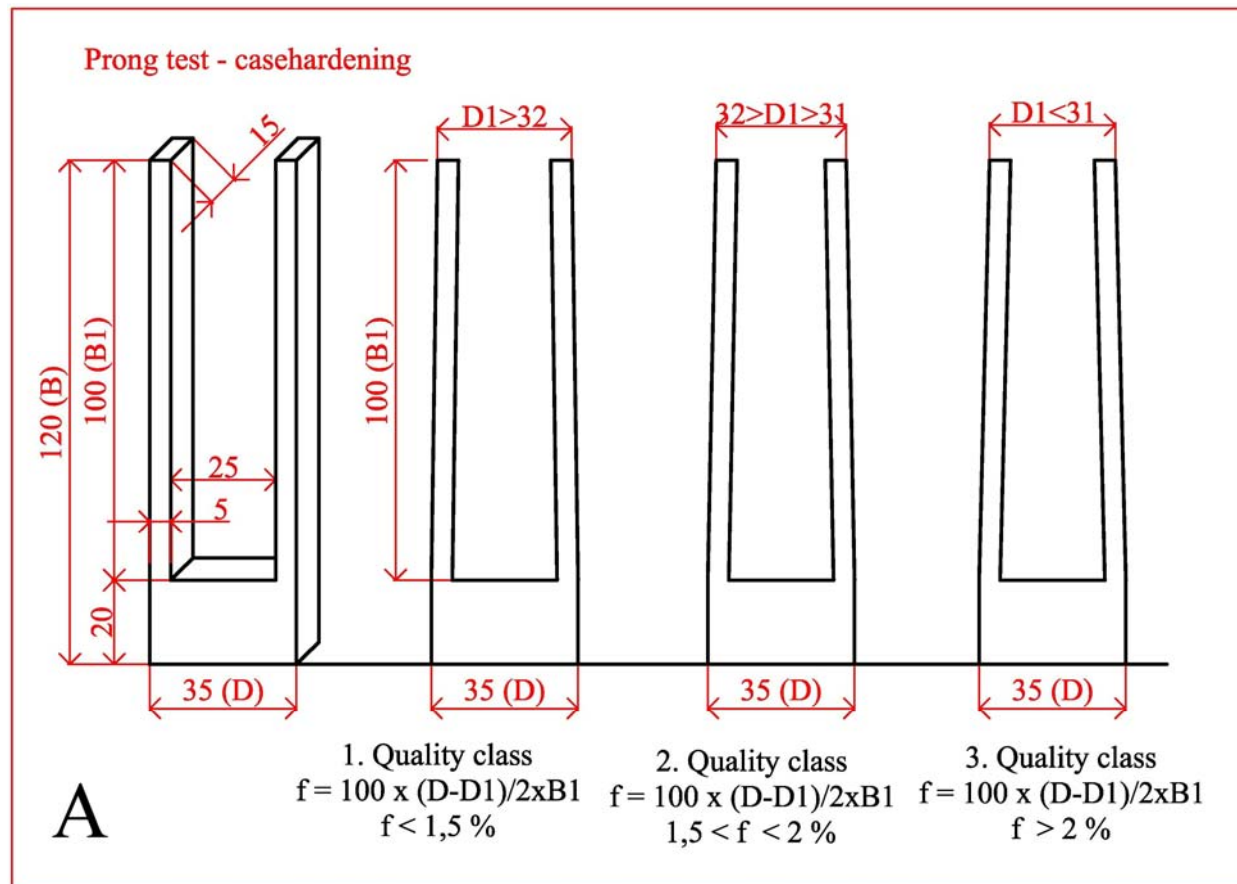


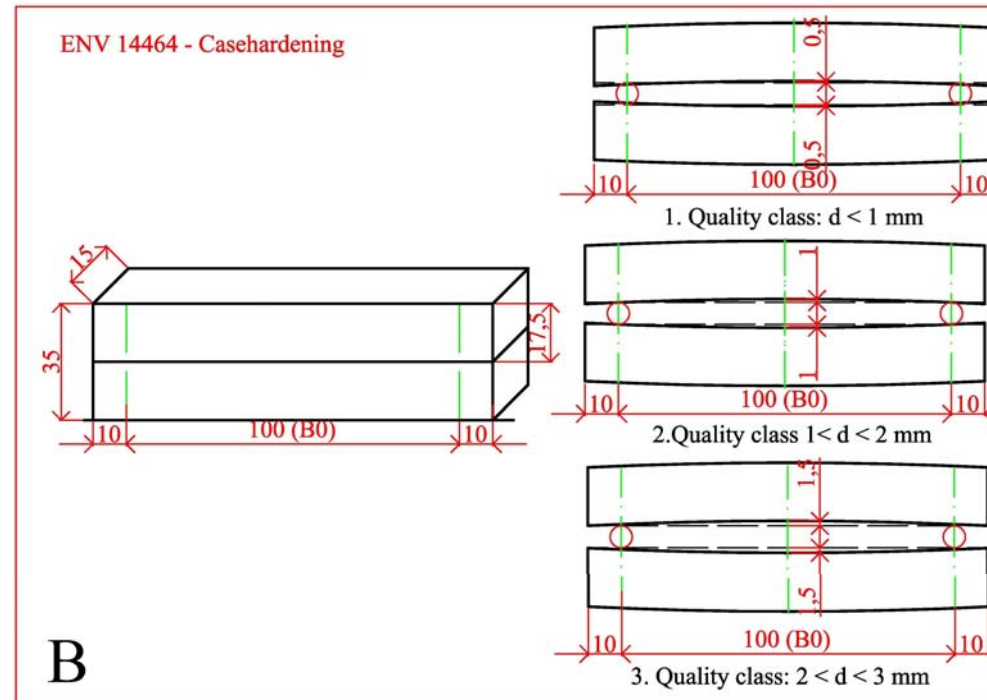
# **EVALUATION AND COMPARISON OF QUALITY OF BEECH WOOD (FAGUS SILVATICA L.) AFTER VACUUM DRYING AND HF-DRYING.**

**Daniel Karpinský**

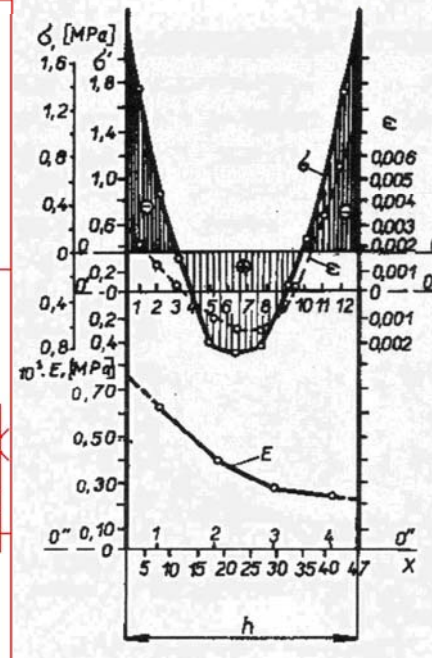
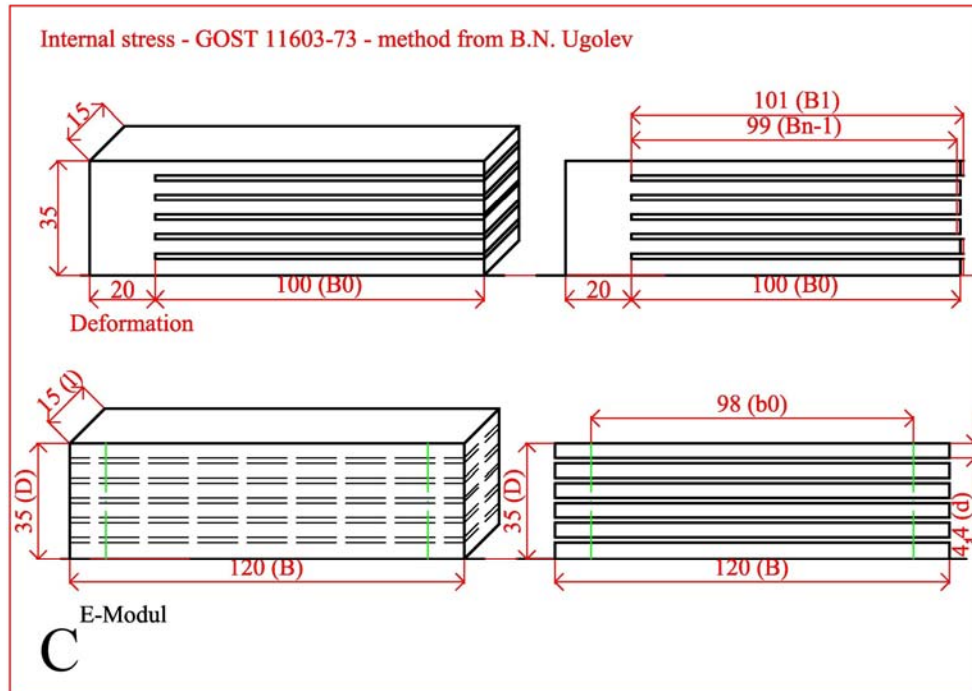
# Prong test - Casehardening



# ENV 14464 - Casehardening

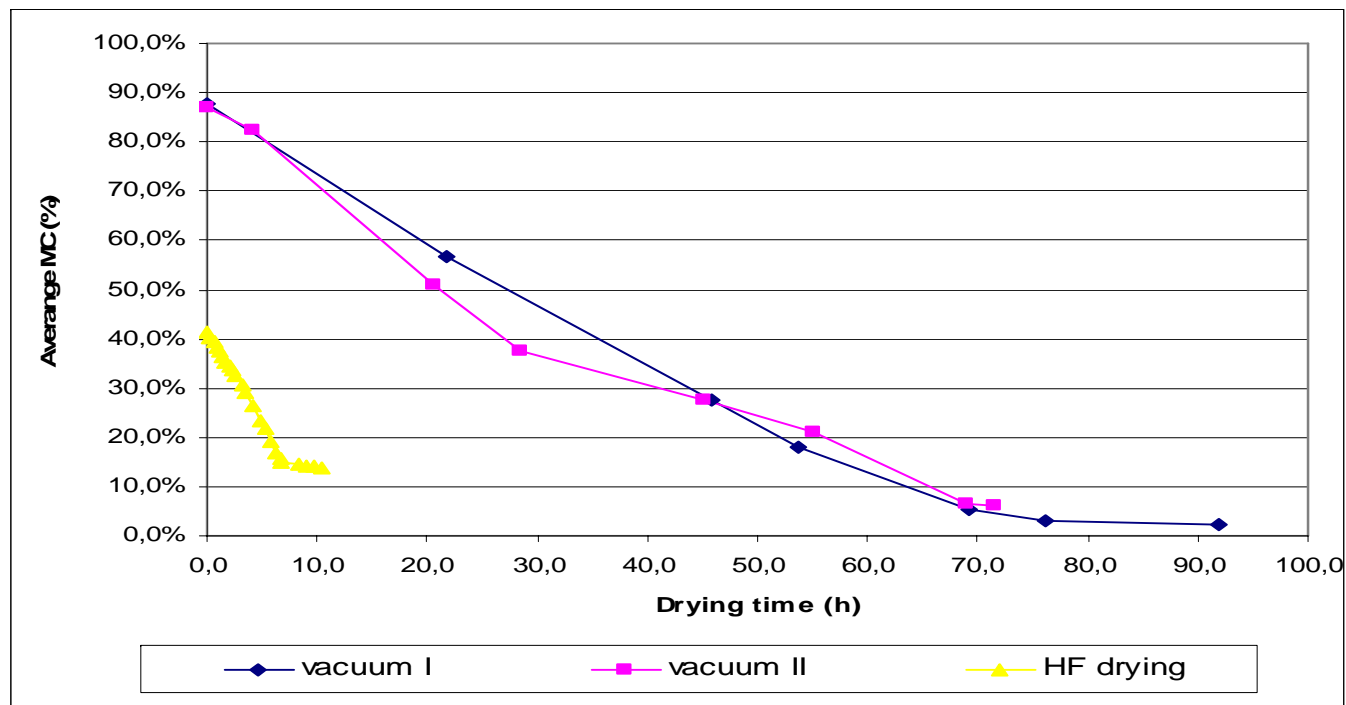


# GOST 11603-73 - Internal stress



## Drying time

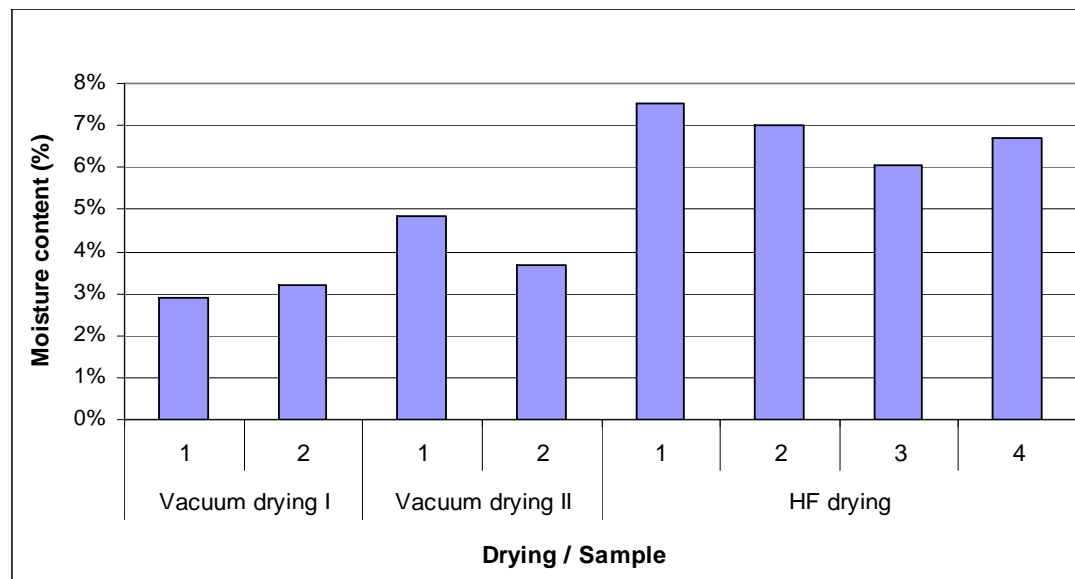
- Vacuum drying I (with equalizing)                   =>    92 h
- Vacuum drying II (without equalizing)               =>    72 h
- HF drying (after 160 h pre-drying)                   =>    10,5 h



# Results

## Final MC

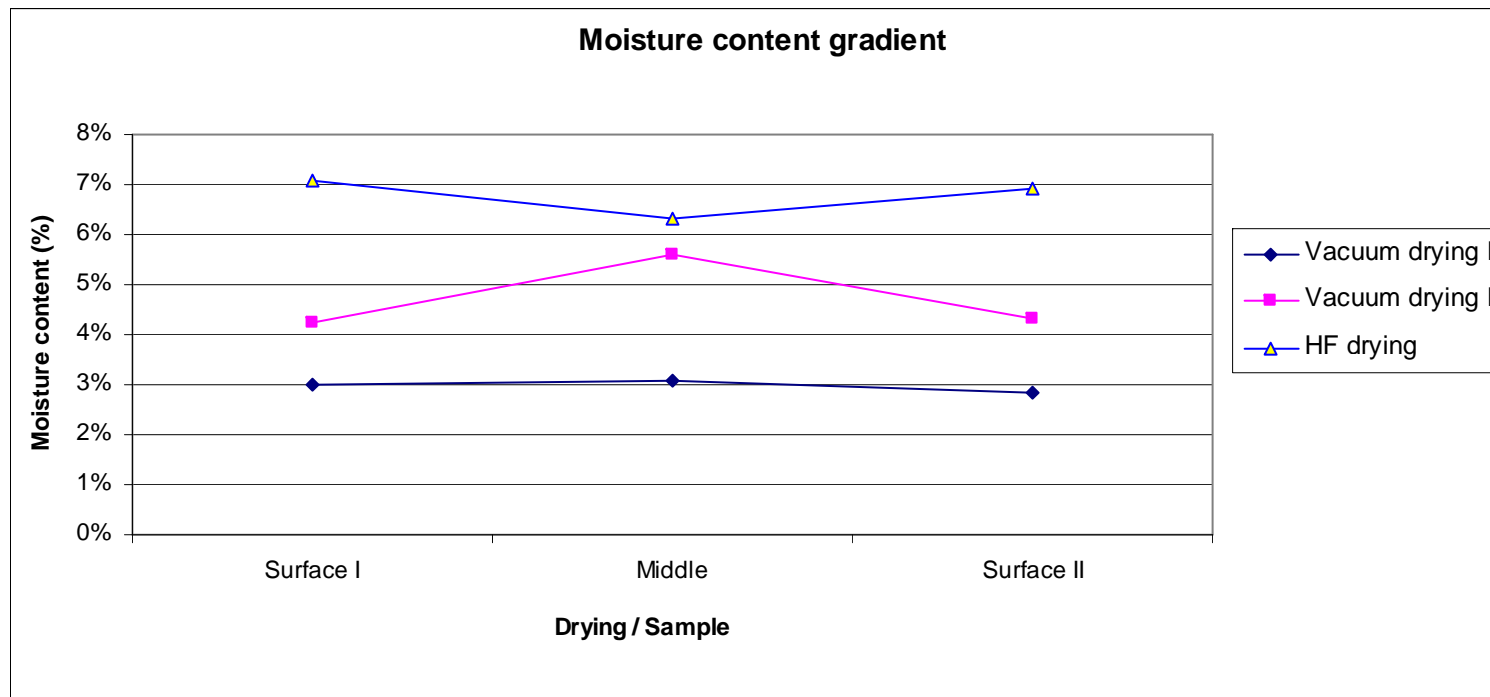
- Vacuum drying I                   =>     2,9 – 3,2 %
- Vacuum drying II                 =>     3,7 – 4,8 %
- HF drying                           =>     6,1 – 7,5 %



# Results

## MC gradient

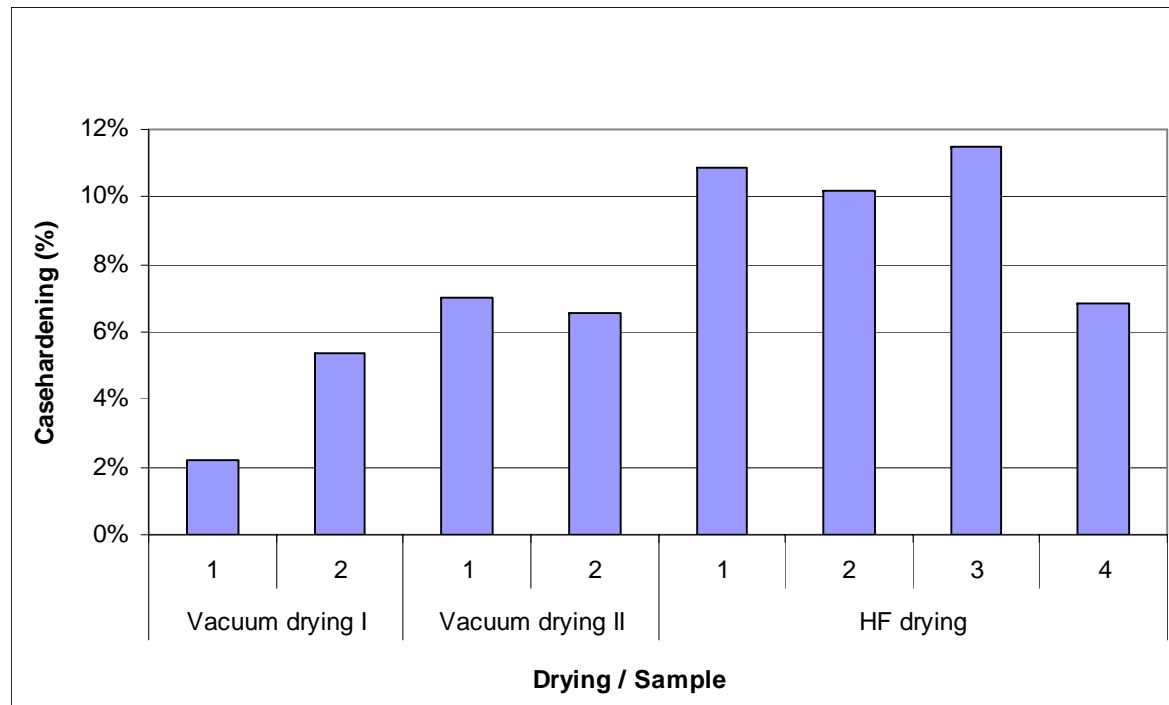
- Vacuum drying I                   =>       gradient max.       0,2 %
- Vacuum drying II               =>       1 to 1,7 %
- HF drying                         =>       -0,6 to -1,2 %



# Results

## Casehardening – prong test

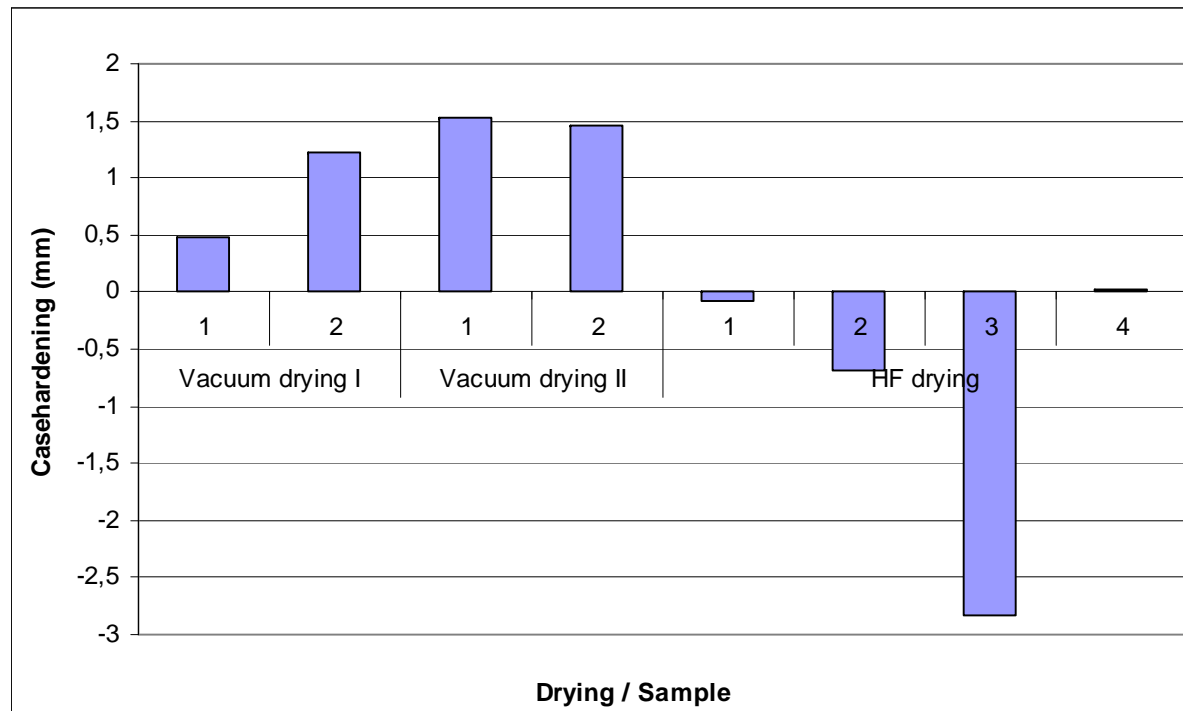
- Vacuum drying I                   =>     2,2 – 5,4 %
- Vacuum drying II               =>     6,6 – 7 %
- HF drying                         =>     6,8 – 11,5 %



# Results

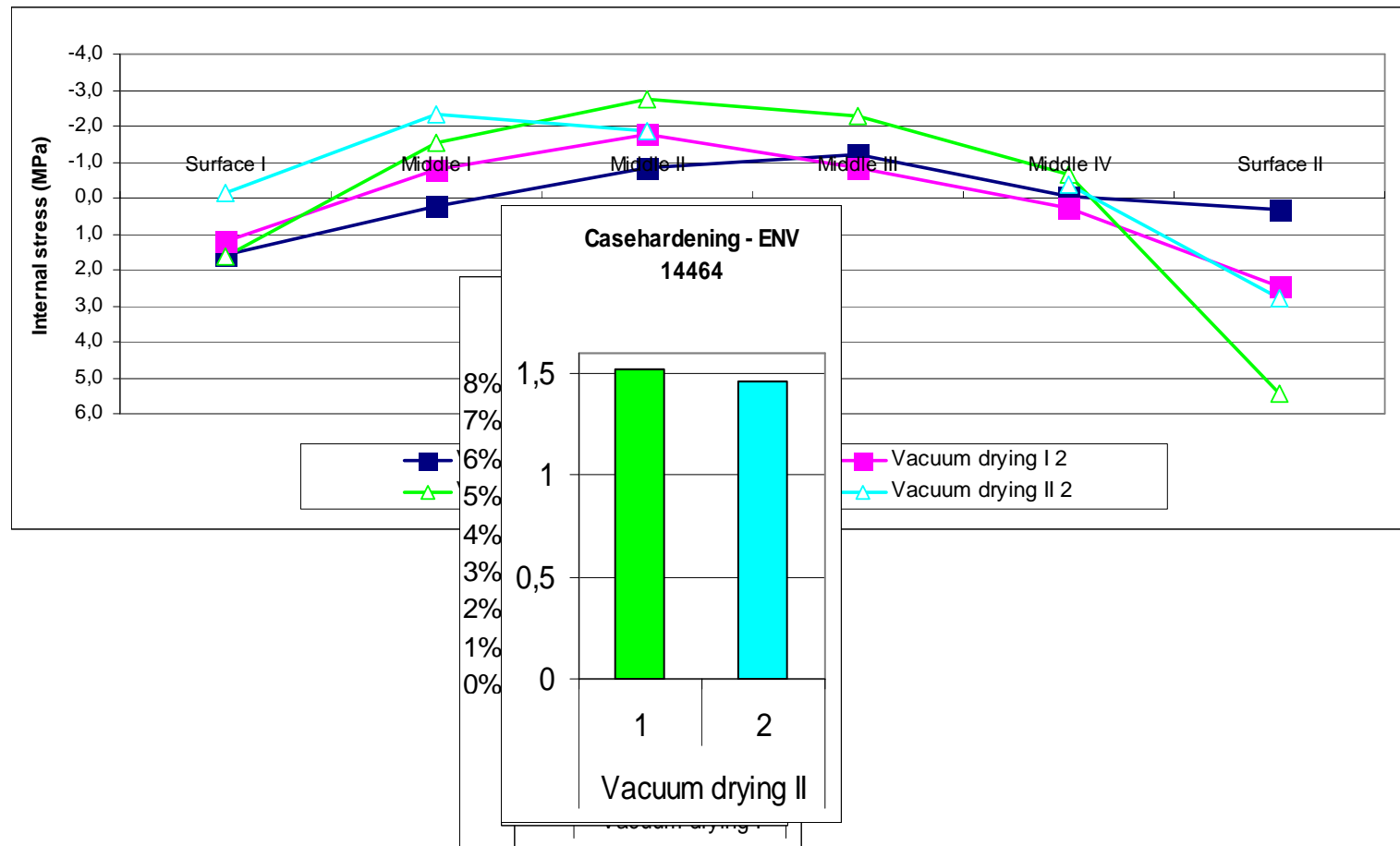
## Casehardening – ENV 14464

- Vacuum drying I                   =>     0,5 – 1,2 mm
- Vacuum drying II               =>     1,46 – 1,52 mm
- HF drying                         =>     0 – - 2,8 mm



# Results

## Internal stress (B. N. Ugolev method)



## Conclusion

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- quality results is depend on the method for measuring
  - Prong test
    - only reflects the stress condition in the surface layer
    - high stress gradients leads to strong deformation of the prong => indicating a low drying quality
  - slicing tests (as described in ENV 14464)
    - is based on the internal stress difference between surface and core layers
    - more reflects an average stress level => indicating a better drying quality
- the vacuum and the HF drying methods and the resulting drying quality of dried material
  - the material dried in vacuum has lower moisture content gradient and smaller degree of casehardening

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Thank you for your attention