

# “Tensile tests on reinforcing bars”

**Title:** Tensile tests on reinforcing bars

**Customer:** Obermeyer Hellas, Athens

**Coordinator:** Professor I. Vayas (NTUA Athens)

**Research group:** X. Lignos, S. Katsatsidis

**Duration:** 12/06/13 - 30/07/13

## Summary

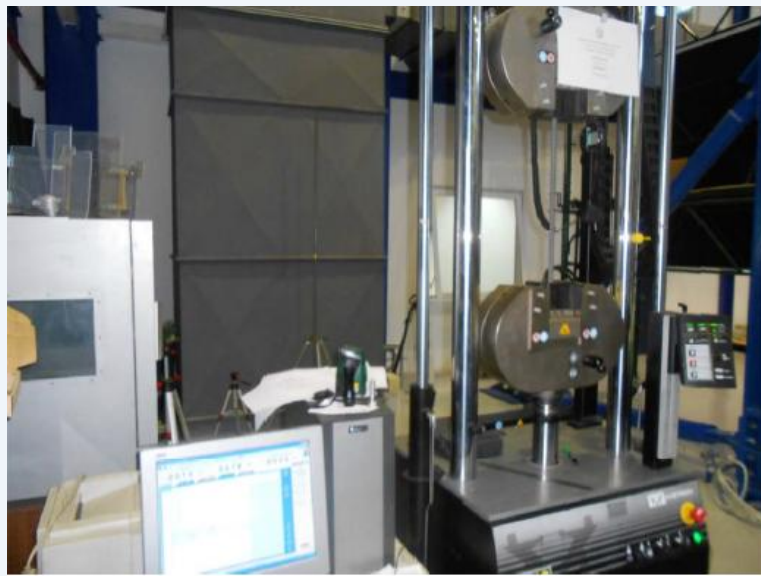
The project refers to the experimental investigation of reinforcing bars from an existing structure. Measurements to determine the geometry of the bars were made, tensile specimens were formed and tensile tests executed. The results were compared with the requirements of the relevant European specifications. The bars were classified in resistance classes in accordance with EN 1992-1, Annex C.

## Publications

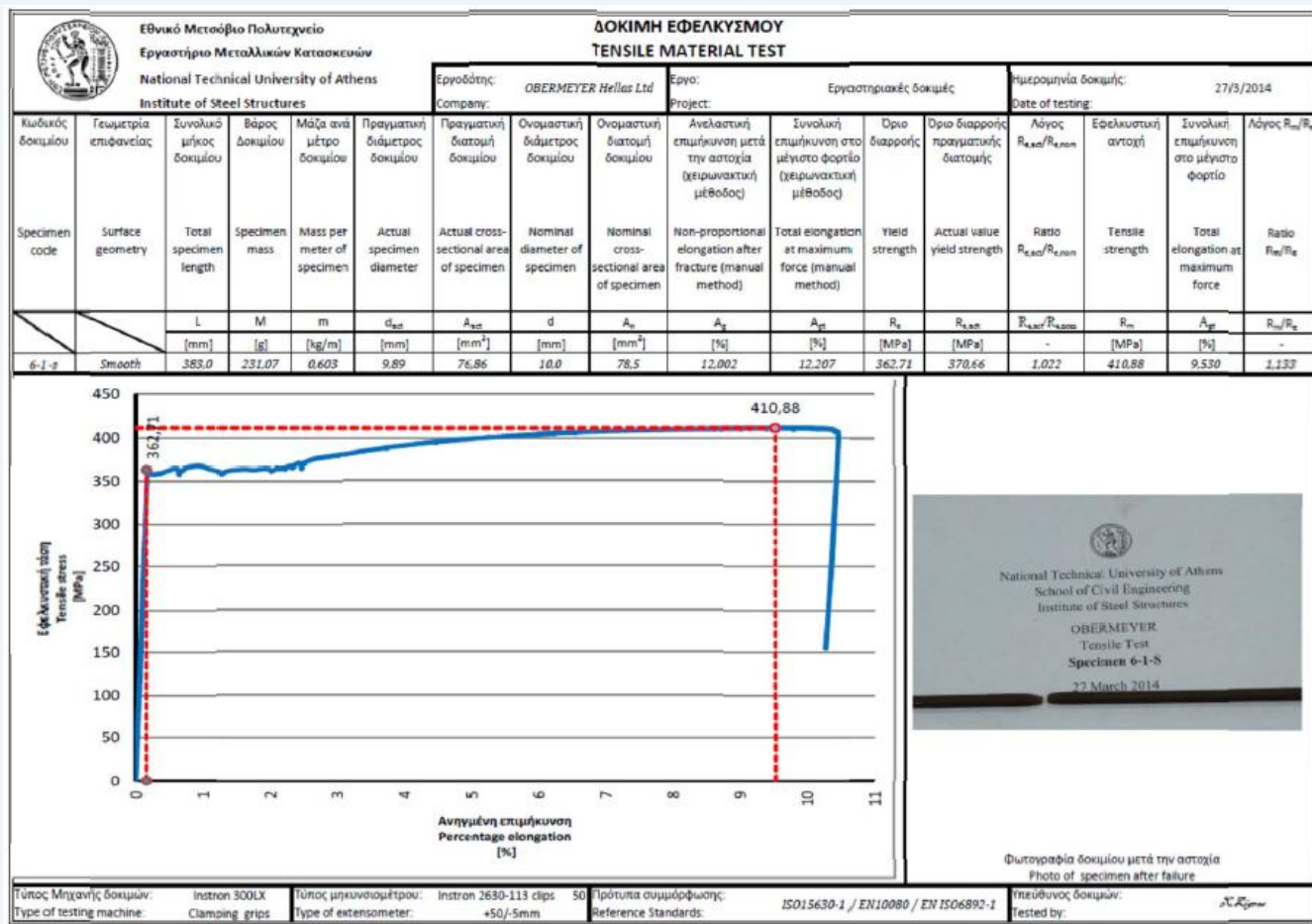
**Research Report EMK – TR 052014:** Tensile tests on reinforcing bars

## Experimental investigations

- Measurements on the surface geometry of the bars
- Execution of 50 tensile tests in the INSTRON machine



## Test set up



### Reporting of tensile tests

Table 3 Classification of reinforcement to EN 1992-1, Annex C

Code (bridge no-specimen no)	$f_{yk}$	k	$E_{uk}$	Mass deviation	Class	Designation of material
0-1	573 V	1,154 C	11,969 C	0,325679 V	C	B500C
0-2	581 V	1,107 B	12,107 C	-0,05924 V	B	B500B
0-3	593 V	1,256 C	11,927 C	-1,14042 V	C	B500C
2-1	438 V	1,425 -	12,498 C	-1,22756 V	-	S400s *
2-2	417 V	1,494 -	13,220 C	-1,28424 V	-	S400s *
4-1	447 V	1,535 -	11,028 C	-1,37700 V	-	S400s *
4-2	454 V	1,521 -	12,355 C	-0,84938 V	-	S400s *
4-3	438 V	1,544 -	11,072 C	-1,56961 V	-	S400s *
6-1	535 V	1,304 C	11,883 C	0,715992 V	C	B500C
6-2	532 V	1,307 C	11,839 C	0,905419 V	C	B500C
6-3	519 V	1,331 C	11,841 C	0,894607 V	C	B500C
7-1	627 X	1,237 C	11,552 C	-1,73246 V	C	B500C
7-2	576 V	1,246 C	12,051 C	-1,16655 V	C	B500C
7-3	575 V	1,246 C	11,883 C	-0,96646 V	C	B500C
8-1	585 V	1,099 B	12,066 C	0,579072 V	B	B500B
8-2	567 V	1,124 C	11,957 C	0,614456 V	C	B500C
8-3	580 V	1,103 B	12,212 C	0,220435 V	B	B500B
16-1	595 V	1,133 C	11,769 C	-2,12493 V	C	B500C
16-2	528 V	1,153 C	12,287 C	2,111248 V	C	B500C

### Classification of reinforcement in accordance with EN 1992-1