensor. An oven is designed to heat the sample while it is stretched.
First, these preliminary experiments confirmed that the machine fits the environment of ID13 beamline, as shown on Figure 1.
Moreover, we had the opportunity to test the oven temperature rise up to 200°C and make sure it does not induce any damage on the beamline.
We managed successfully to follow hair internal structure during a few seconds of stretching experiment and could follow the amount of α-helical structure evolution during stretch.
We are currently working on the regulation of humidity and improving speed control and technical parameters on the machine. Yet, the tensile device is already operational in its present configuration, and it could be possible in the future to share its use with ID13 users.

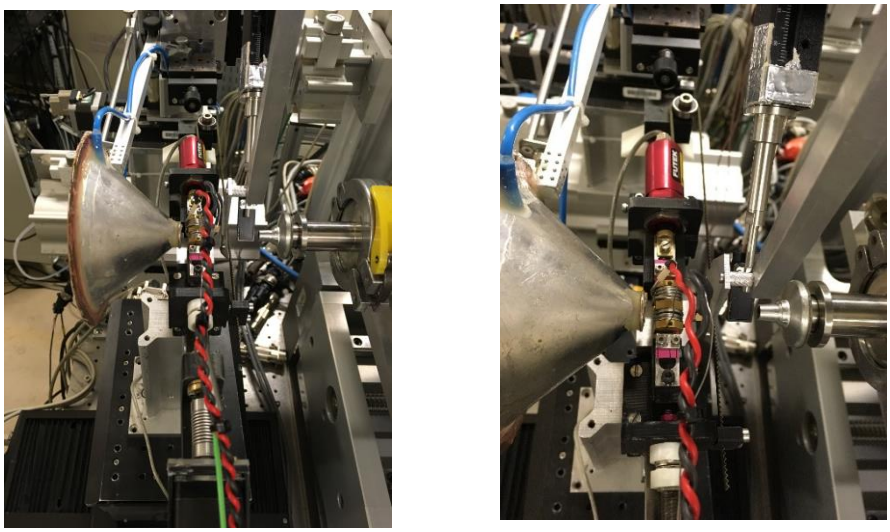

Figure 1: Tensile machine in ID13 environment