

# PROHIP

NEW DESIGN AND MANUFACTURING PROCESSES  
FOR HIGH PRESSURE FLUID POWER PRODUCTS

HONINGTEC



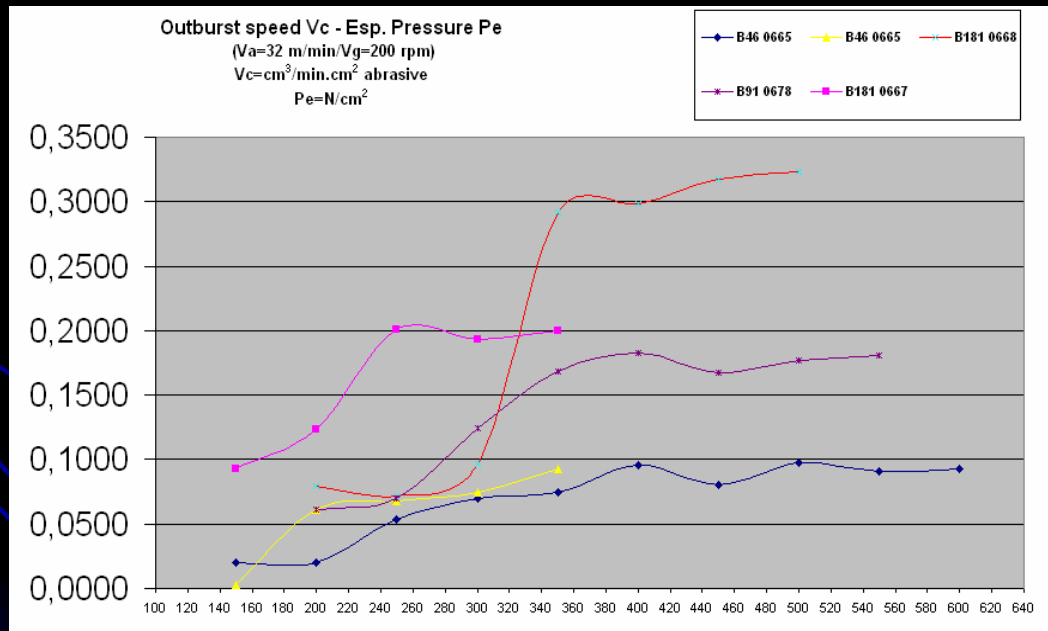
## MAIN TASKS

- ✓ Preparation of a new MAA head to try to use ultrasonic honing device. A.R. 05-037v001
- ✓ Realisation of ultrasonic honing trials in M.A.A. A.R. 05-045v001
- ✓ Study of honing oil contamination. A.R. 05-050v001
- ✓ Handicaps on the application of plateau honing in industrial processes. A.R. 05-049v001
- ✓ Explanation activities done in BIEMH Bilbao on March 08. A.R. 05-048v001
- ✓ Documentation and guidelines for Honing chapter on PROHIPP global video. A.R. 05-046v001



# EXTRA B46/B91/B181 TRIALS

- Not for honing at more pressure the operation will be faster.
- Bigger grit size faster is the honing operation. (with remarks)
- Bigger grit concentration, faster honing operation. (with remarks)
- Details reflected in A.R. 05-038V001

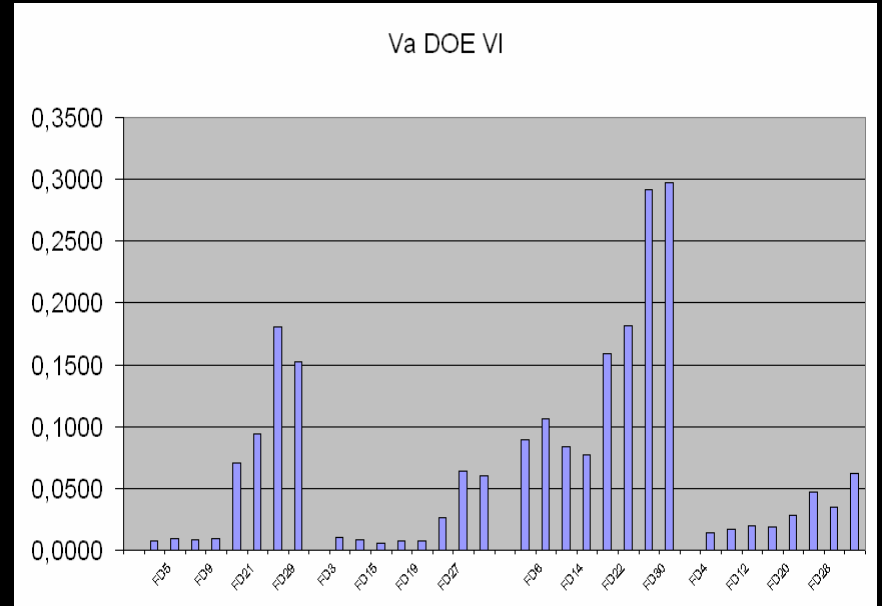
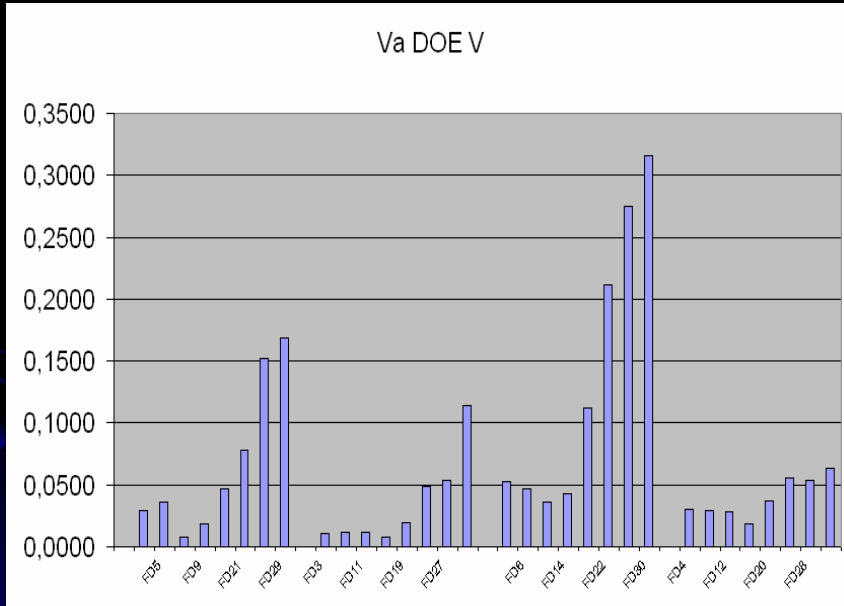






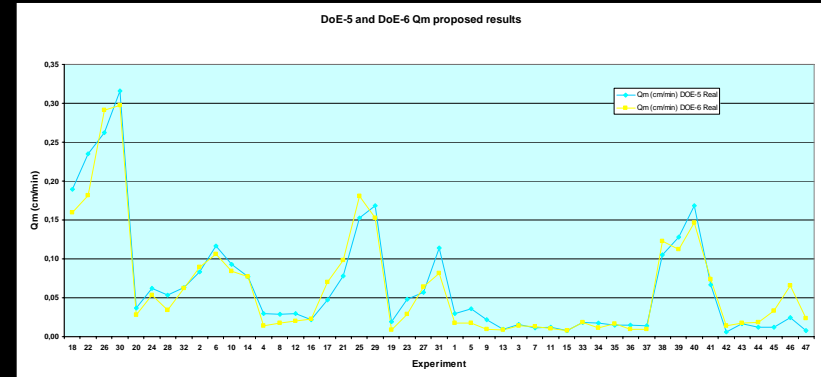
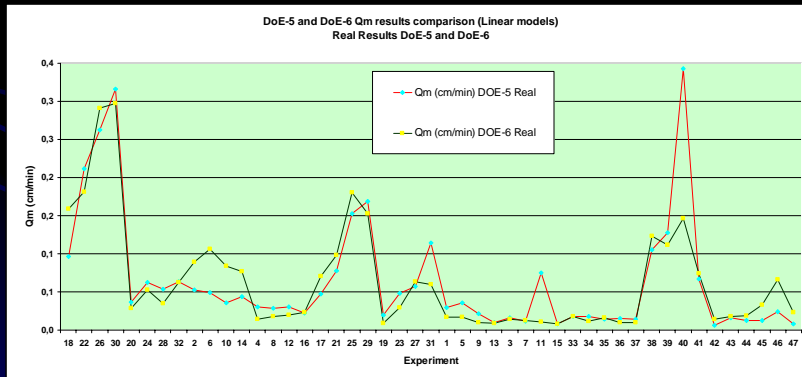
# MAA Honing tests

## Va DOE V and DOE VI comparison



# EXTRA B46/B91/B181 TRIALS

- Due to unexpected values on DOE V and DOE VI we must to repeat 67 honing trials.
- New results are in accordance to the expected values.
- Possible causes (will not be finished in PROHIPP PROJECT):
  - Different chemical composition in the height of abrasive bars.
  - Differences in the tube composition or physical properties.
  - Uncontrolled machine parameters.





# REAL MACHINE TEST TUBES

- Done 83 tubes of diam. 45x576 Ref Dinacil N2812.
  - 15 done with B181
  - 15 done with B91
  - 15 done with B46
  - 38 done with B64
- Serve to confirm industrial application of mathematic model.
- Detailed in A.R. 05-036V001



# 4<sup>th</sup> PERIODIC ACTIVITY REPORT

## Real machine for test tubes

- ✓ Machine adapted for data acquisition.

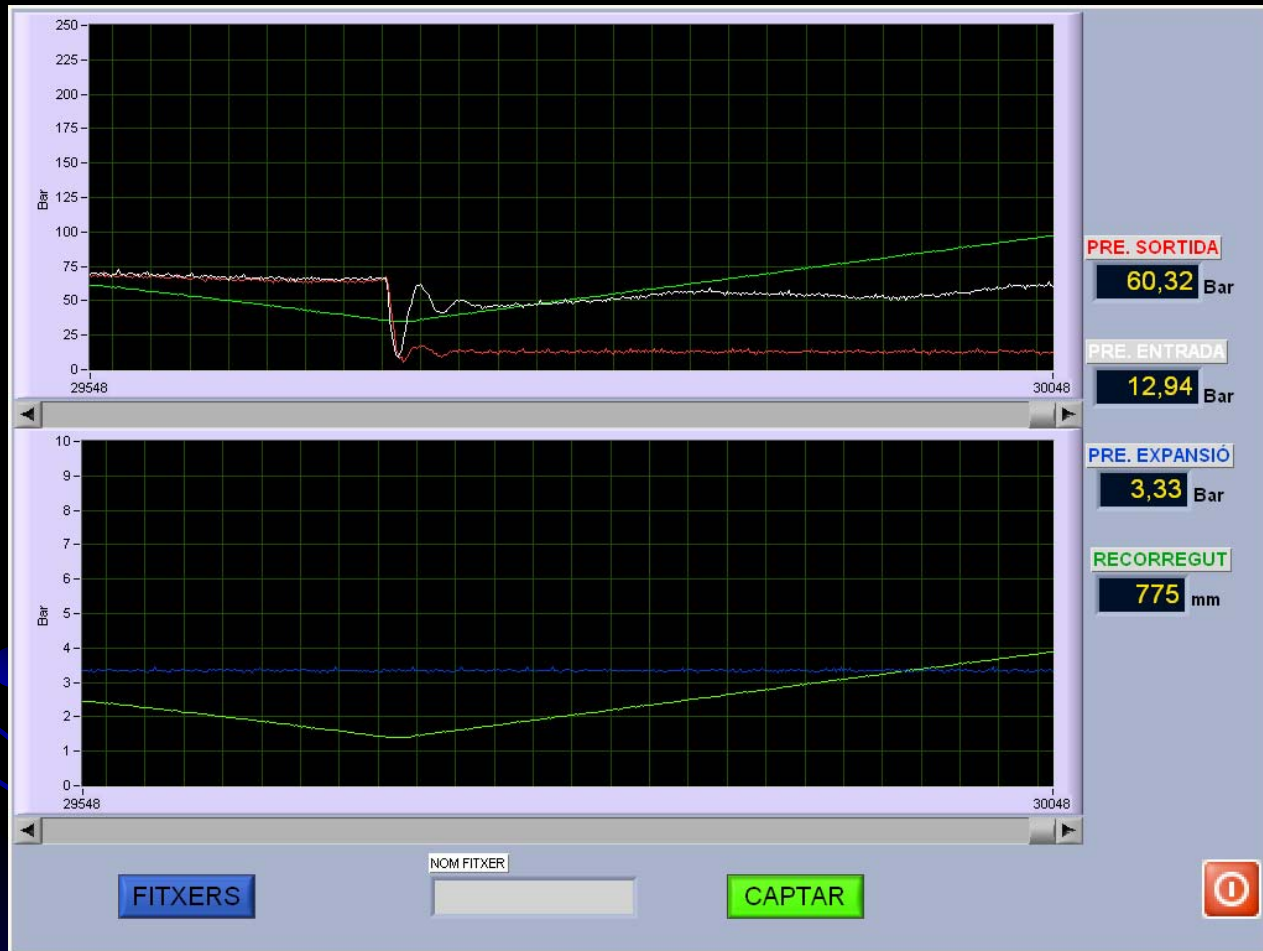






# 4Th PERIODIC ACTIVITY REPORT

## Real machine for test tubes





# 4<sup>th</sup> PERIODIC ACTIVITY REPORT

## FINISHING OF REAL MACHINE TEST TUBES

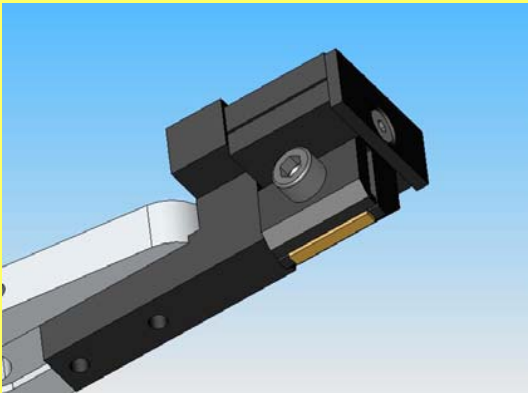
- Finished 46 tubes of diam. 45x576 Ref N2812.
  - 23 done with B20
  - 29 done with B5
- Serve to confirm fine grit sizes industrial application of mathematic model.
- Serve to confirm Plateau-honing mathematic model.
- Detailed in A.R. 05-047v001



# 4<sup>th</sup> PERIODIC ACTIVITY REPORT

## ULTRASONIC HONING DEVICE

- ✓ Initial and final head for MAA to apply ultrasonic waves to the abrasive. A.R. 05-037v001

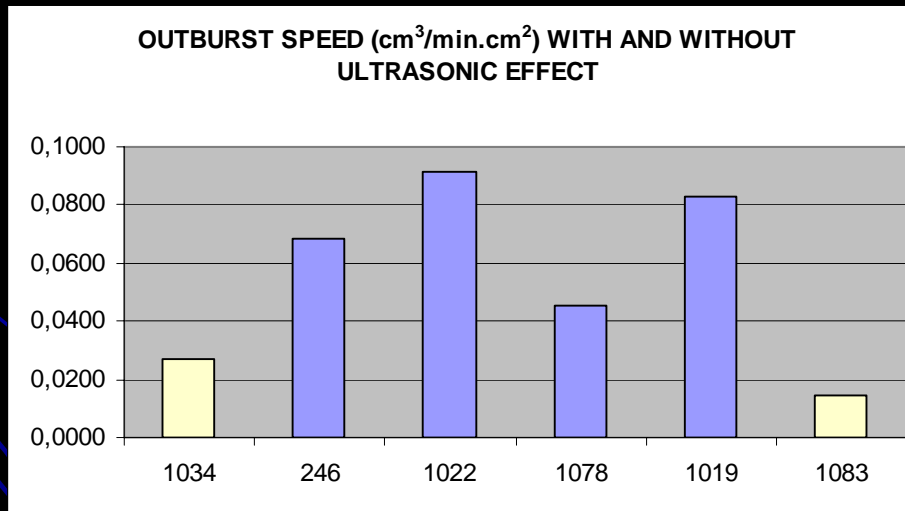




# 4<sup>th</sup> PERIODIC ACTIVITY REPORT

## MAA ultrasonic honing tests

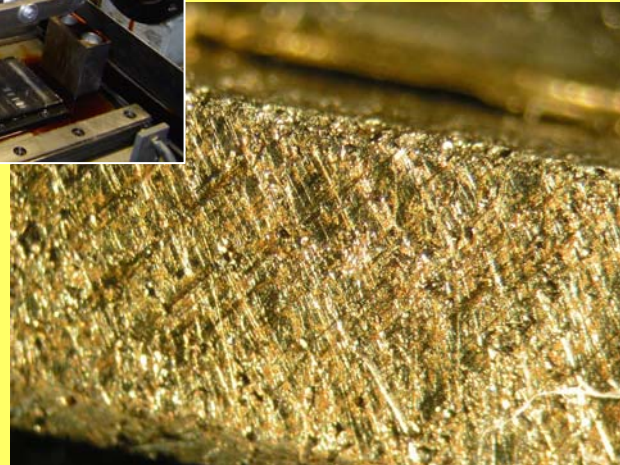
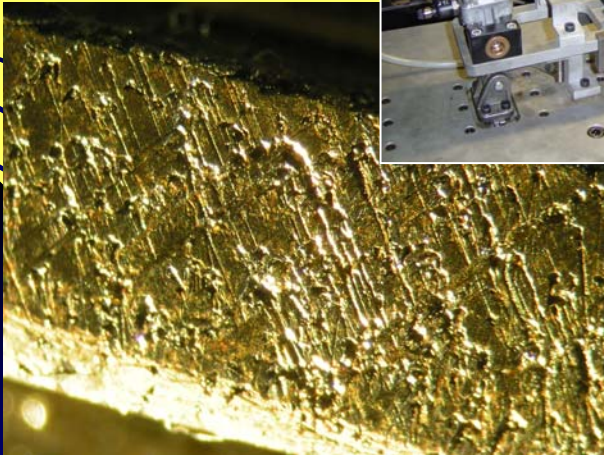
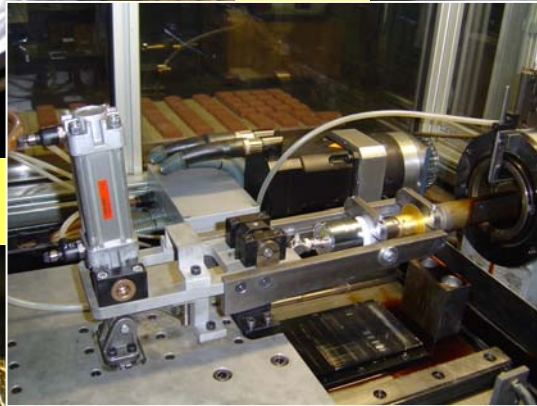
- Done 7 experiences to detect the ultrasonic effect on the honing process.
- The results shows significant improvements.
- Detailed in A.R. 05-045V001





# 4<sup>th</sup> PERIODIC ACTIVITY REPORT

## MAA ultrasonic honing tests





# 4<sup>th</sup> PERIODIC ACTIVITY REPORT

## HANDICAPS ON THE INDUSTRIAL PLATEAU HONING APPLICATION

- Use of plateau honing on hydraulic cylinders give more life expected on its and it is faster to produce (cheaper).
- It is difficult to apply in industrial production.
- We must to work on to facilitate the easy industrial application.
- Best rules reflected on AR 05-049v001