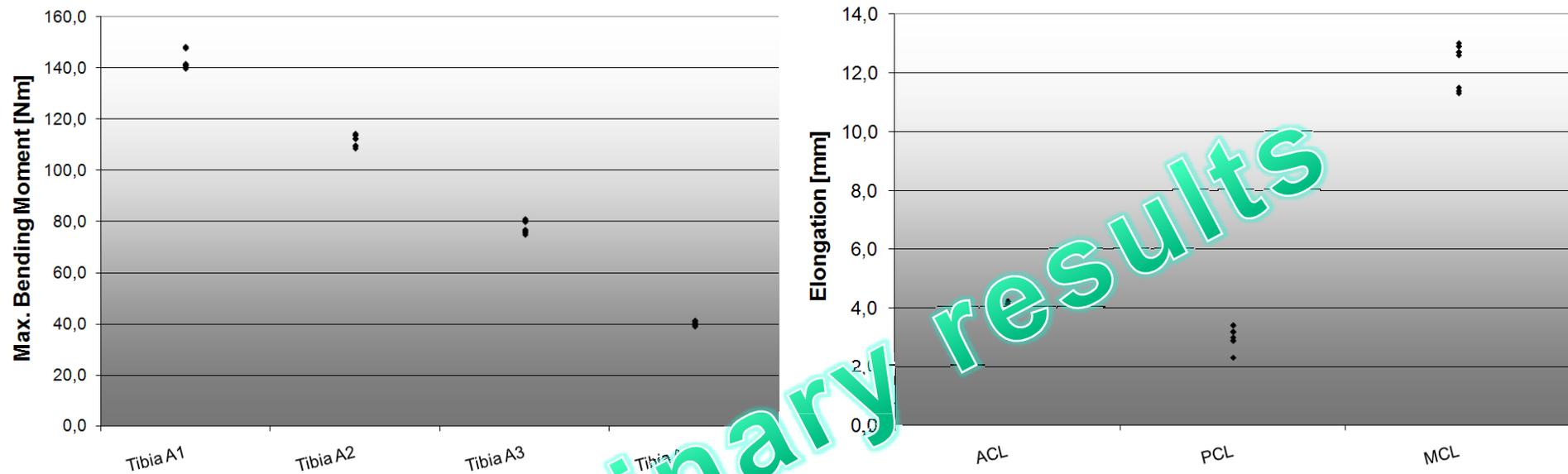


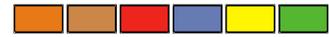
# Certification tests – Impactor variation



## Test results - reproducibility:



- For the determination of the reproducibility corridor all segments with good repeatability [CV < 5%] of test results were taken into account
- Tibia A1, A2, A3 and the MCL ligament of all impactors with reproducible test results [max. deviation from mean value < 10%]
- PCL results of two impactors within the reproducibility corridor; of one impactor not reproducible (i.e. at least one test result outside)
- All impactors with at least one ACL ligament result outside the corridor



## Test setup variation:

Test setup with spacer between suspension and lower cross beam and test frame („old suspension“)

Test setup with suspension and lower cross beam attached directly to the test rig („new suspension“)

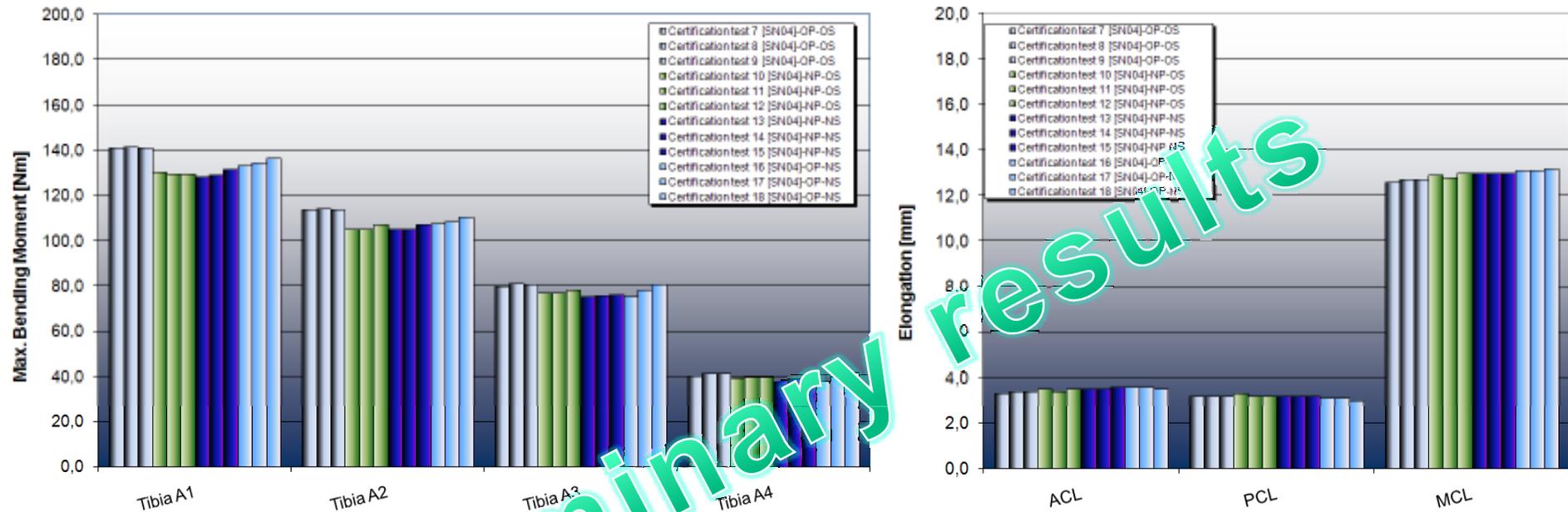


Preliminary results

Exchange of lower cross beam padding during the test series

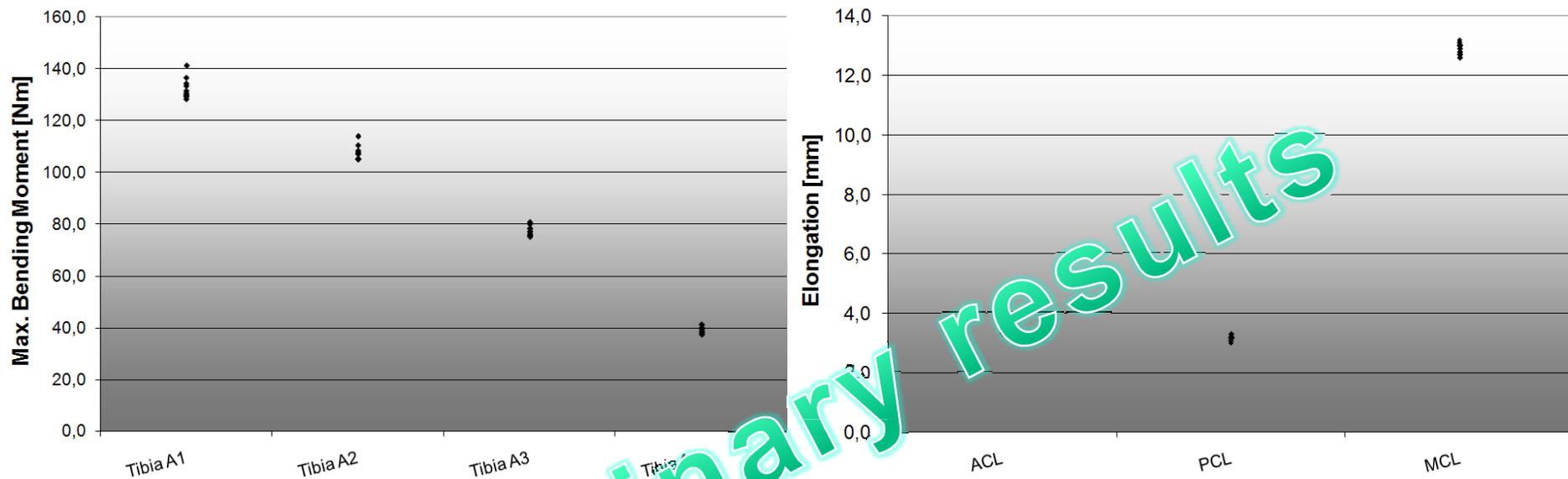


## Test results - Test setup variation (SN04):



- Nine additional tests with a slightly modified test setup were performed
- Variation of „old/new cross beam padding“ and „old/new suspension method“
- In total, 18 tests with impactor SN04 were compared
- In each test setup the repeatability was good for all segments, except the constellation „old padding w/ new suspension method“ (acceptable repeatability for Tibia A3/A4)
- Test setup „old padding/old suspension“ showed the highest tibia results

## Test results – Test setup variation (SN04):



- The coefficient of variation [CV] calculated from all twelve tests showed good to acceptable results
- $CV < 2\%$  for all knee ligaments and tibia A3 segment
- $CV < 4\%$  for tibia A1, A2 and A4 segments



Overview test programme Flex-GT

Certification tests

**Inverse tests**

- Procedure
- Impactor variation

Summary and next steps

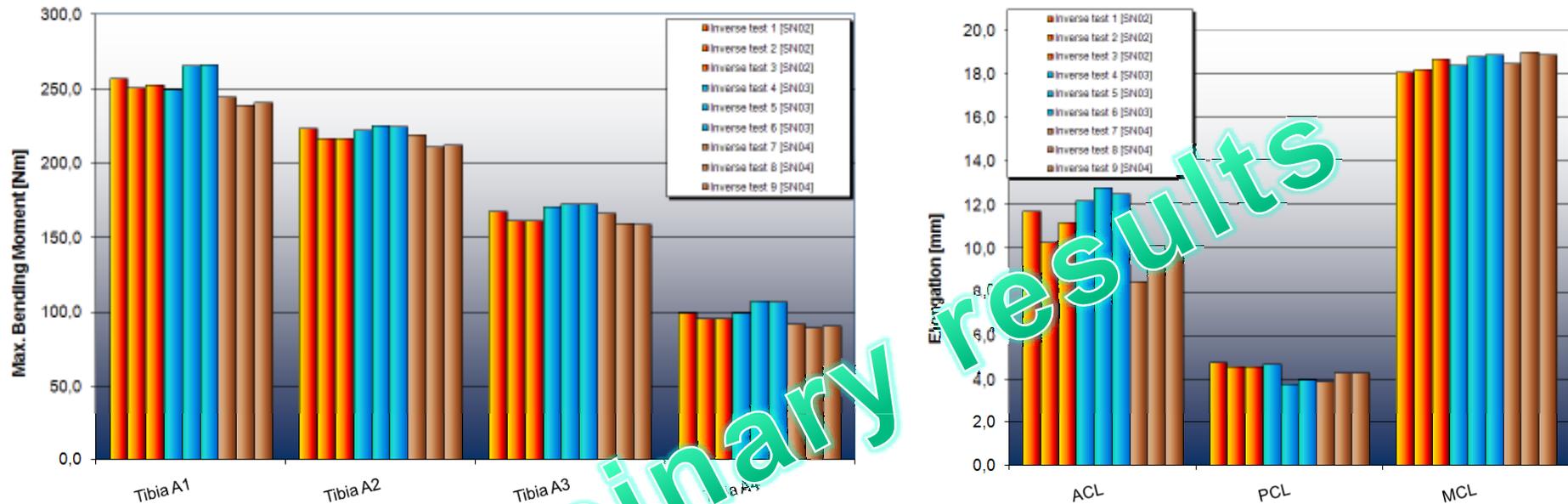
Preliminary results



Preliminary results

- Flex-G1 was impacted by the upper edge of a linearly guided Al honeycomb impactor (mass: 8,1 kg) at an impact speed of 40 km/h
- Impact location: upper edge of the honeycomb in line with the center of the knee

## Test results - repeatability:



- Each legform impacted with quite similar tibia and MCL test results, but partly a high scatter within ACL/PCL results
- Differences in ACL test results also from impactor to impactor
- Good repeatability for tibia and MCL results
- Repeatability for ACL and PCL ligaments partly unacceptable