

313022

| Point | Caractheristic | Tolerance     | Part 1 | Part 2 | Part 3 | Part 4 | Part 5 |
|-------|----------------|---------------|--------|--------|--------|--------|--------|
| 10    | MDK            | 87,742/87,665 | 87,693 | 87,706 | 87,695 | 87,696 | 87,703 |
| 25    | Thickness      | 13,05/12,85   | 12,958 | 12,98  | 12,966 | 12,97  | 12,969 |
| 31    | Diameter 50    | 50,5/49,5     | 49,8   | 49,8   | 49,9   | 49,8   | 49,9   |

## Manual measures by Marposs, Calibro, Altimetro

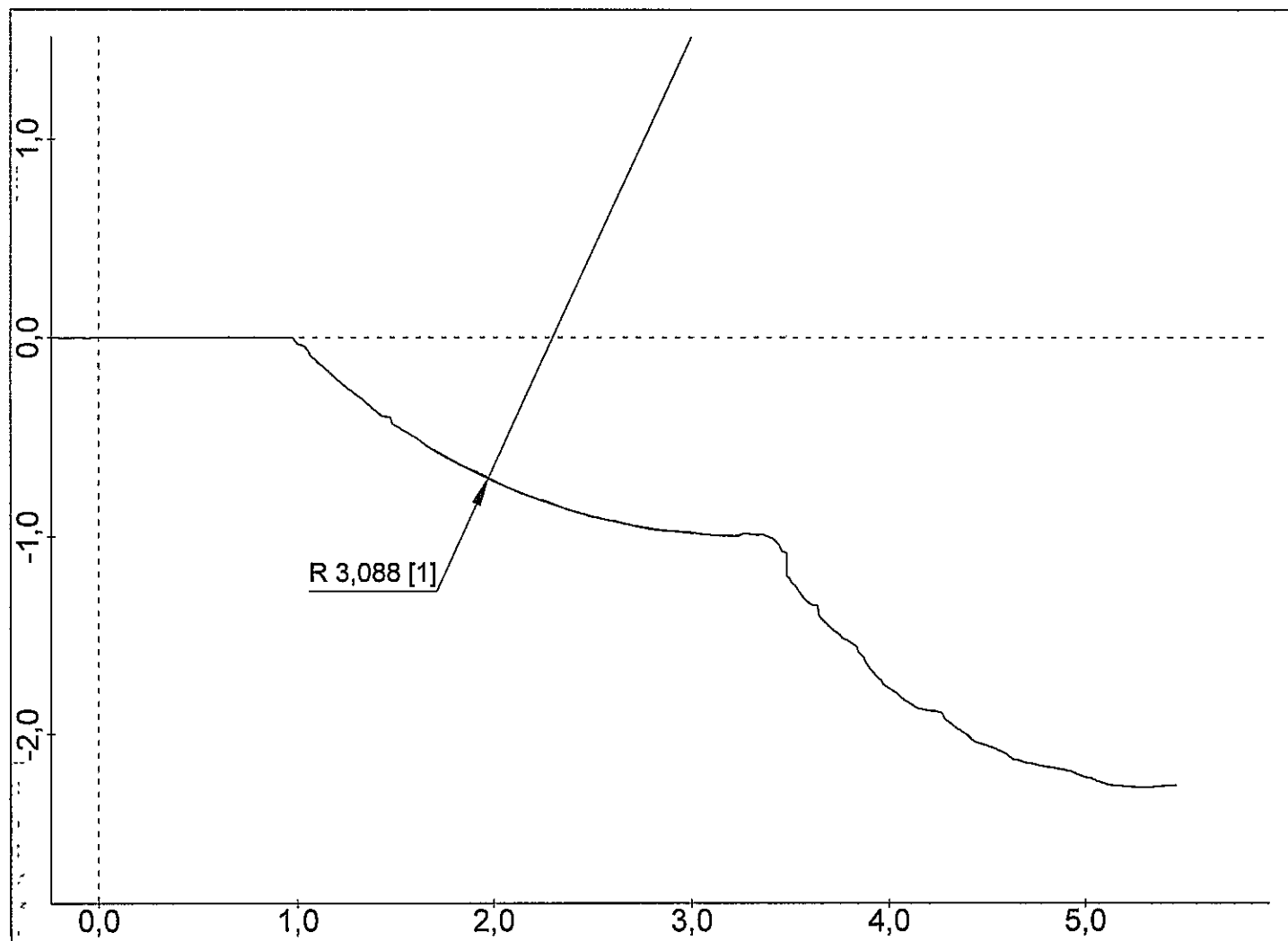
ZR5 2501 3654 36

20 may,2014

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR5  
Numero: 3654 Pz. 1  
Operatore: TURNO C  
Data, ora: 20.05.2014, 14:32  
Nota: PART. 33  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

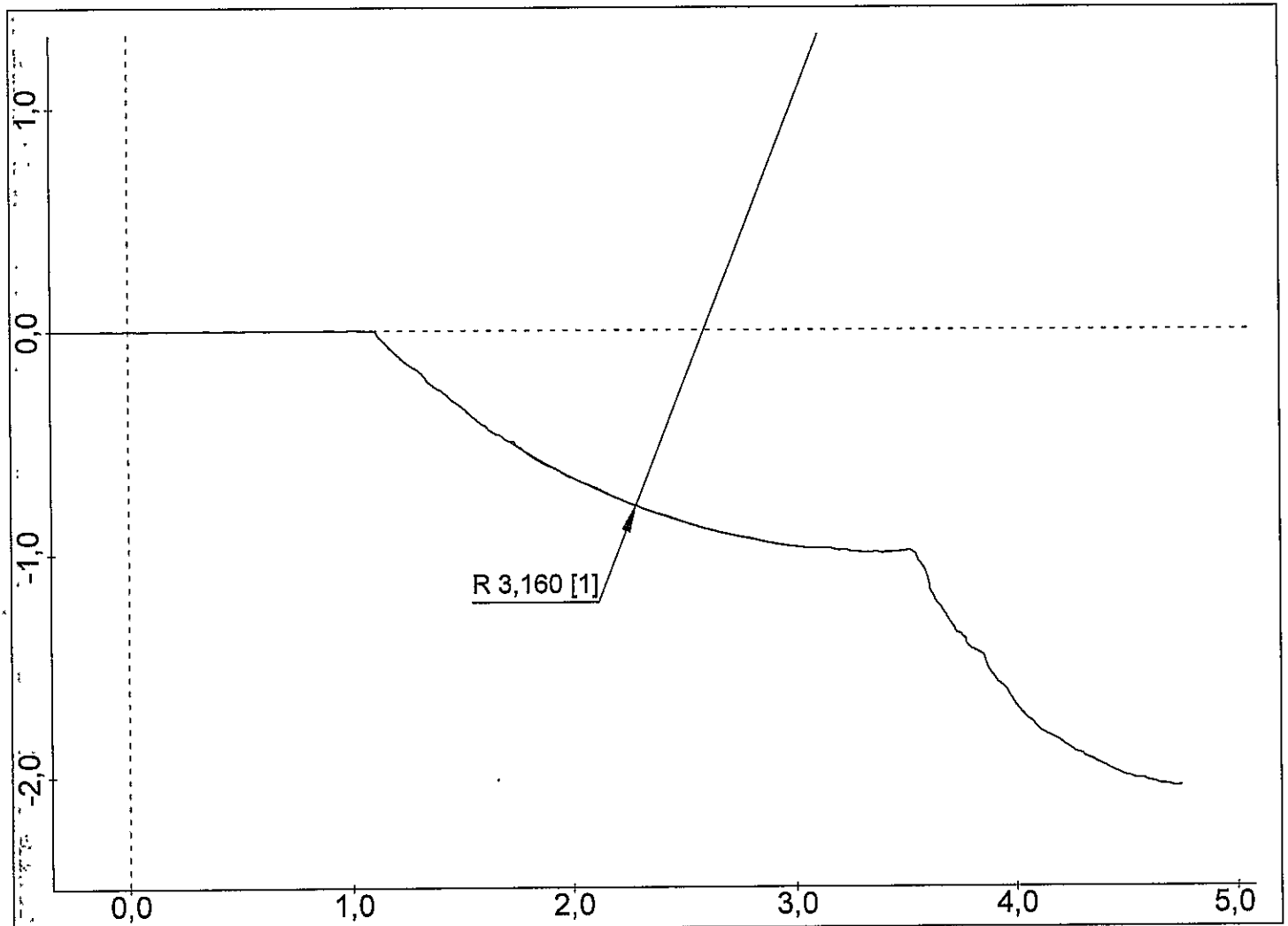


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR5  
Numero: 3654 Pz. 2  
Operatore: TURNO C  
Data, ora: 20.05.2014, 14:33  
Nota: PART. 33  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

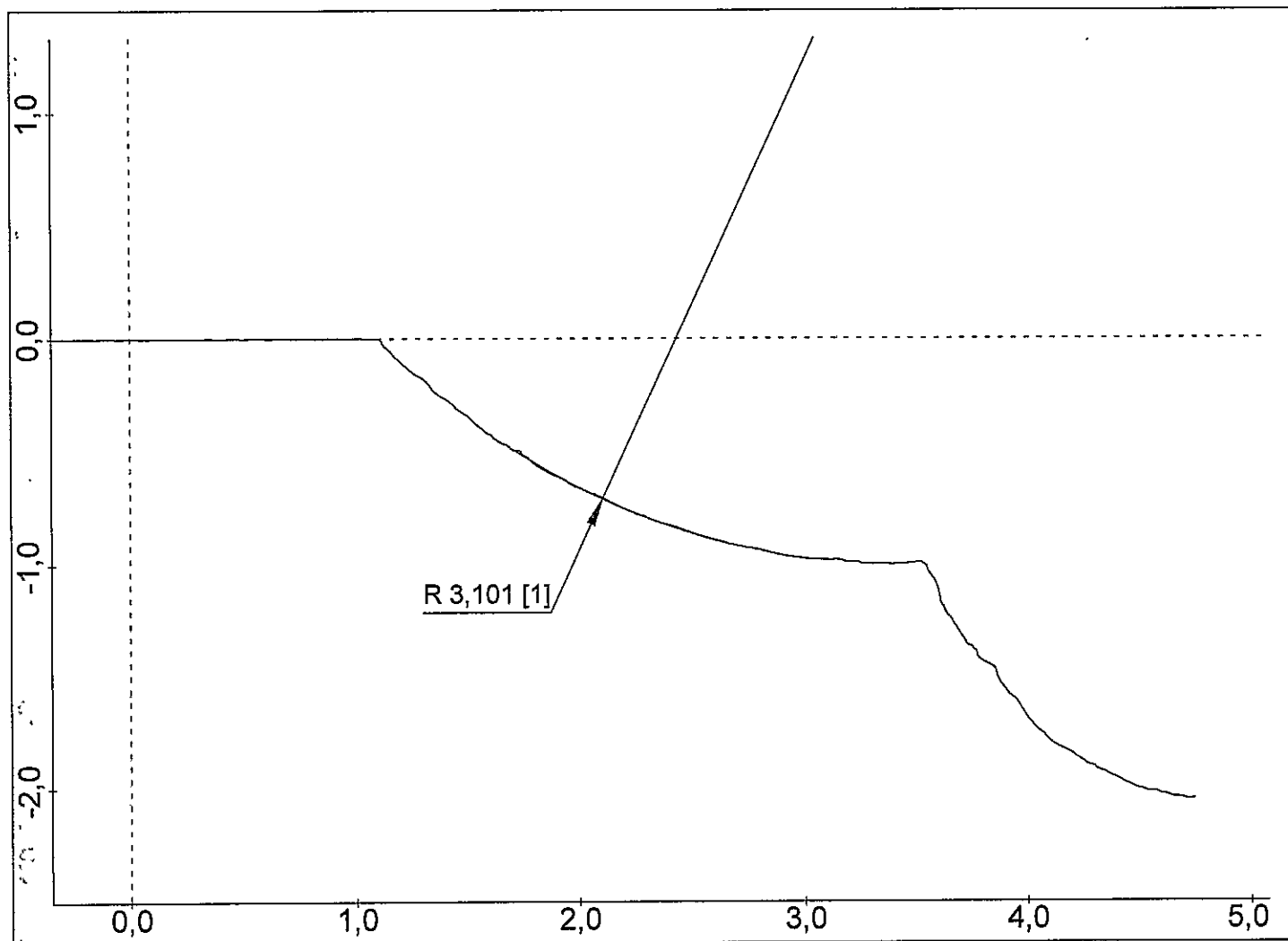


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR5  
Numero: 3654 Pz. 3  
Operatore: TURNO C  
Data, ora: 20.05.2014, 14:33  
Nota: PART. 33  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001



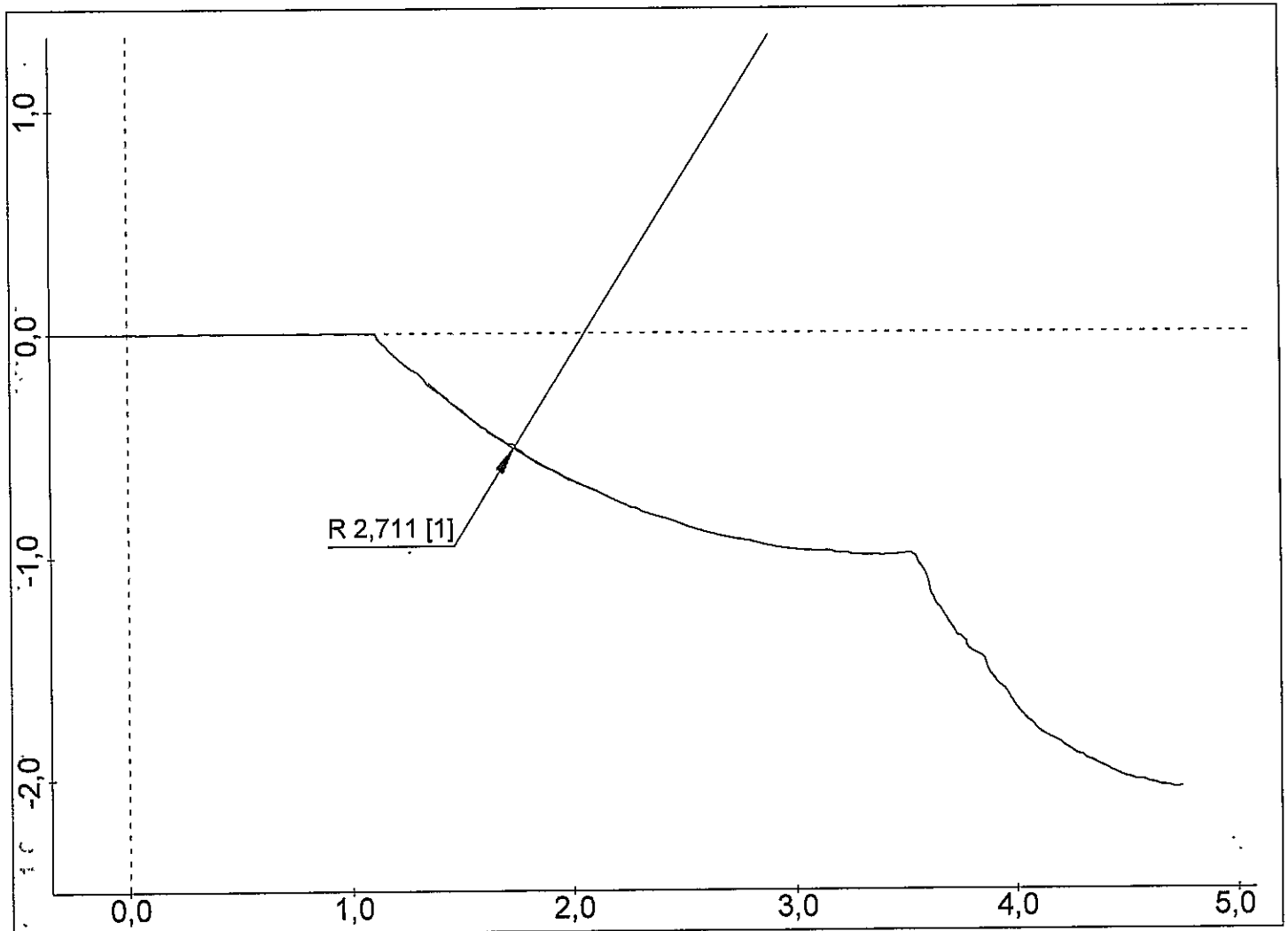
PERTHOMETER CONCEPT



Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR5  
Numero: 3654 Pz. 4  
Operatore: TURNO C  
Data, ora: 20.05.2014, 14:33  
Nota: PART. 33  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

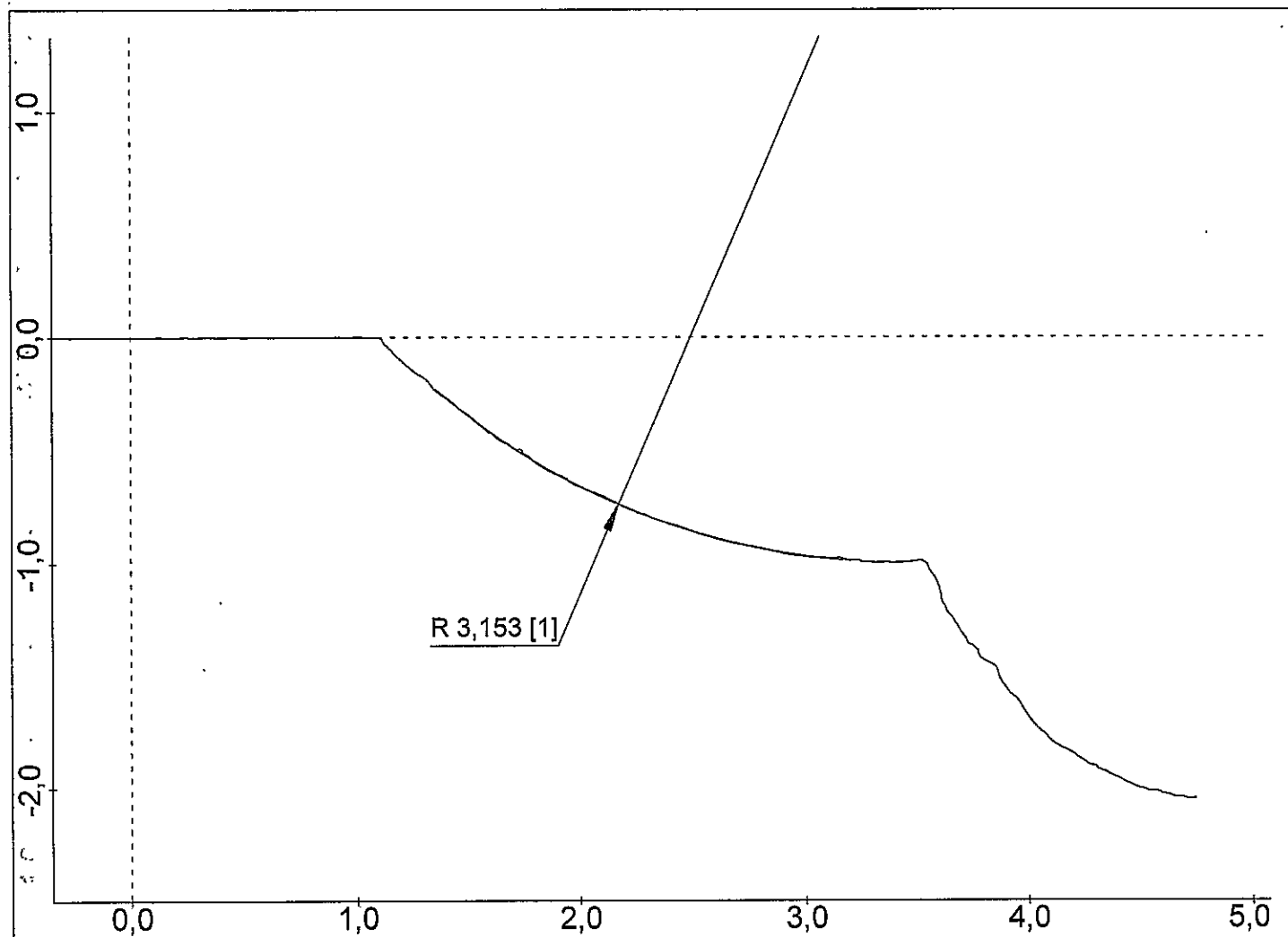


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR5  
Numero: 3654 Pz. 5  
Operatore: TURNO C  
Data, ora: 20.05.2014, 14:33  
Nota: PART. 33  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001



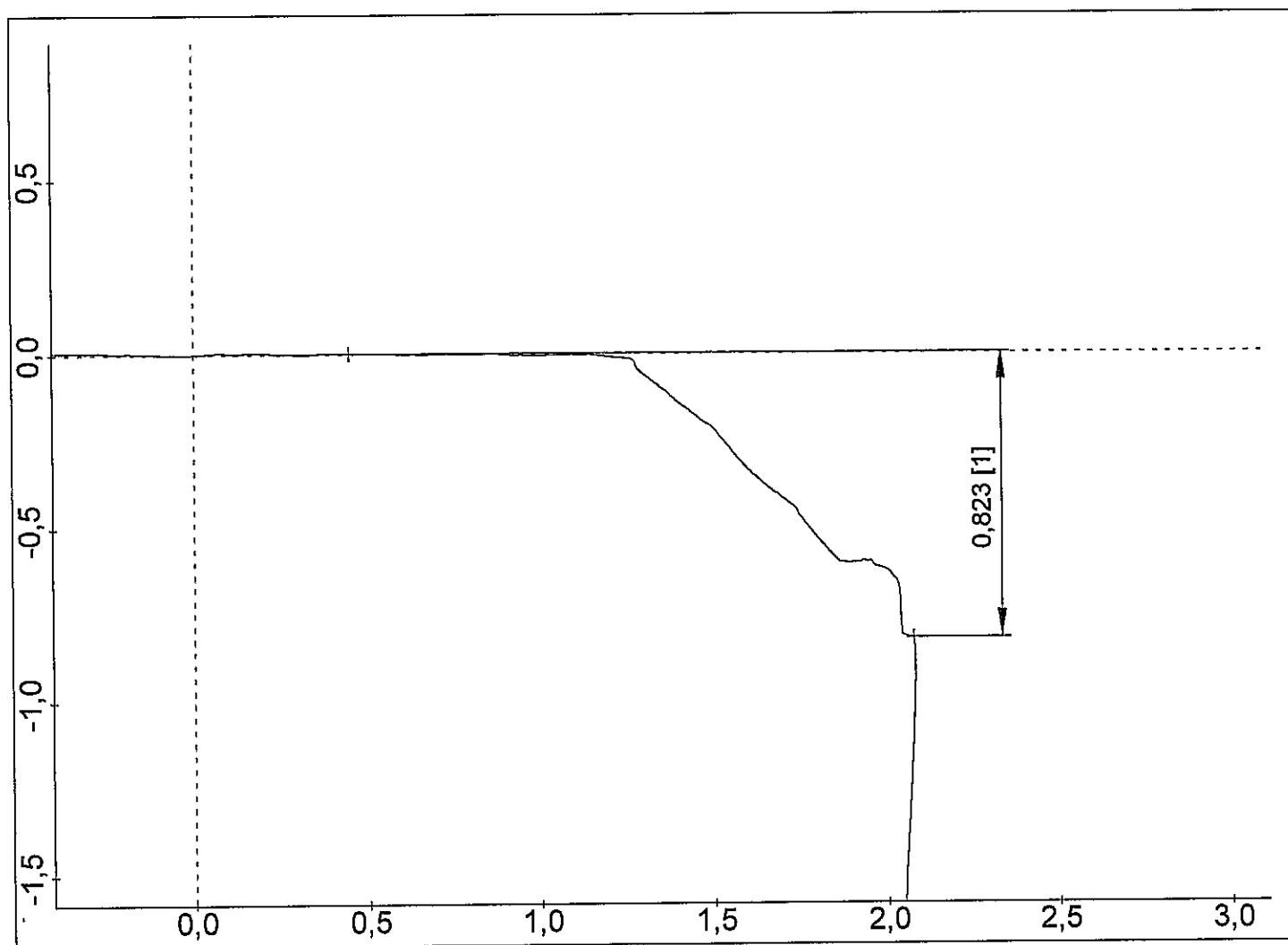
PERTHOMETER CONCEPT



Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR5  
Numero: 3654 Pz. 1  
Operatore: TURNO C  
Data, ora: 20.05.2014, 13:32  
Nota: PART. 23  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

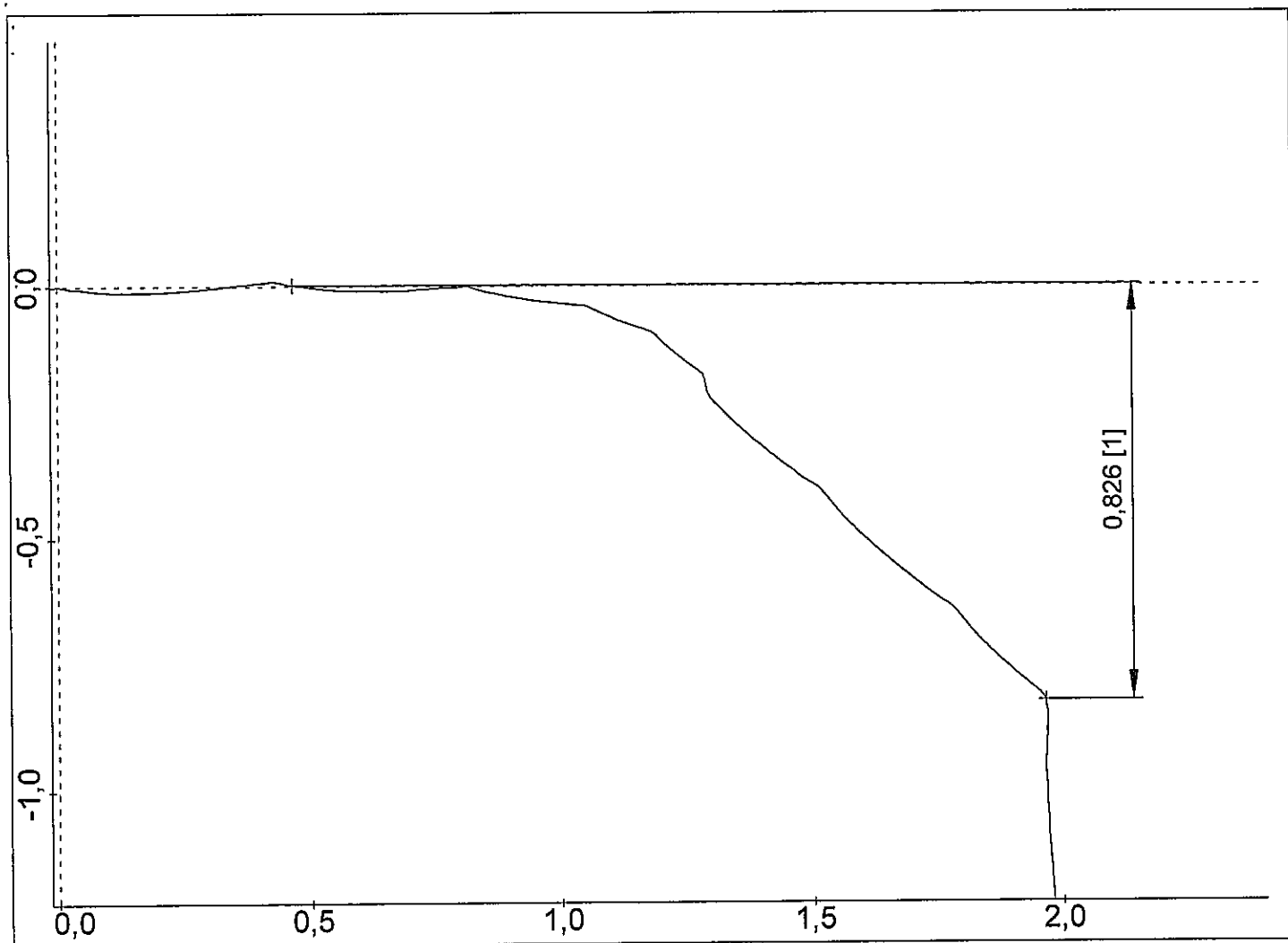


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR5  
Numero: 3654 Pz. 2  
Operatore: TURNO C  
Data, ora: 20.05.2014, 13:35  
Nota: PART. 23  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001



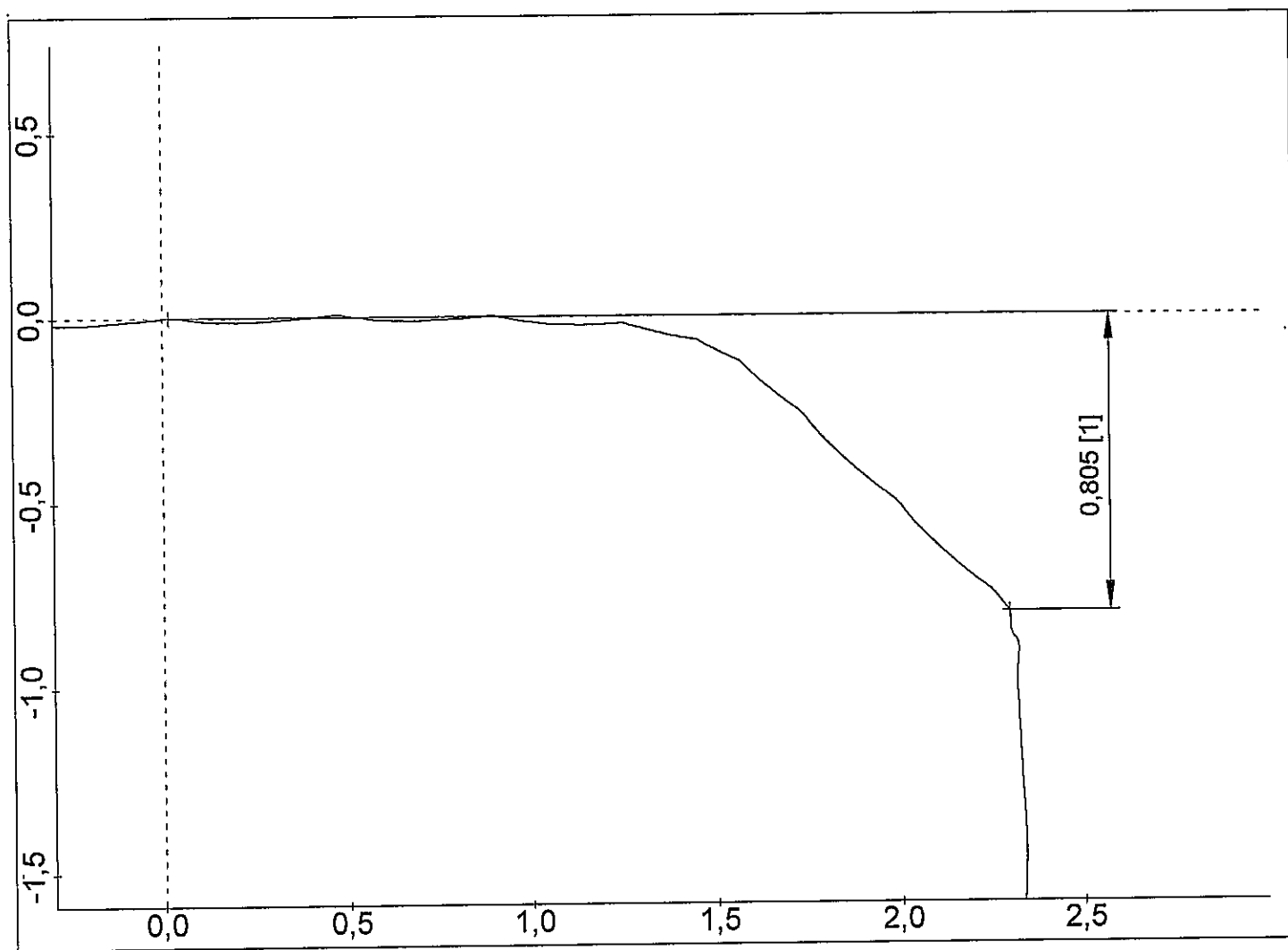
PERTHOMETER CONCEPT



Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR5  
Numero: 3654 Pz. 3  
Operatore: TURNO C  
Data, ora: 20.05.2014, 13:39  
Nota: PART. 23  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

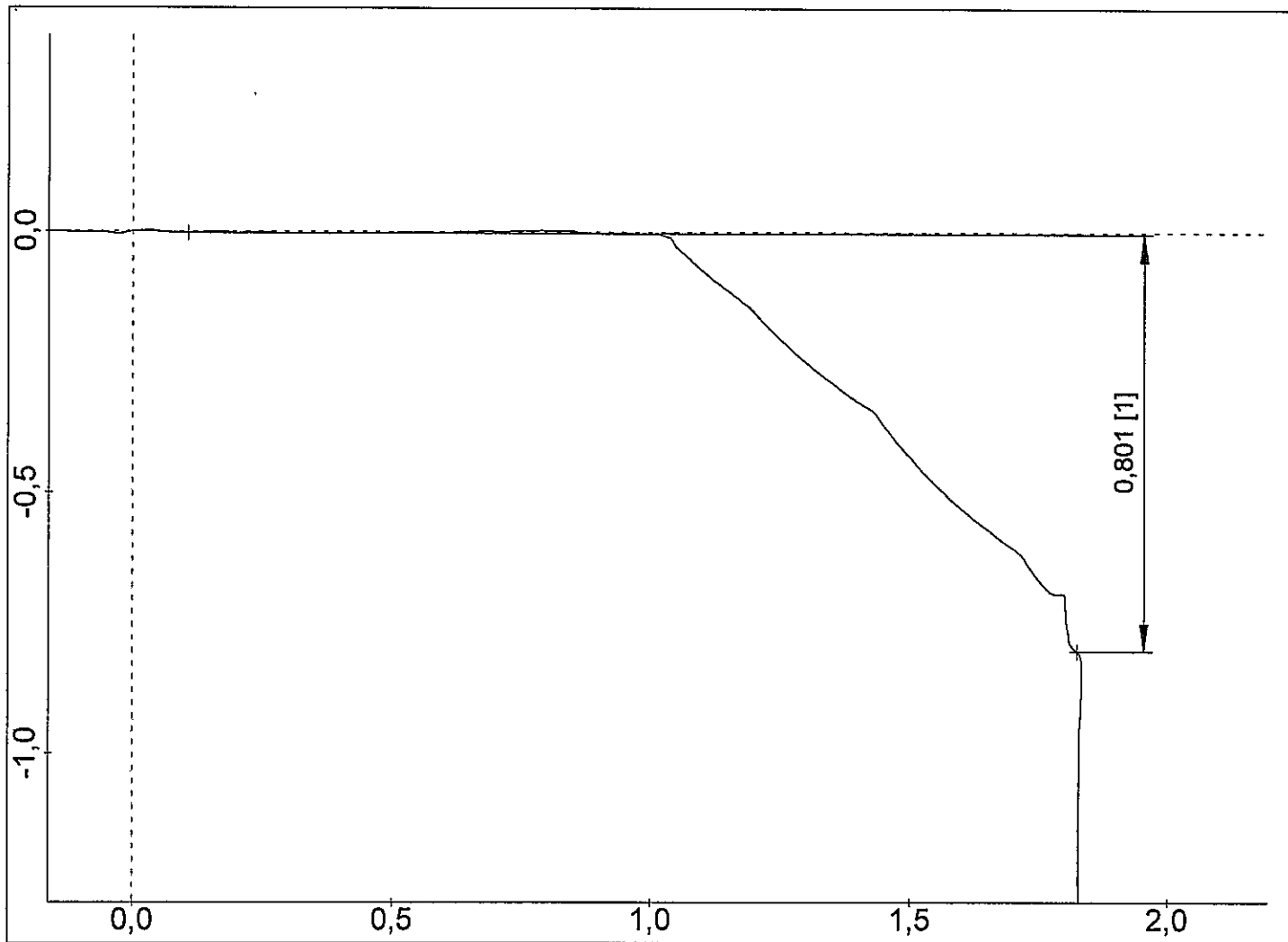


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR5  
Numero: 3654 Pz. 4  
Operatore: TURNO C  
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Nota: PART. 23  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

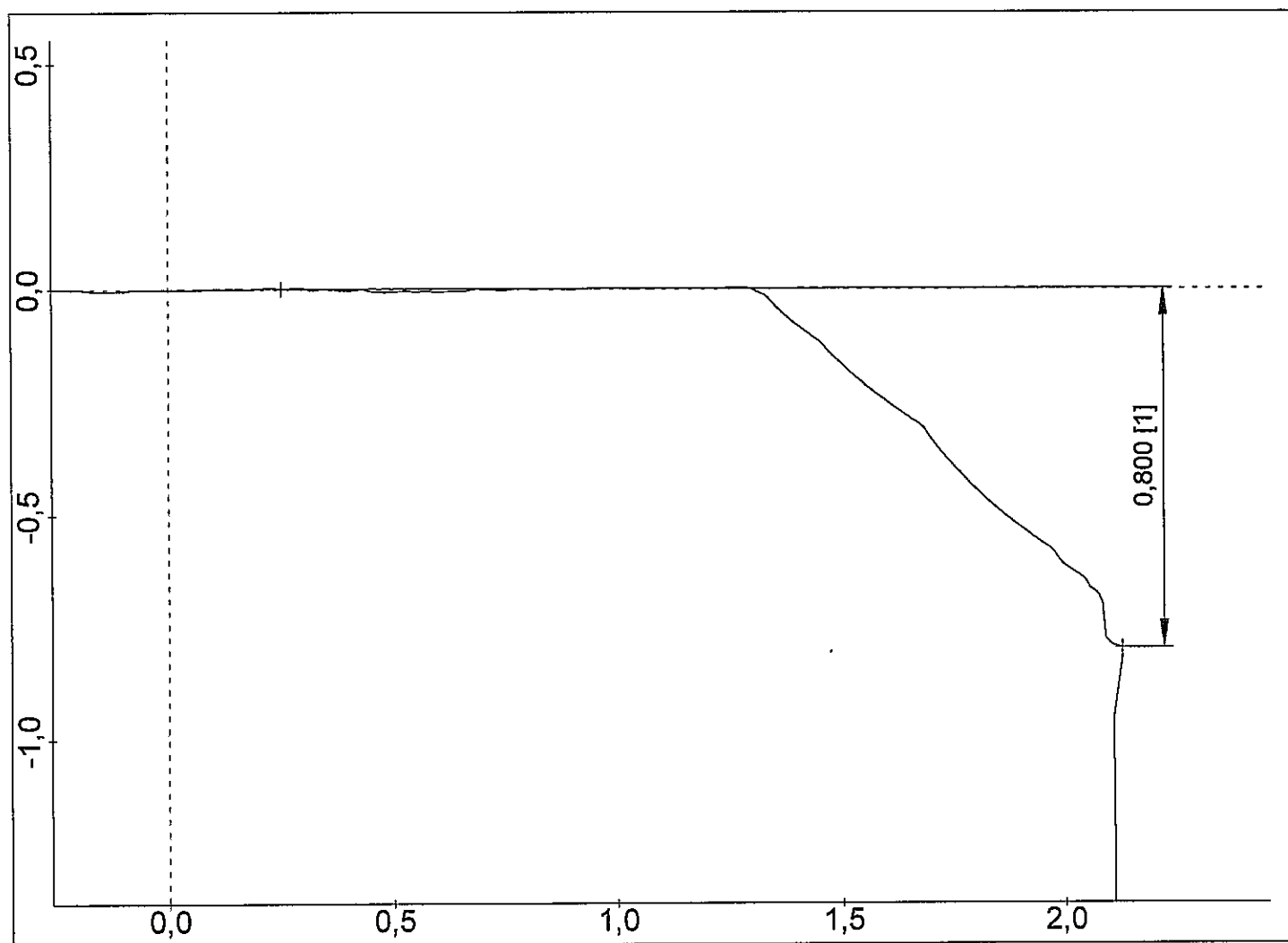


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR5  
Numero: 3654 Pz. 5  
Operatore: TURNO C  
Data, ora: 20.05.2014, 13:57  
Nota: PART. 23  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

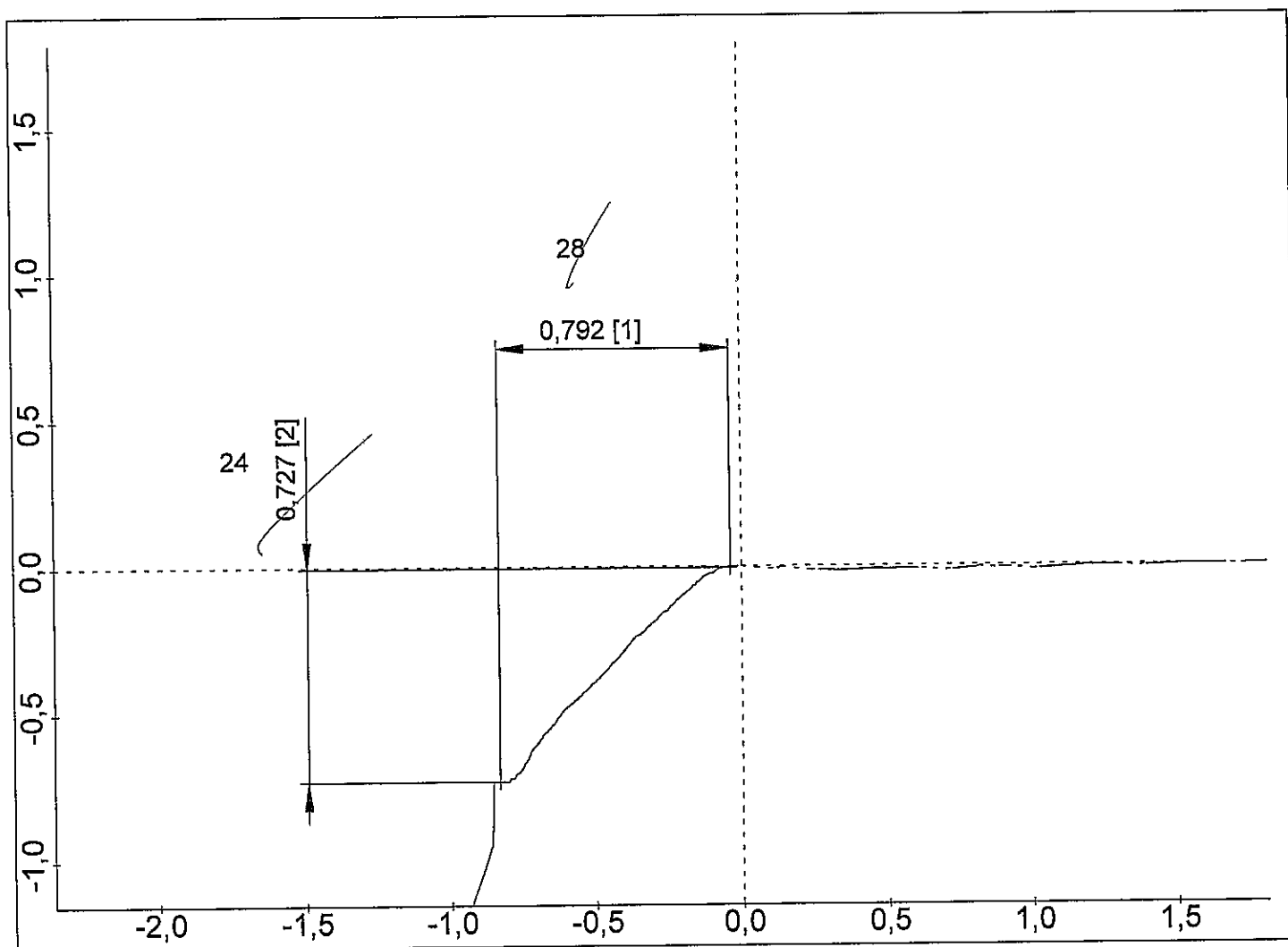


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.1  
Operatore: TURNO B  
Data, ora: 20.05.2014, 09:45  
Nota: PROFILO 24-28  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

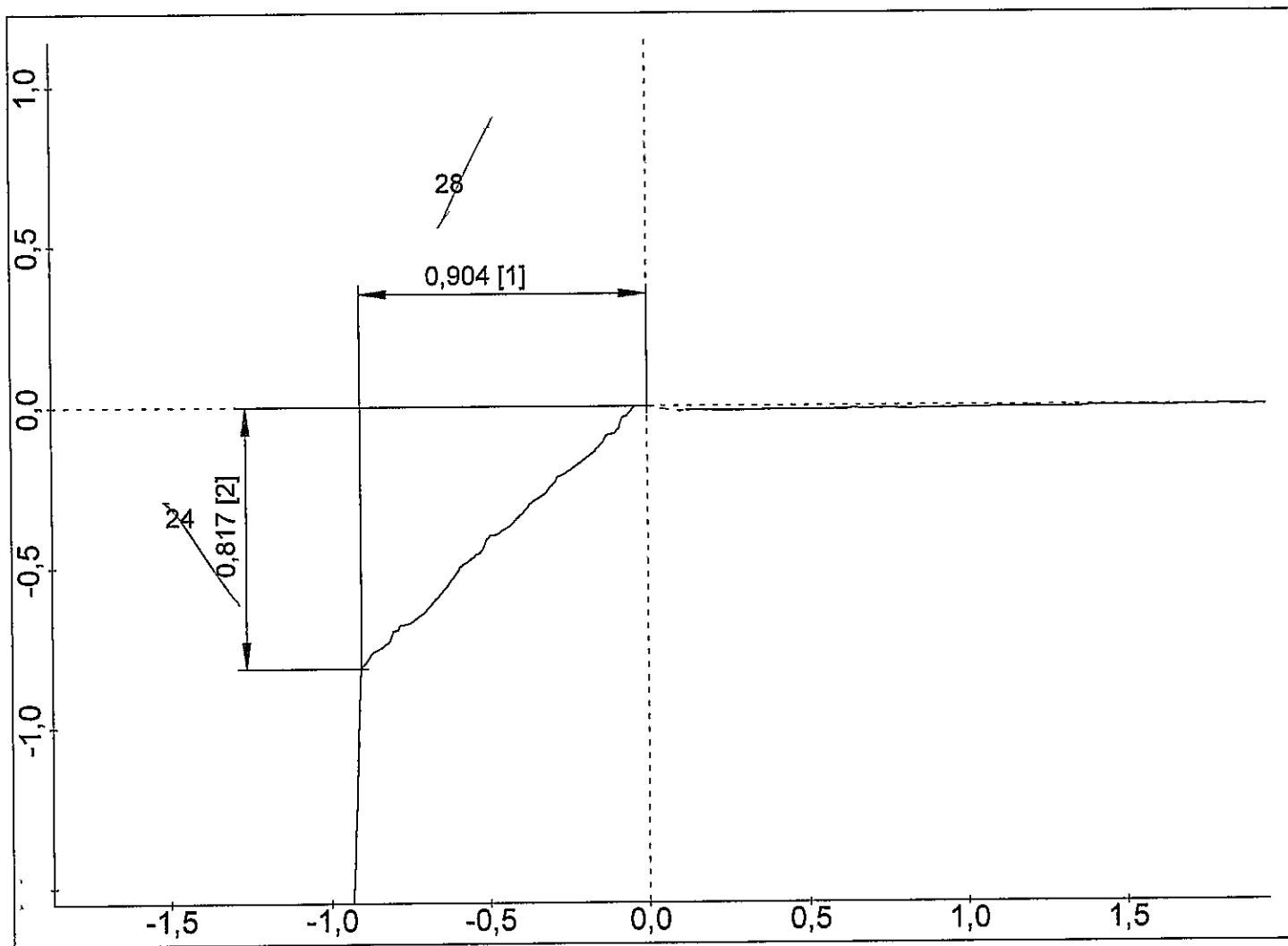


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.2  
Operatore: TURNO B  
Data, ora: 20.05.2014, 09:43  
Nota: PROFILO 24-28  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

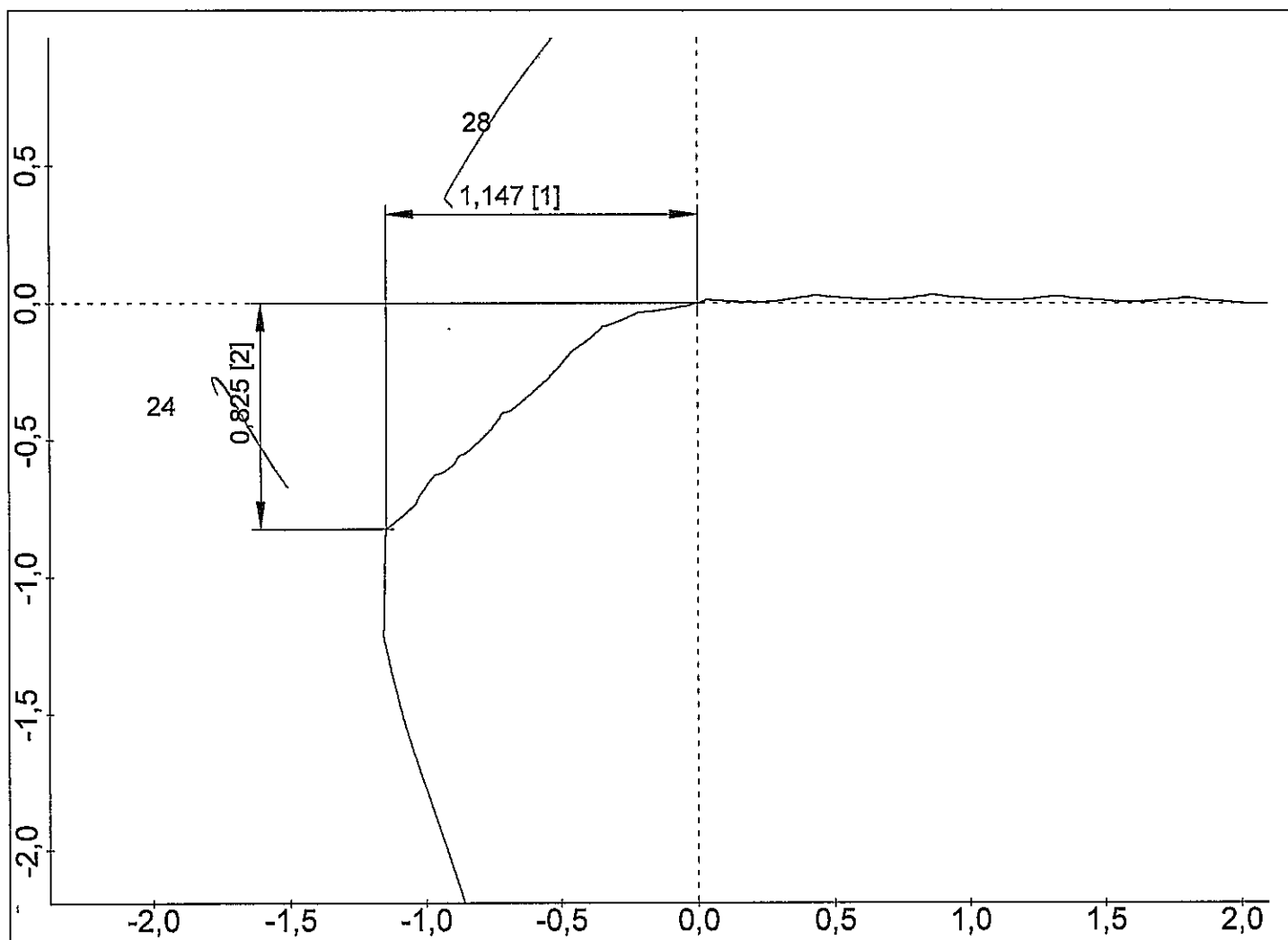


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
 Numero: 3654 PPAP PZ.3  
 Operatore: TURNO B  
 Data, ora: 20.05.2014, 09:41  
 Nota: PROFILO 24-28  
 Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

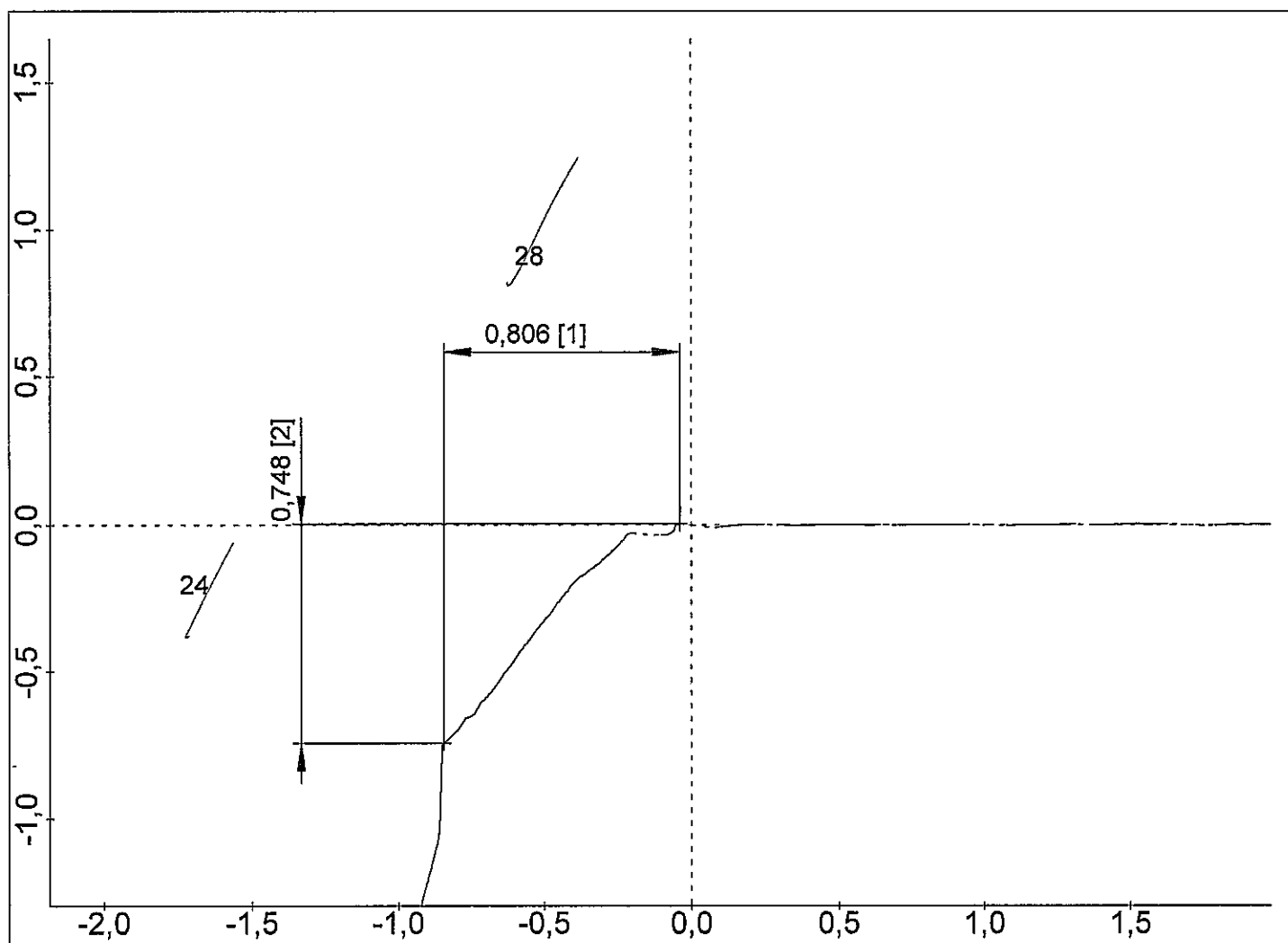


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.4  
Operatore: TURNO B  
Data, ora: 20.05.2014, 09:39  
Nota: PROFILO 24-28  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

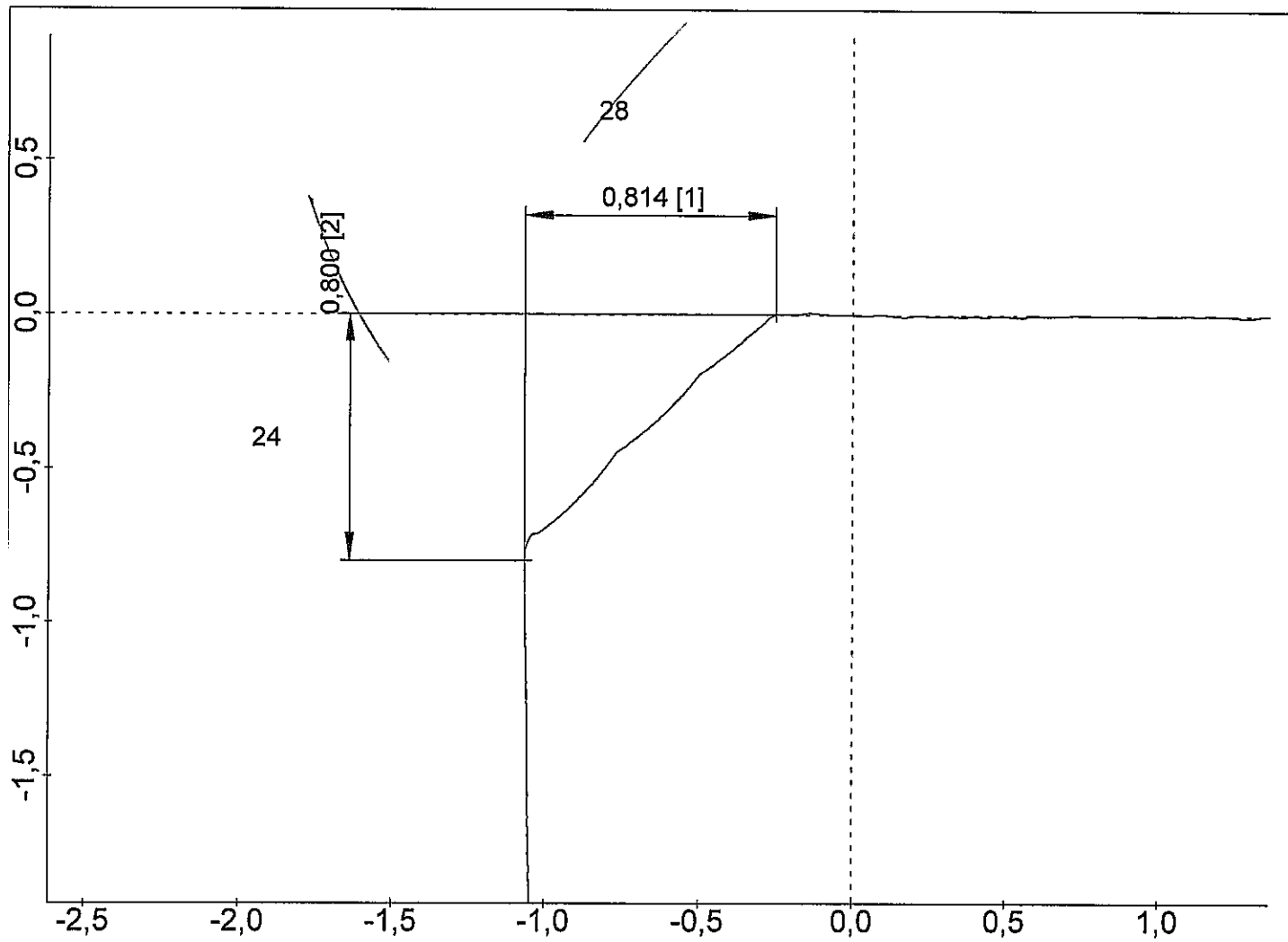


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.5  
Operatore: TURNO B  
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Nota: PROFILO 24-28  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001



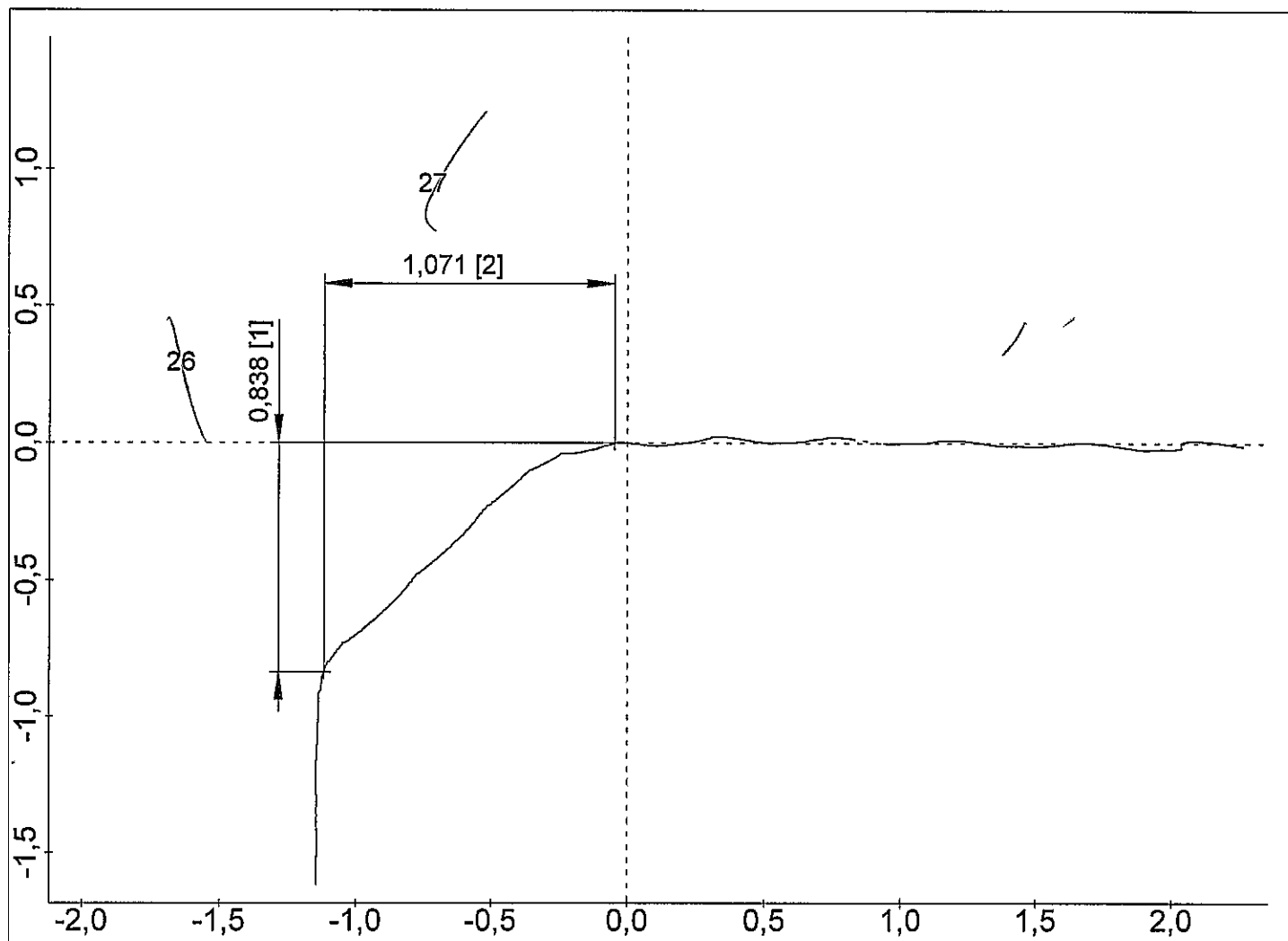
PERTHOMETER CONCEPT



Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.1  
Operatore: TURNO B  
Data, ora: 20.05.2014, 09:14  
Nota: PROFILO 26-27  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

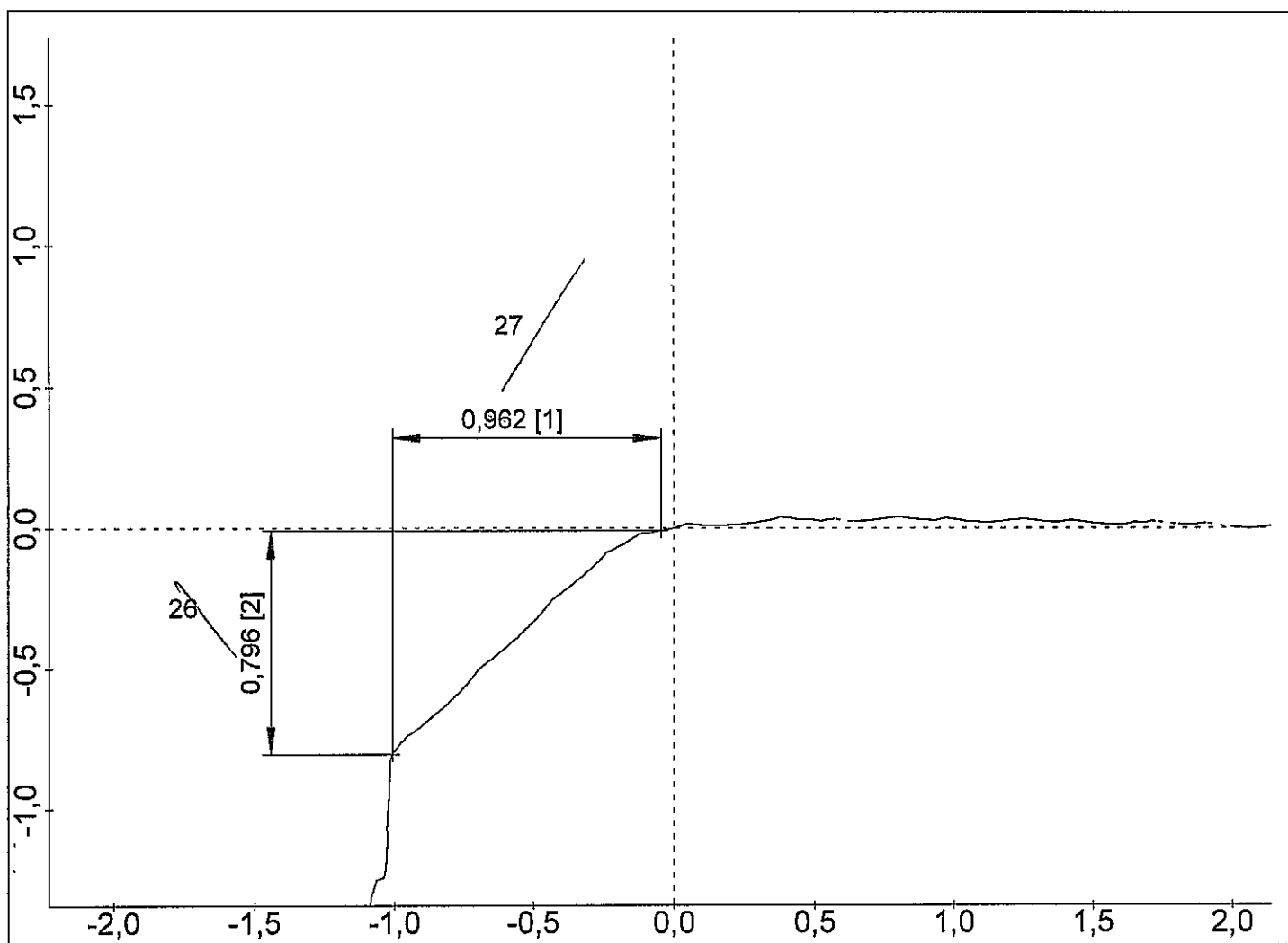


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.2  
Operatore: TURNO B  
Data, ora: 20.05.2014, 09:21  
Nota: PROFILO 26-27  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

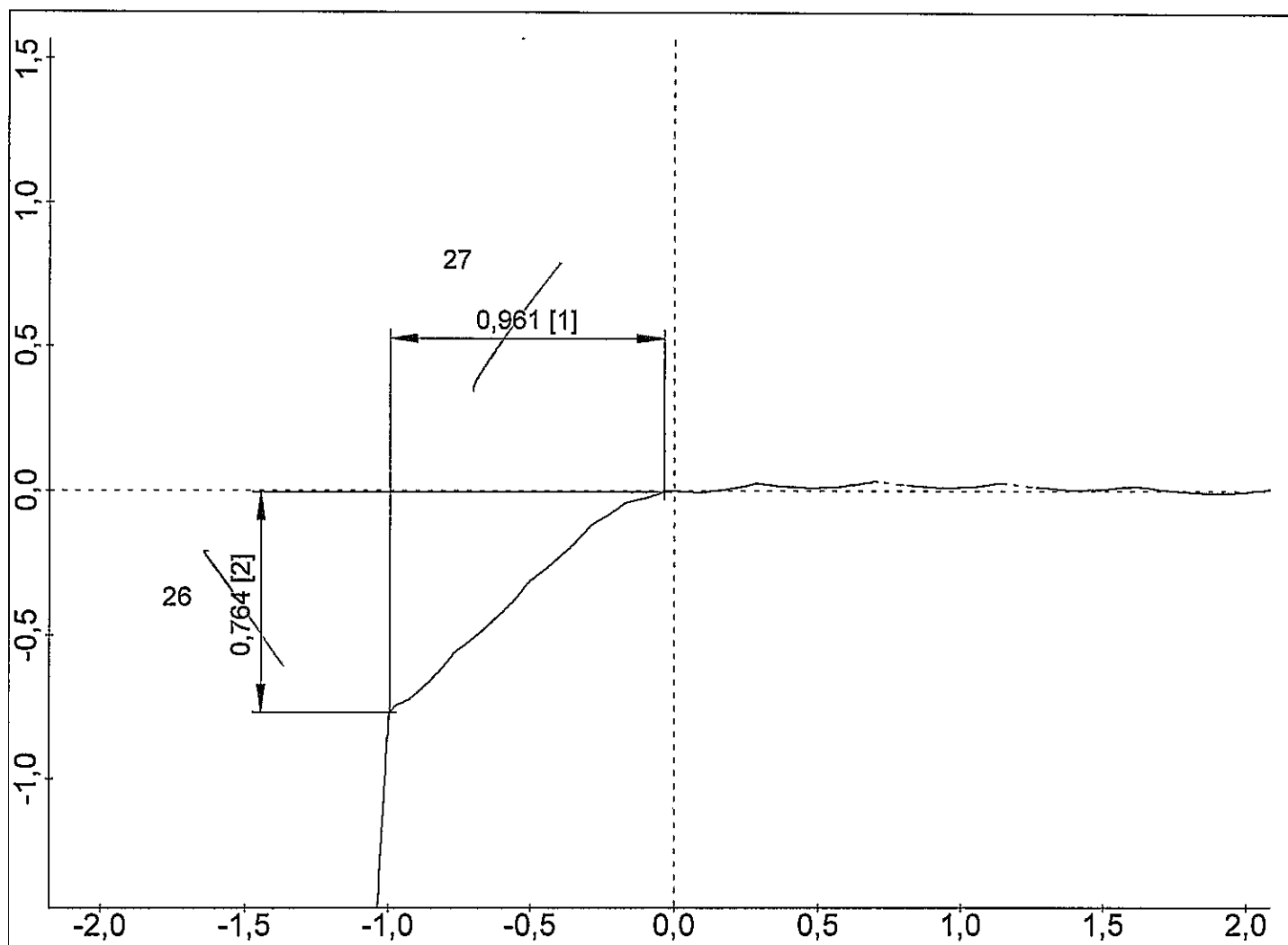


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.3  
Operatore: TURNO B  
Data, ora: 20.05.2014, 09:22  
Nota: PROFILO 26-27  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

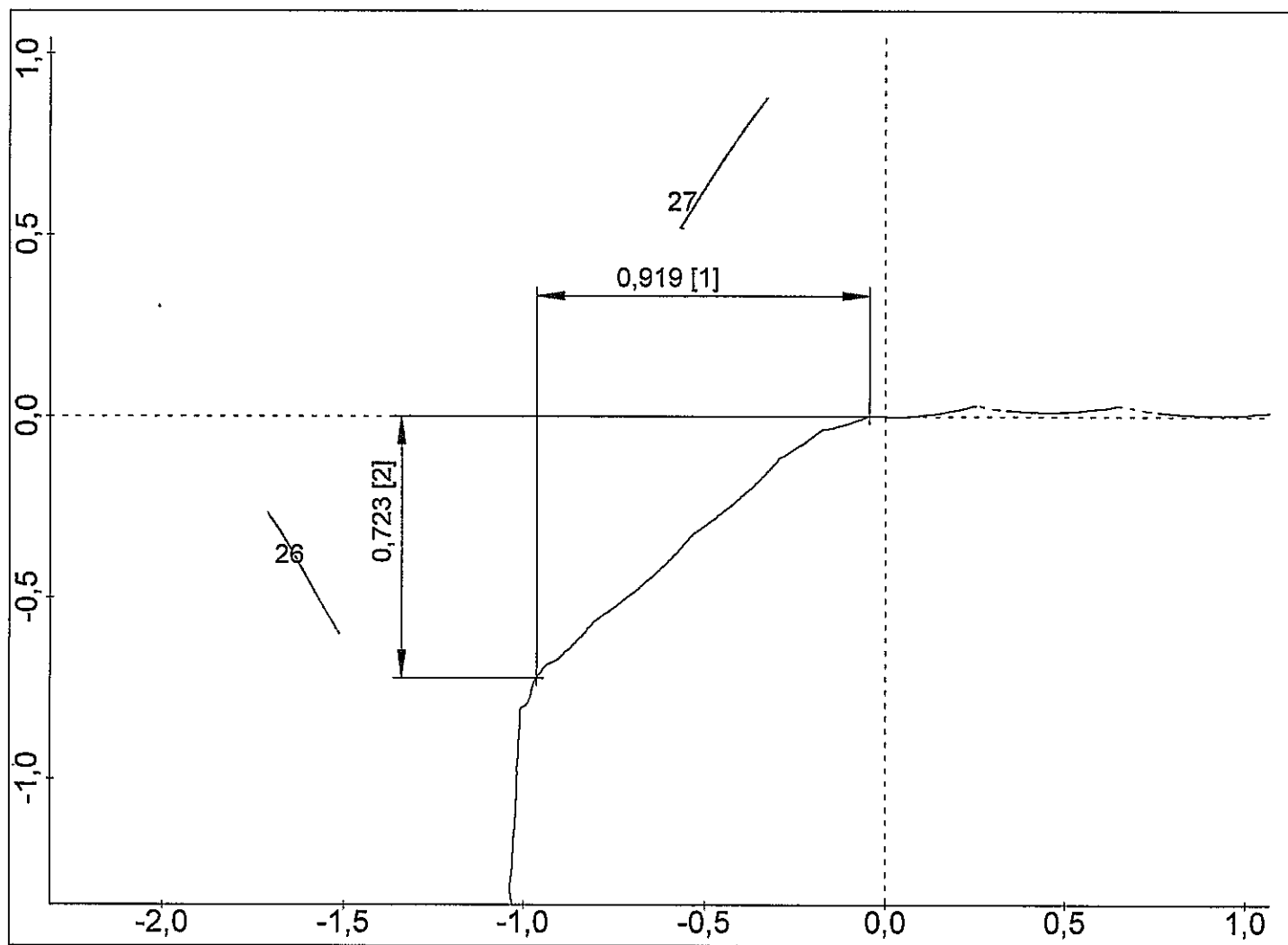


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA ).

Oggetto: ZR 5  
 Numero: 3654 PPAP PZ.4  
 Operatore: TURNO B  
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 Nota: PROFILO 26-27  
 Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

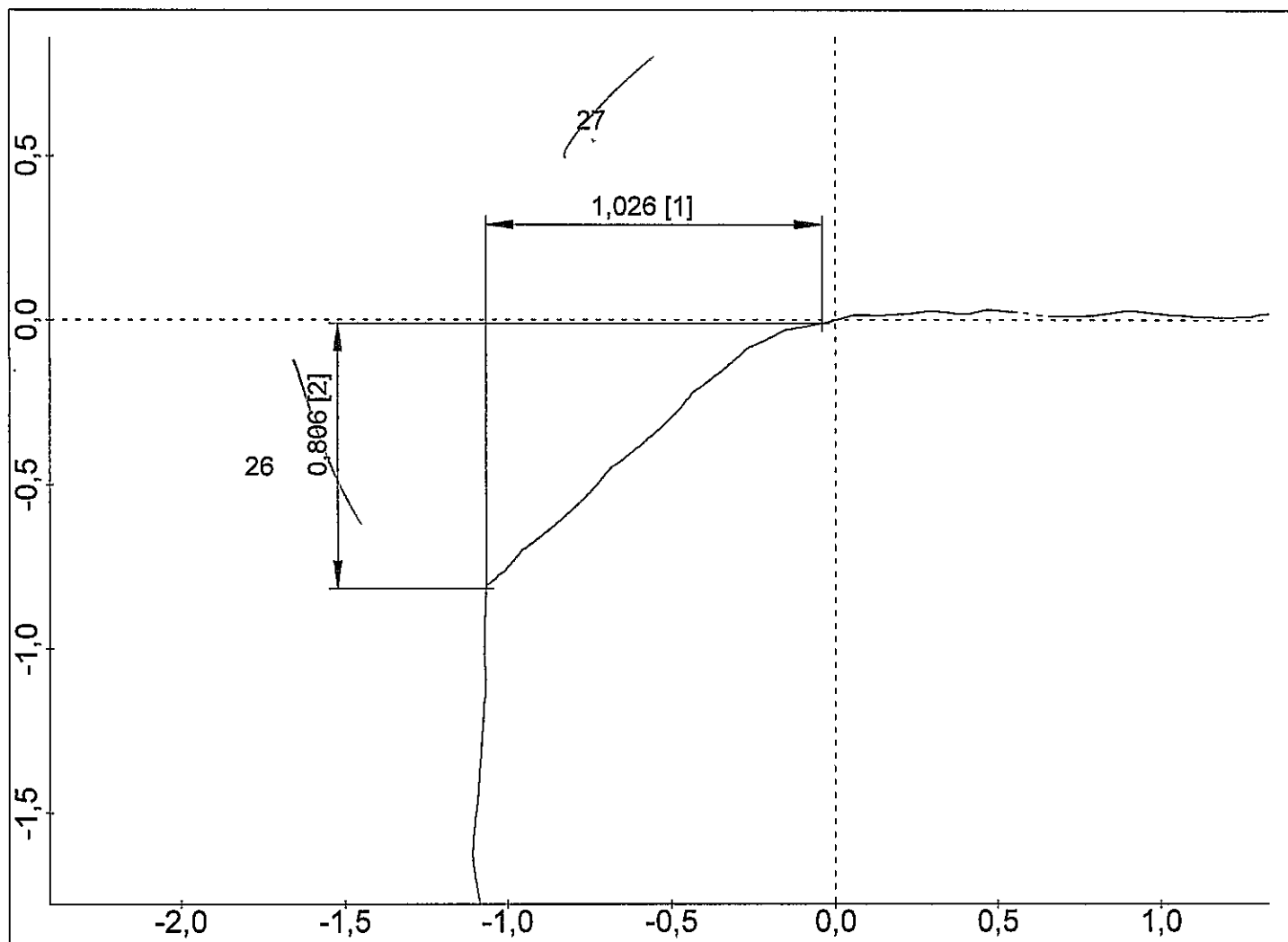


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.5  
Operatore: TURNO B  
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Nota: PROFILO 26-27  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

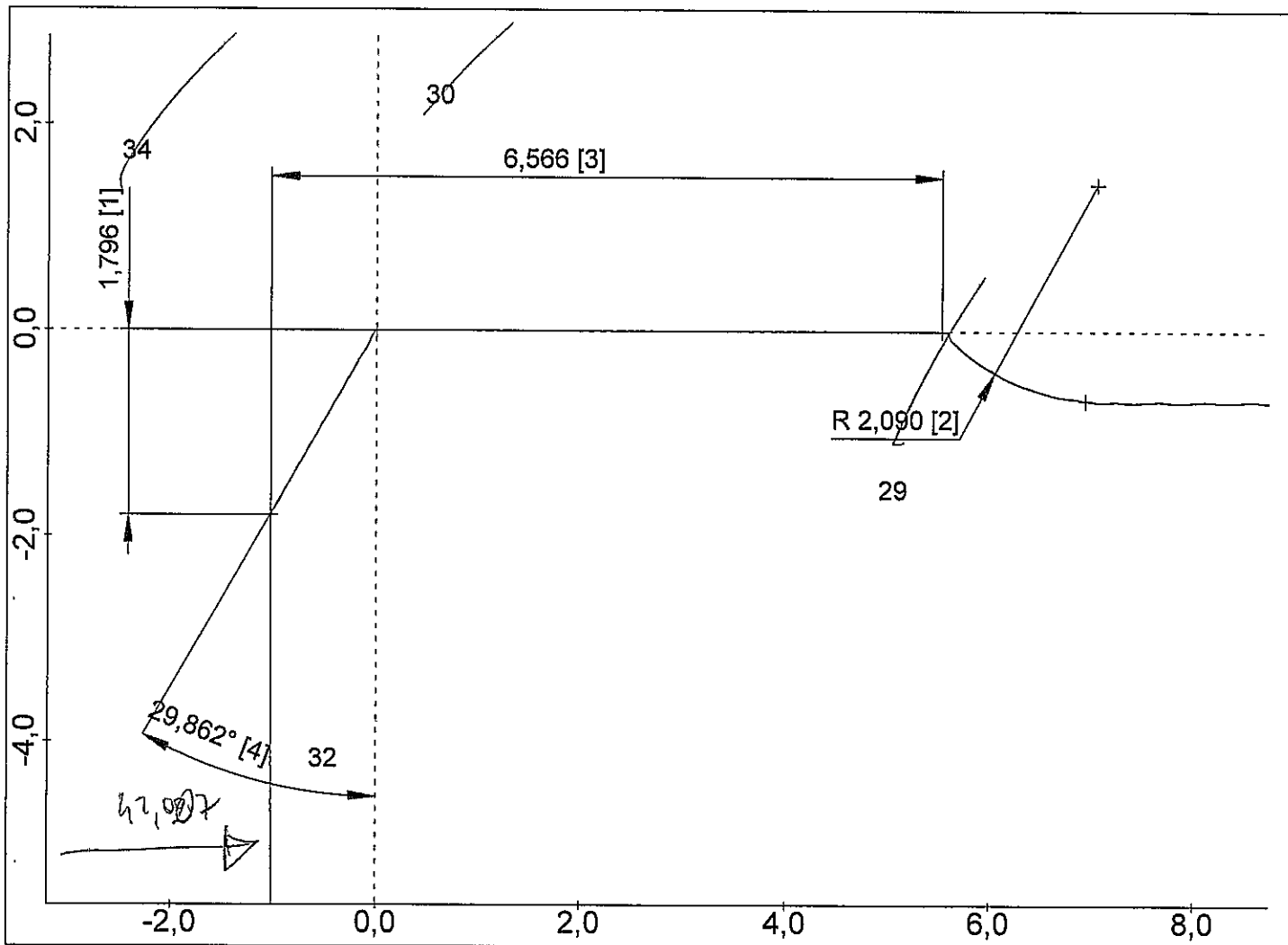


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
 Numero: 3654 PPAP PZ.1  
 Operatore: TURNO B  
 Data, ora: 20.05.2014, 08:42  
 Nota: PROFILO 29-30 32-34  
 Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001



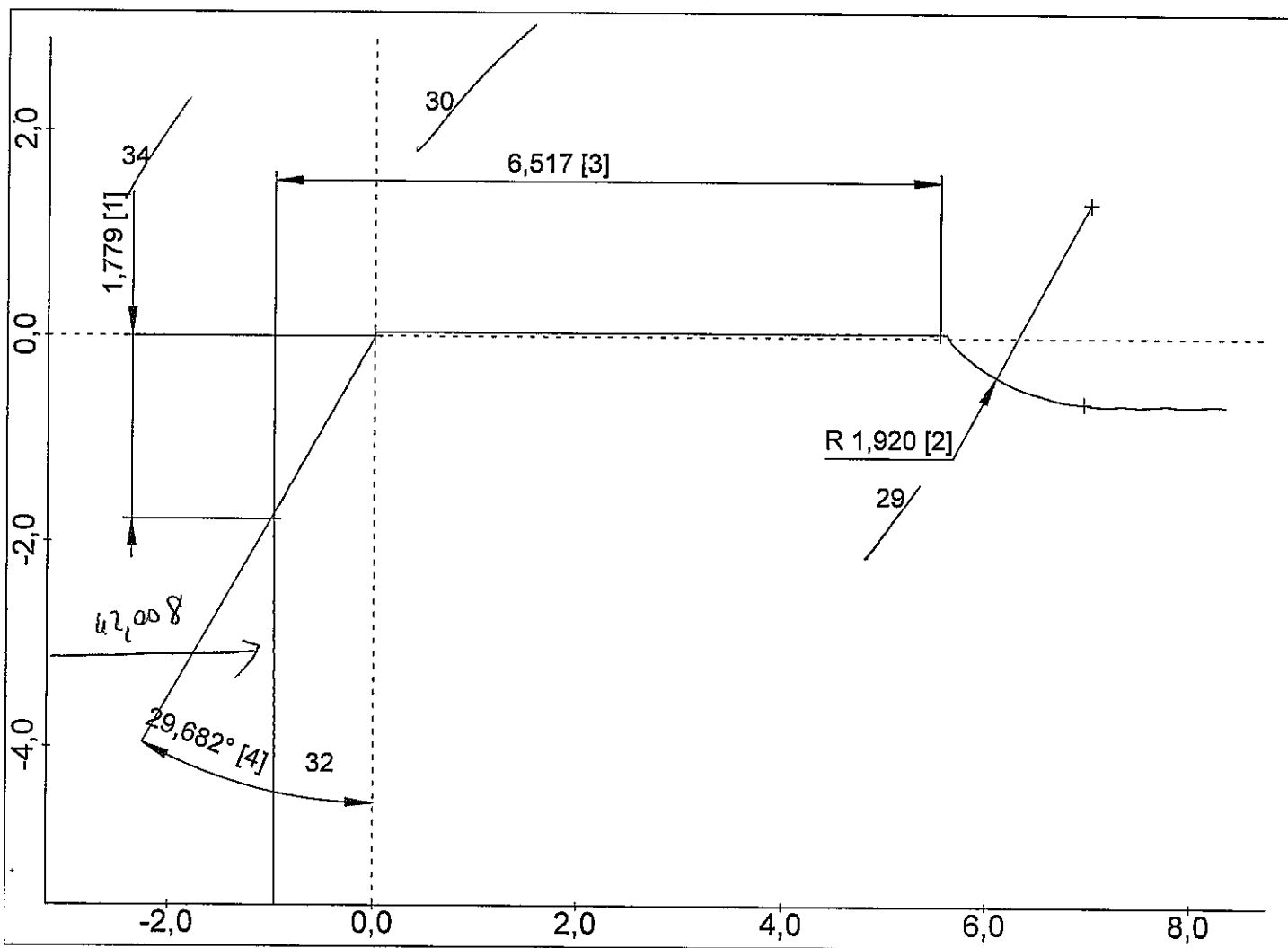
PERTHOMETER CONCEPT

$$\textcircled{70} = 42,007 + 2 \times 6,566 = 55,139$$

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
 Numero: 3654 PPAP PZ.2  
 Operatore: TURNO B  
 Data, ora: 20.05.2014, 08:46  
 Nota: PROFILO 29-30 32-34  
 Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001



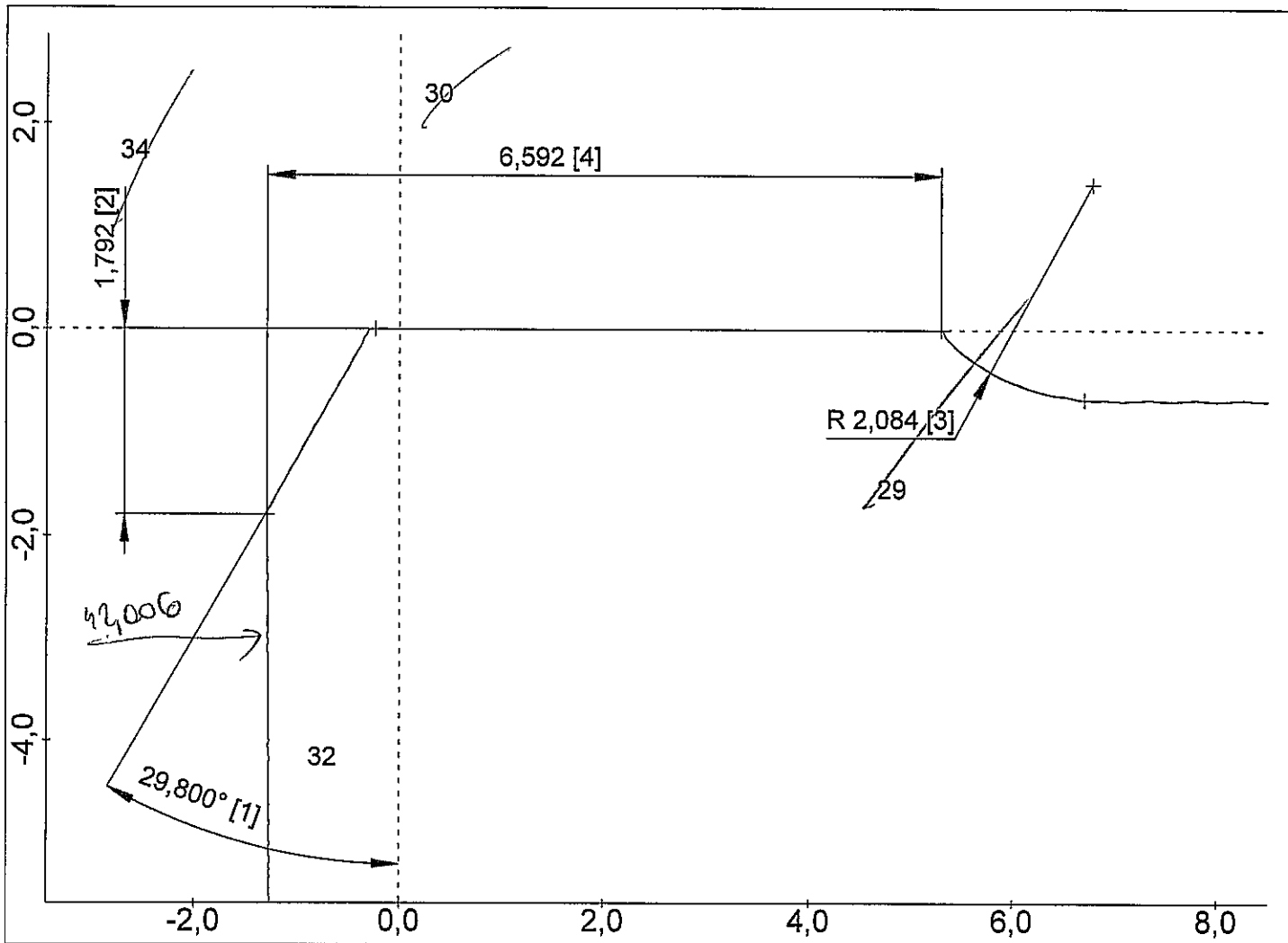
PERTHOMETER CONCEPT

(30)  $42,008 + 2 \times 6,517 = 55,042$

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
 Numero: 3654 PPAP PZ.3  
 Operatore: TURNO B  
 Data, ora: 20.05.2014, 08:13  
 Nota: PROFILO 29-30 32-34  
 Tastatore: PCV 350 / 21 mm

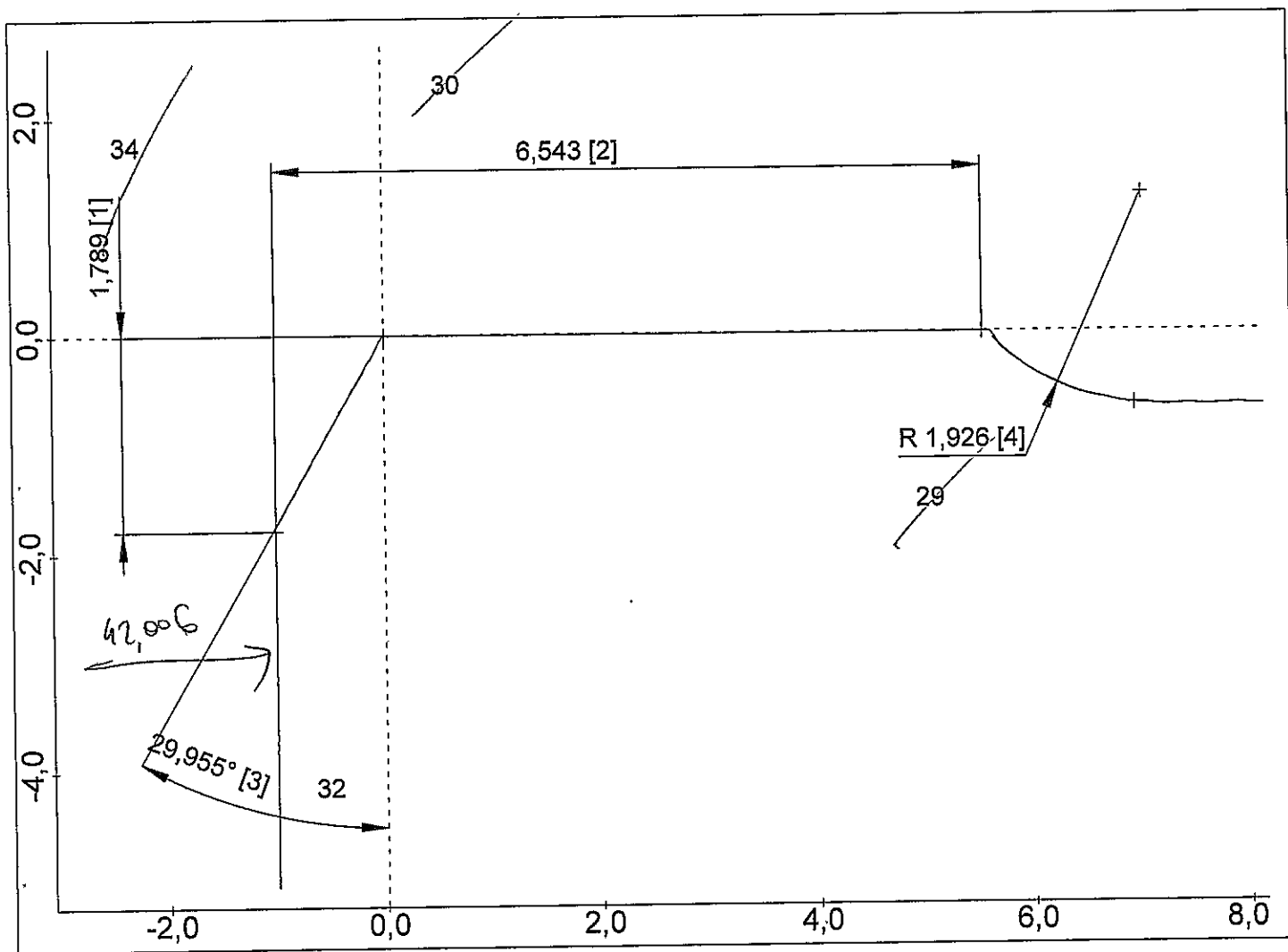
Macchina: MOA 416120 001



PERTHOMETER CONCEPT

(30)  $42,006 + 2 \times 6,592 = 55,19$



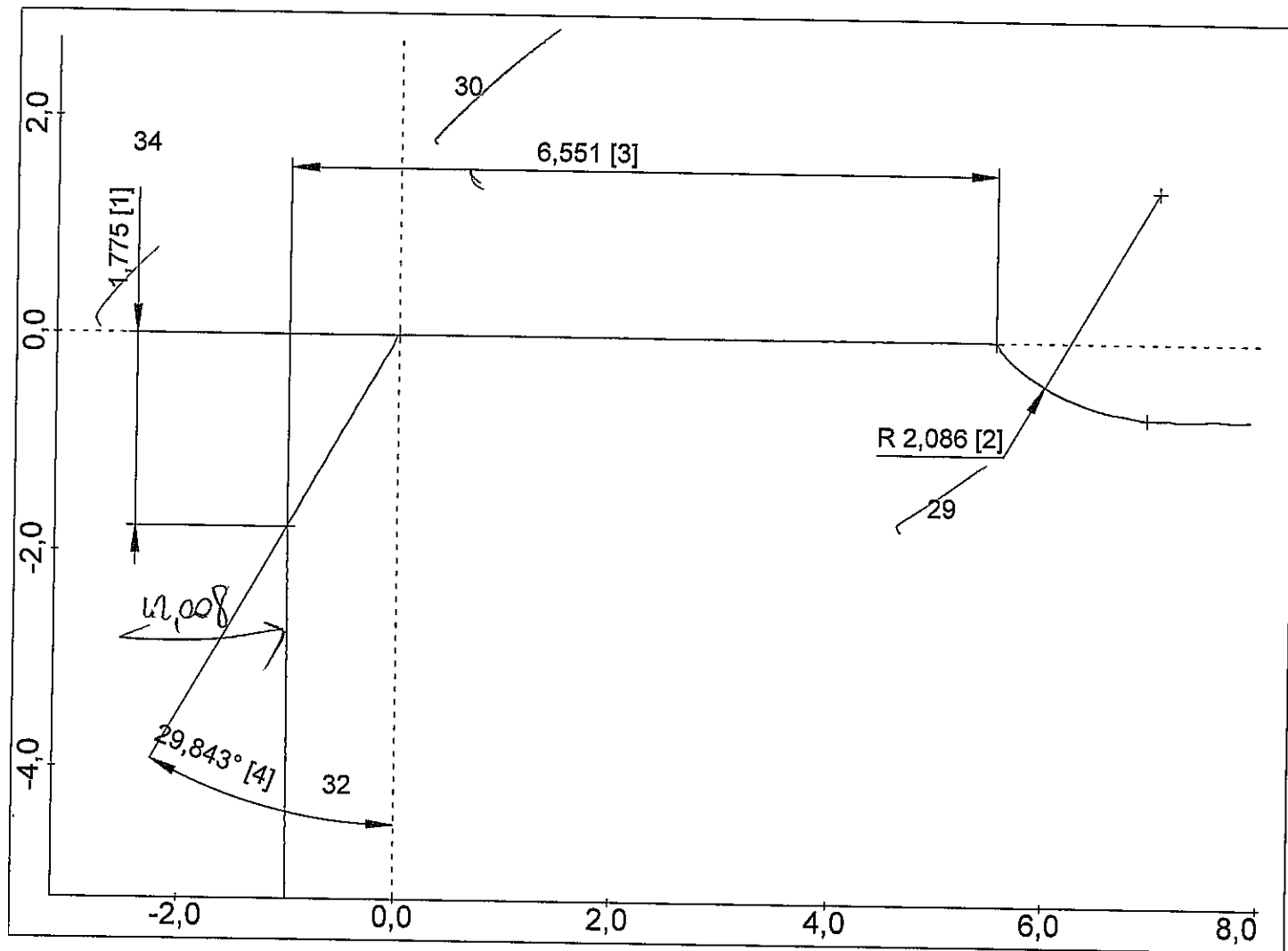


PERTHOMETER CONCEPT

$$\textcircled{30} = 42,006 + 2 \times 6,543 = 55,092$$

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.5  
Operatore: TURNO B  
Data, ora: 20.05.2014, 08:39  
Nota: PROFILO 29-30 32-34  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001



## PERTHOMETER CONCEPT

$$\textcircled{30} = 42,008 + 2 \times 6,551 = 55,11$$

0,871

$$40 \mu m \cdot 5 \mu = 7,4 \mu m$$

$$1,143 : 9,2 = x : 7,4$$

0,91

$$14,7 \pm 0,1 - 0,91 - 0,73 = 13,96$$

$$x = \frac{7,4 \cdot 1,143}{9,2}$$

$$u_0 = 5 \mu$$
$$u_{cr} = 7 \mu$$

14

RAW

23

$$14,682 - 0,872 -$$

$$14,682 - 0,863 -$$

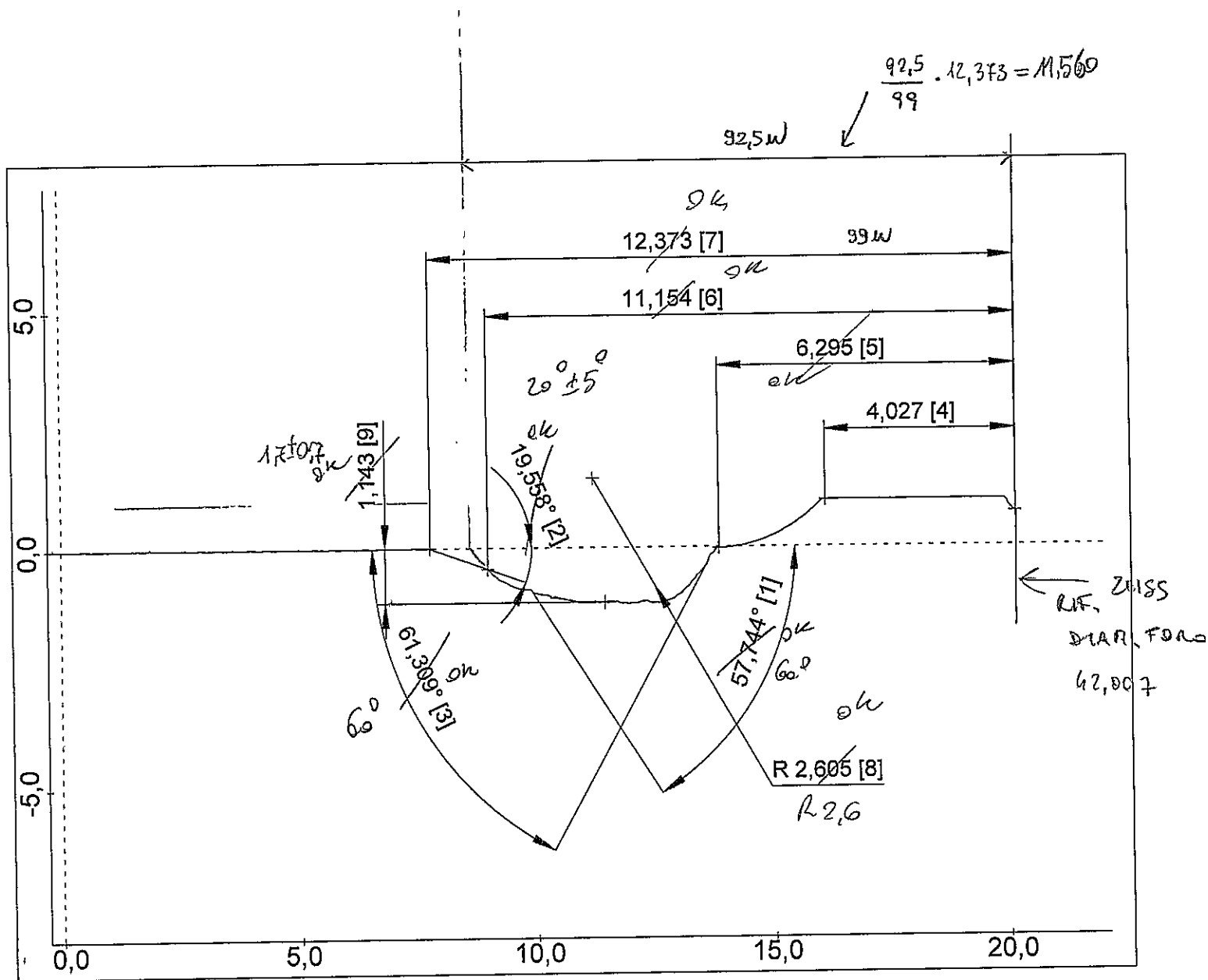
$$14,687 - 0,865 -$$

$$14,686 - 0,876 -$$

$$14,687 - 0,879 -$$

$$0,7$$
$$7,4 \mu m$$

Macchina: MOA 416120 001



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$$55 \pm 1,6 \begin{cases} \nearrow 56,6 \\ \searrow 53,4 \end{cases}$$

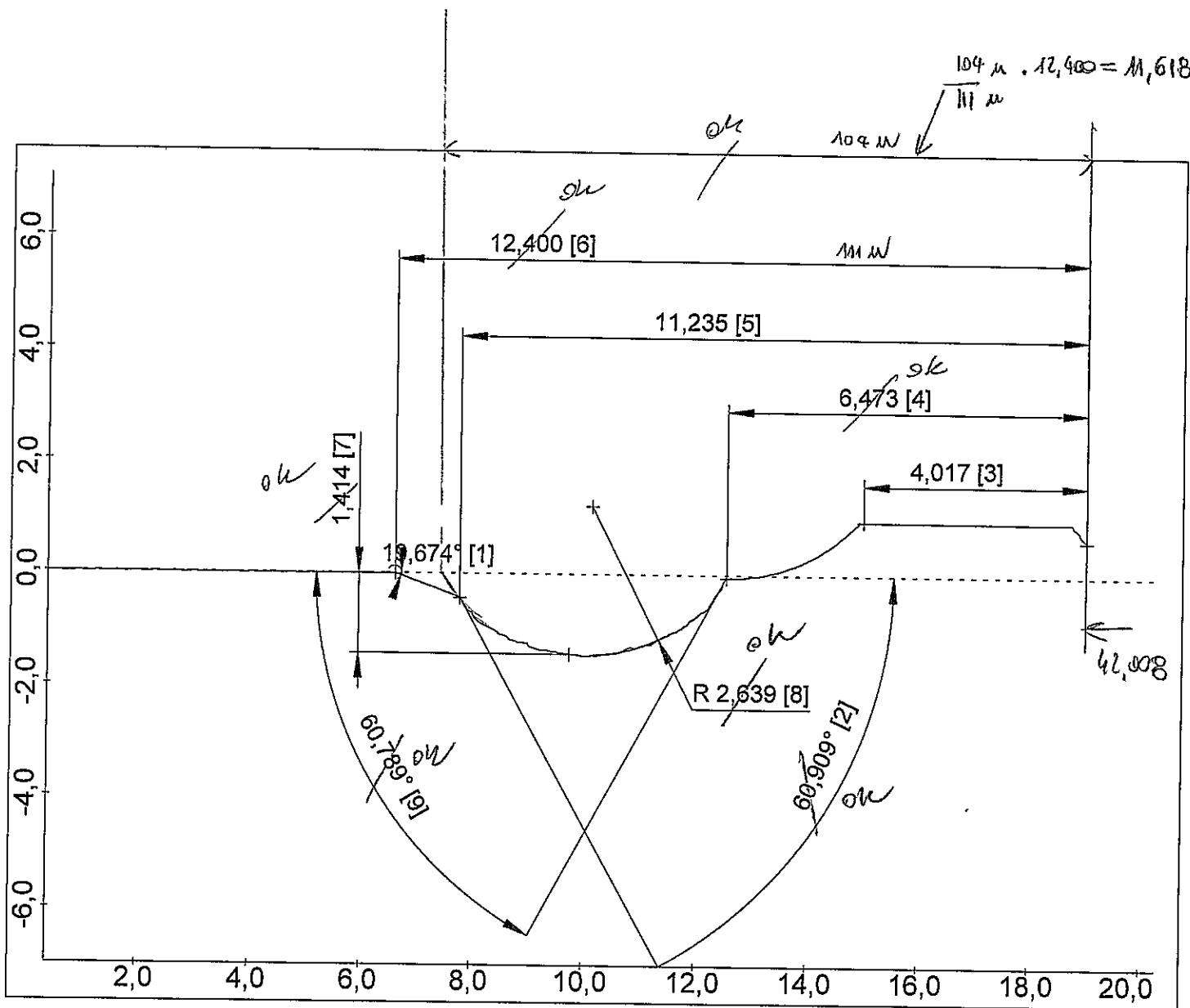
$$42,007 + 2 \times 6,285 = 54,597 \text{ ok}$$

$$65 \pm 1,6 \begin{cases} 66,6 \\ 63,4 \end{cases}$$

$$42,007 + 2 \times 11,560 = 65,127 \quad \text{ok}$$

$$67 \pm 1 \begin{array}{l} \nearrow 68 \\ \searrow 66 \end{array}$$

$$42,007 + 2 \times 12,373 = 66,753 \quad \text{OK}$$



### PERTHOMETER CONCEPT

$$55 \pm 1,6 \begin{cases} < 56,6 \\ < 53,4 \end{cases}$$

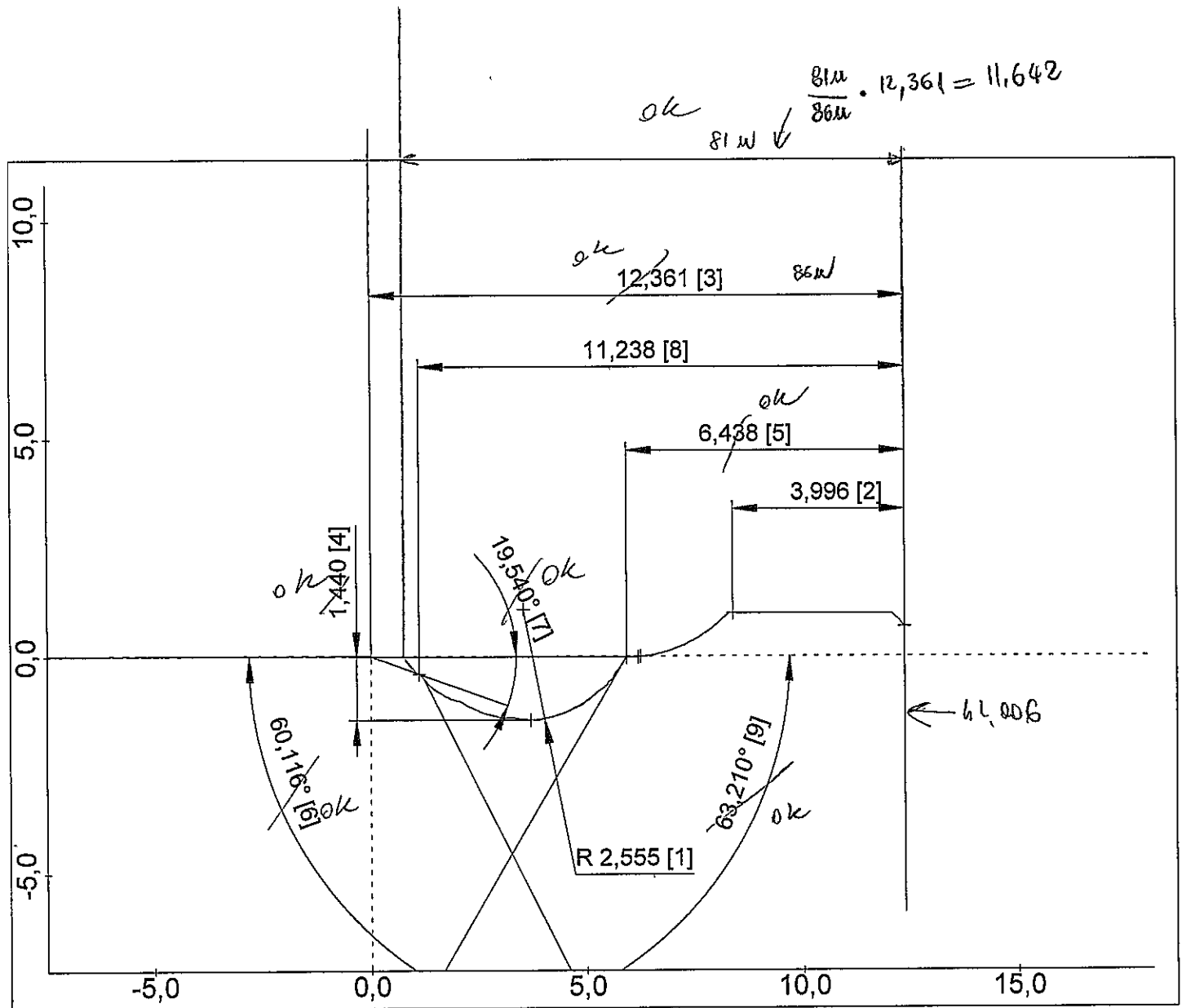
$$65 \pm 1,6 \begin{cases} < 66,6 \\ < 63,4 \end{cases}$$

$$61 \pm 1 \begin{cases} < 68 \\ < 66 \end{cases}$$

$$42,008 + 2 \times 6,473 = 54,954 \text{ ok}$$

$$42,008 + 2 \times 11,618 = 65,244 \text{ ok}$$

$$42,008 + 2 \times 12,400 = 66,808 \text{ ok}$$



### PERTHOMETER CONCEPT

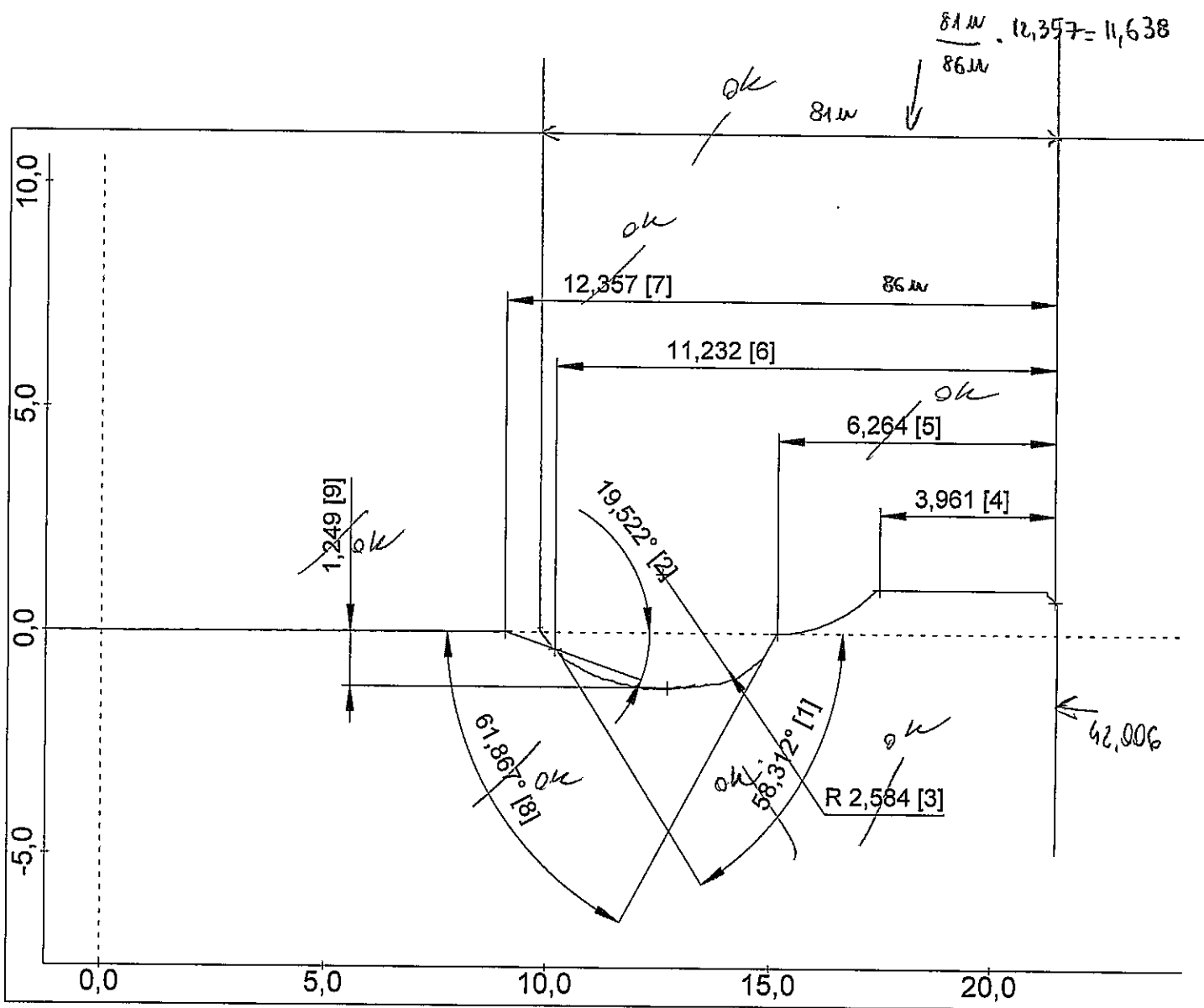
$$55 \pm 1,6 \begin{cases} 56,6 \\ 53,4 \end{cases} : 42,006 + 2 \times 6,438 = 54,882 \text{ ok}$$

$$65 \pm 1,6 \begin{cases} 66,6 \\ 63,4 \end{cases} : 42,006 + 2 \times 11,642 = 65,290 \text{ ok}$$

$$67 \pm 1 \begin{cases} 68 \\ 66 \end{cases} : 42,006 + 2 \times 12,361 = 66,728 \text{ ok}$$

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.4  
Operatore: TURNO B  
Data, ora: 20.05.2014, 07:54  
Nota: PROFILO X  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001



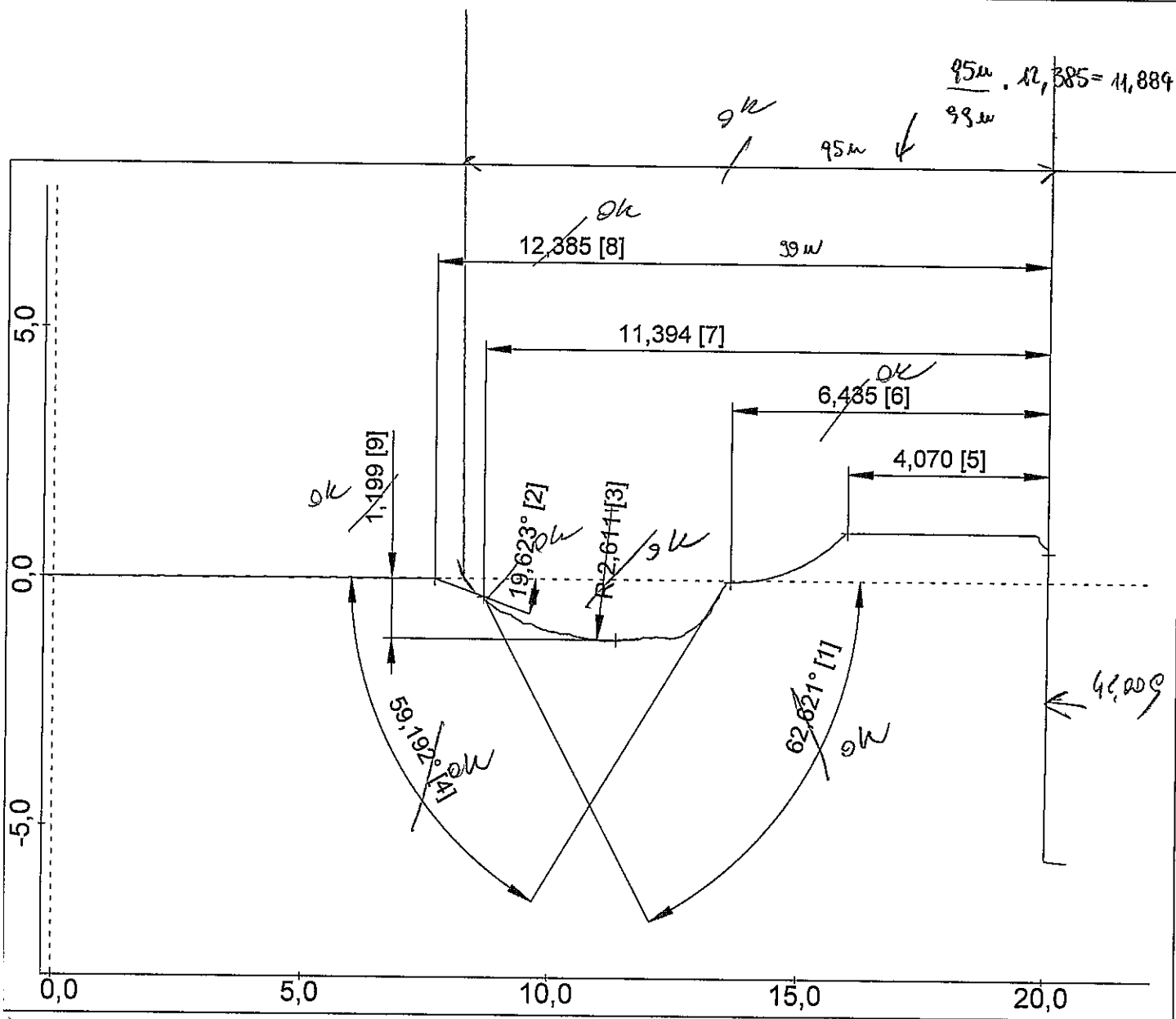
## PERTHOMETER CONCEPT

$55 \pm 1.6$  ✓  $56.6$   
✓  $53.4$

:  $42,006 + 2 \times 6,264 = 54,534$  ok

$$65 \pm 1.6 \begin{cases} 66.6 \\ 63.4 \end{cases} \quad ; \quad 42.006 + 2 \times 11.638 = 65.282 \quad \text{ok}$$

$67 \pm 1 \begin{cases} 68 \\ 66 \end{cases}$   $42,008 + 2 \times 12,357 = 66,720$  ok



### PERTHOMETER CONCEPT

$$55 \pm 1,6 \begin{cases} 56,6 \\ 53,4 \end{cases} : 42,009 + 2 \times 6,435 = 54,879 \text{ ok}$$

$$65 \pm 1,6 \begin{cases} 66,6 \\ 63,4 \end{cases} : 42,009 + 2 \times 11,884 = 65,777 \text{ ok}$$

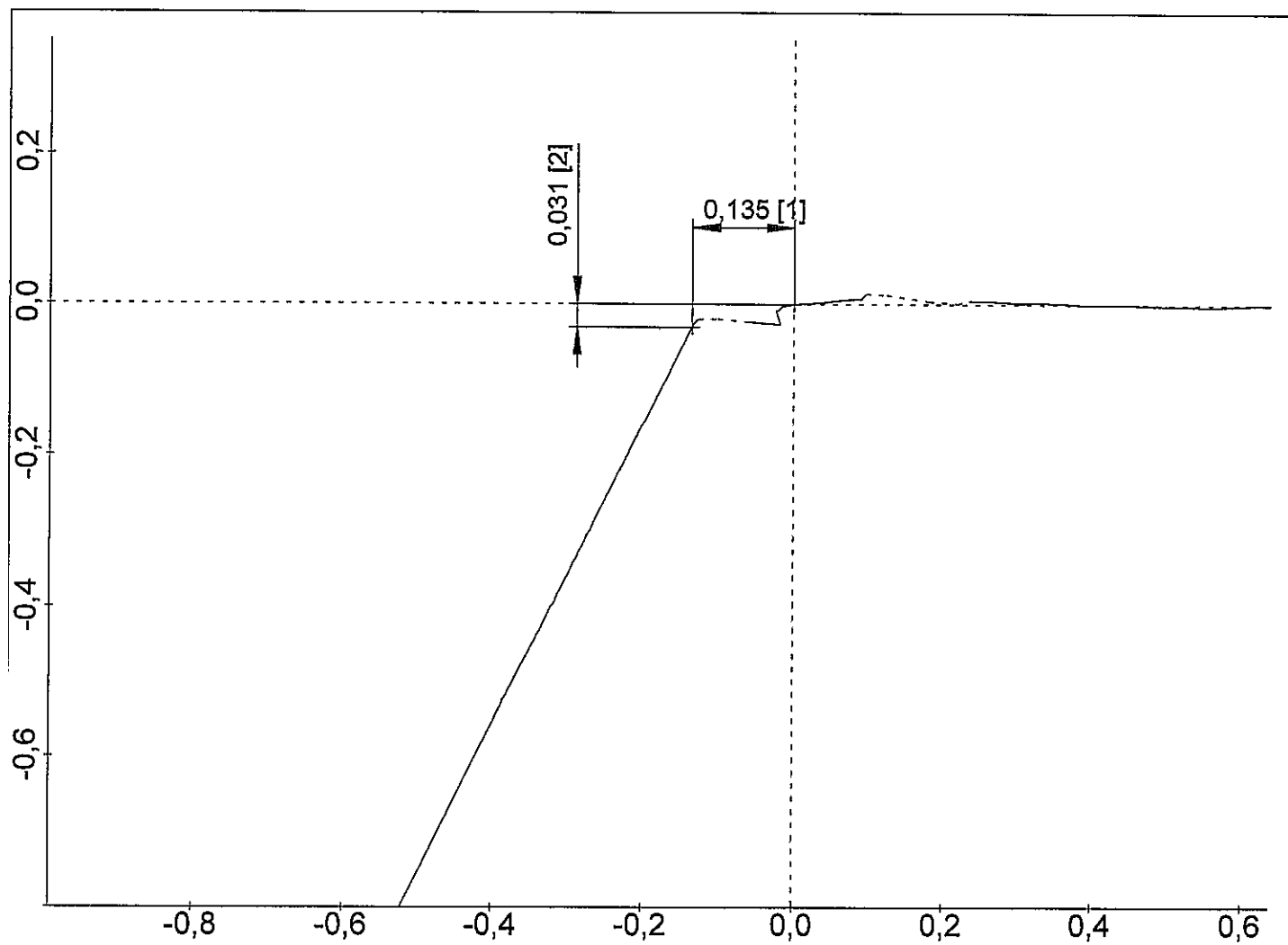
$$67 \pm 1 \begin{cases} 68 \\ 66 \end{cases} : 42,009 + 2 \times 12,385 = 66,779 \text{ ok}$$



Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.1  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:24  
Nota: PROFILO 20  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

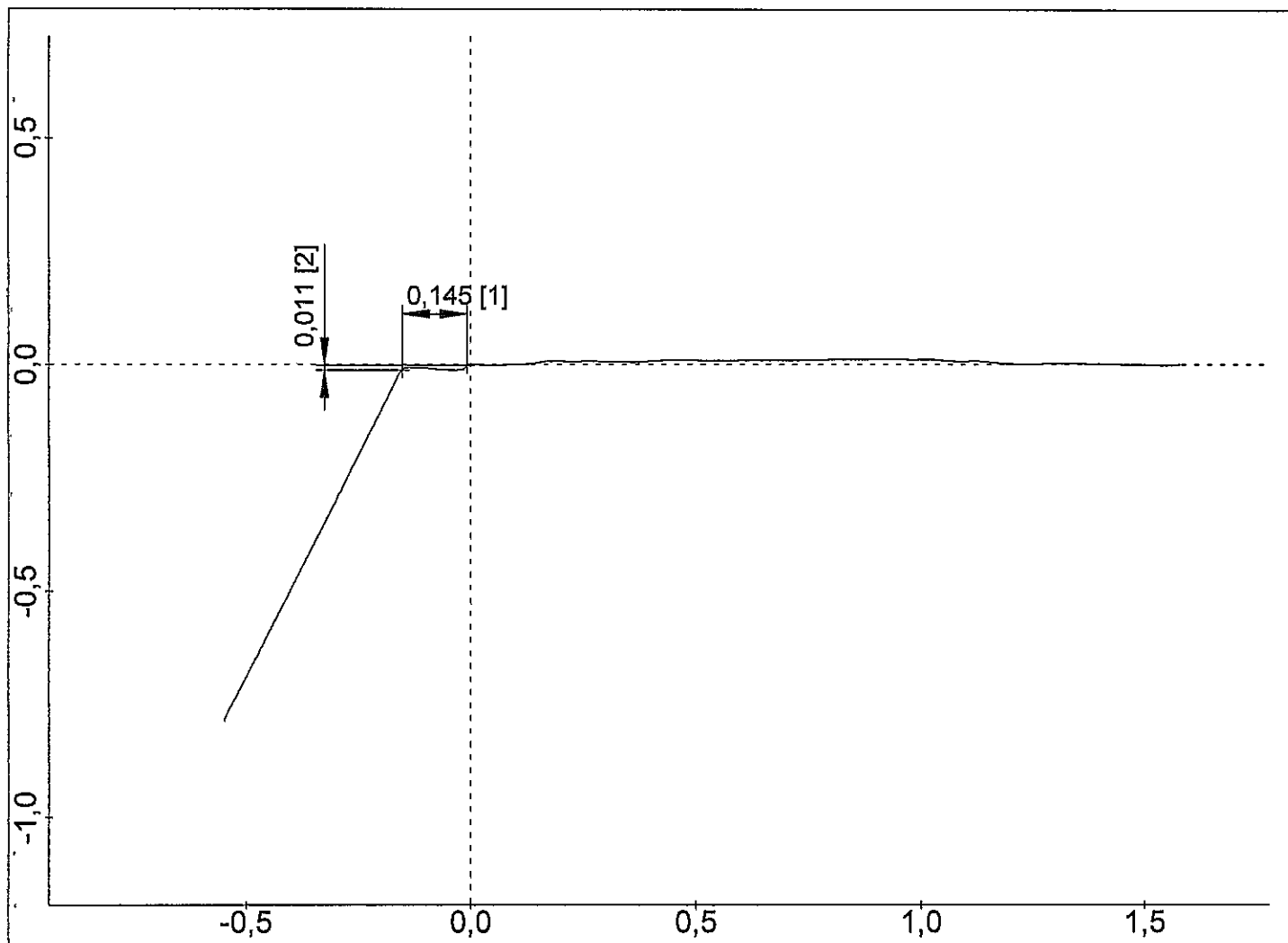


PERTHOMETER CONCEPT

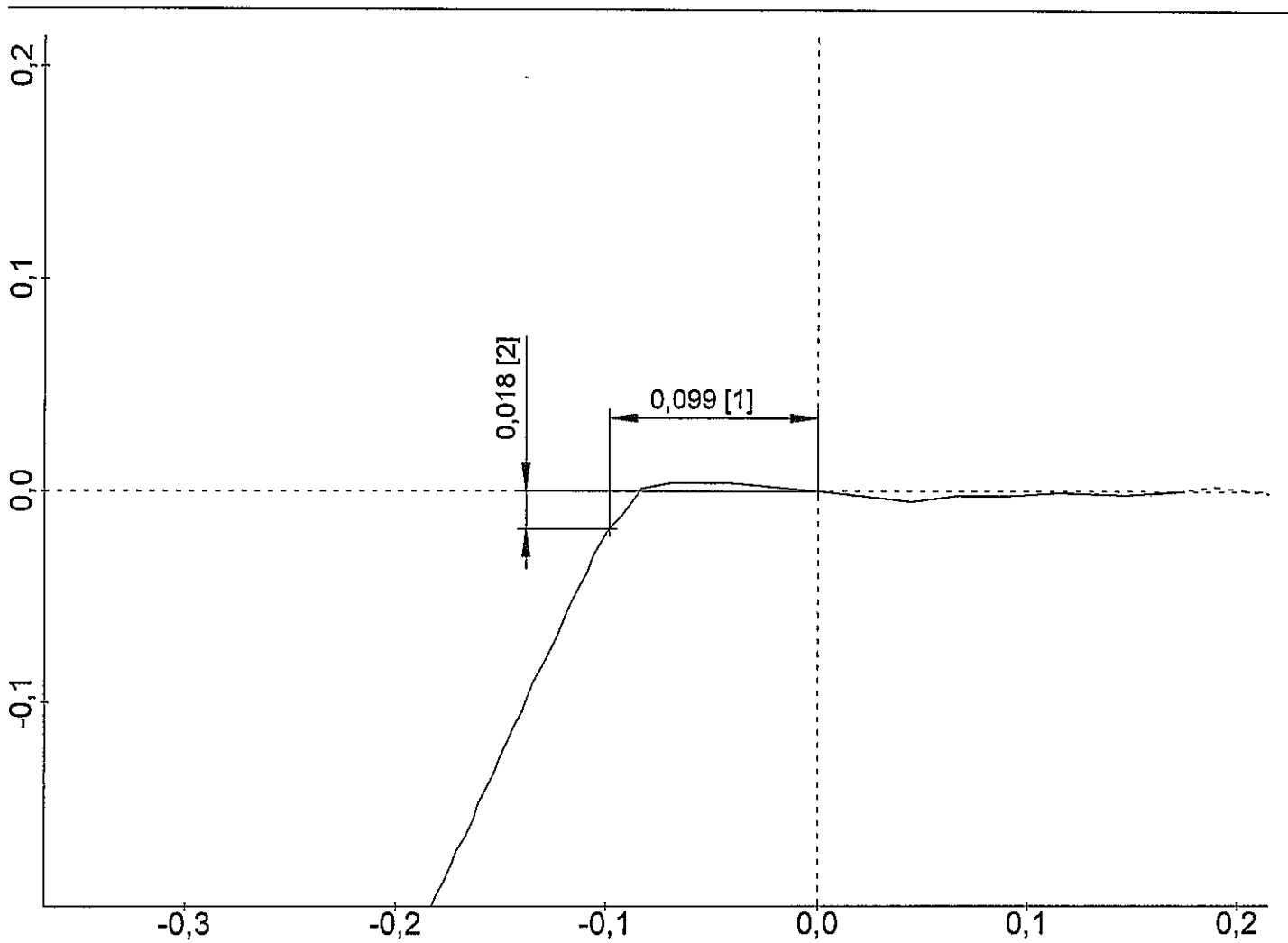
Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.2  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:27  
Nota: PROFILO 20  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001



PERTHOMETER CONCEPT



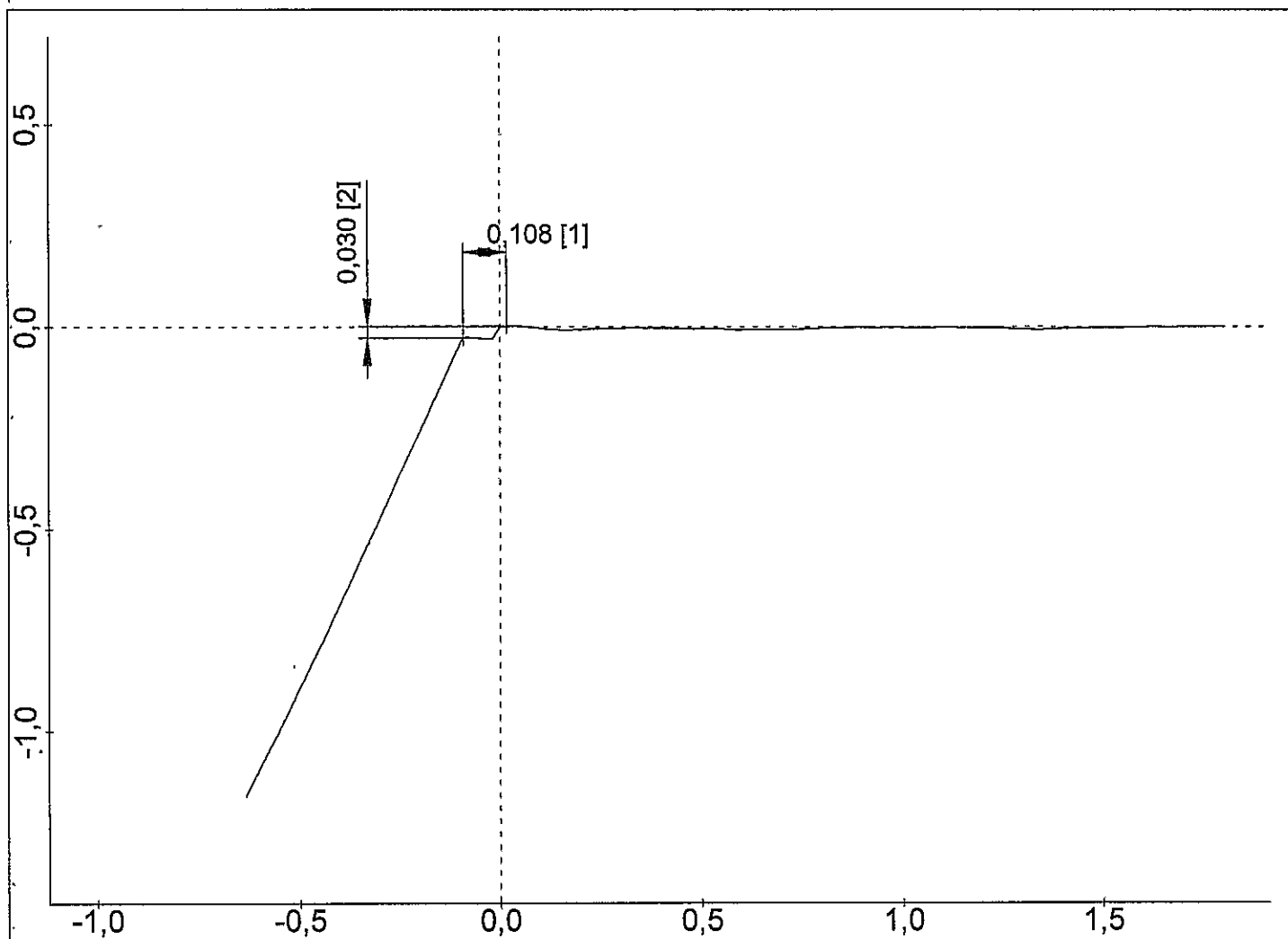
PERTHOMETER CONCEPT



Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.4  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:26  
Nota: PROFILO 20  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

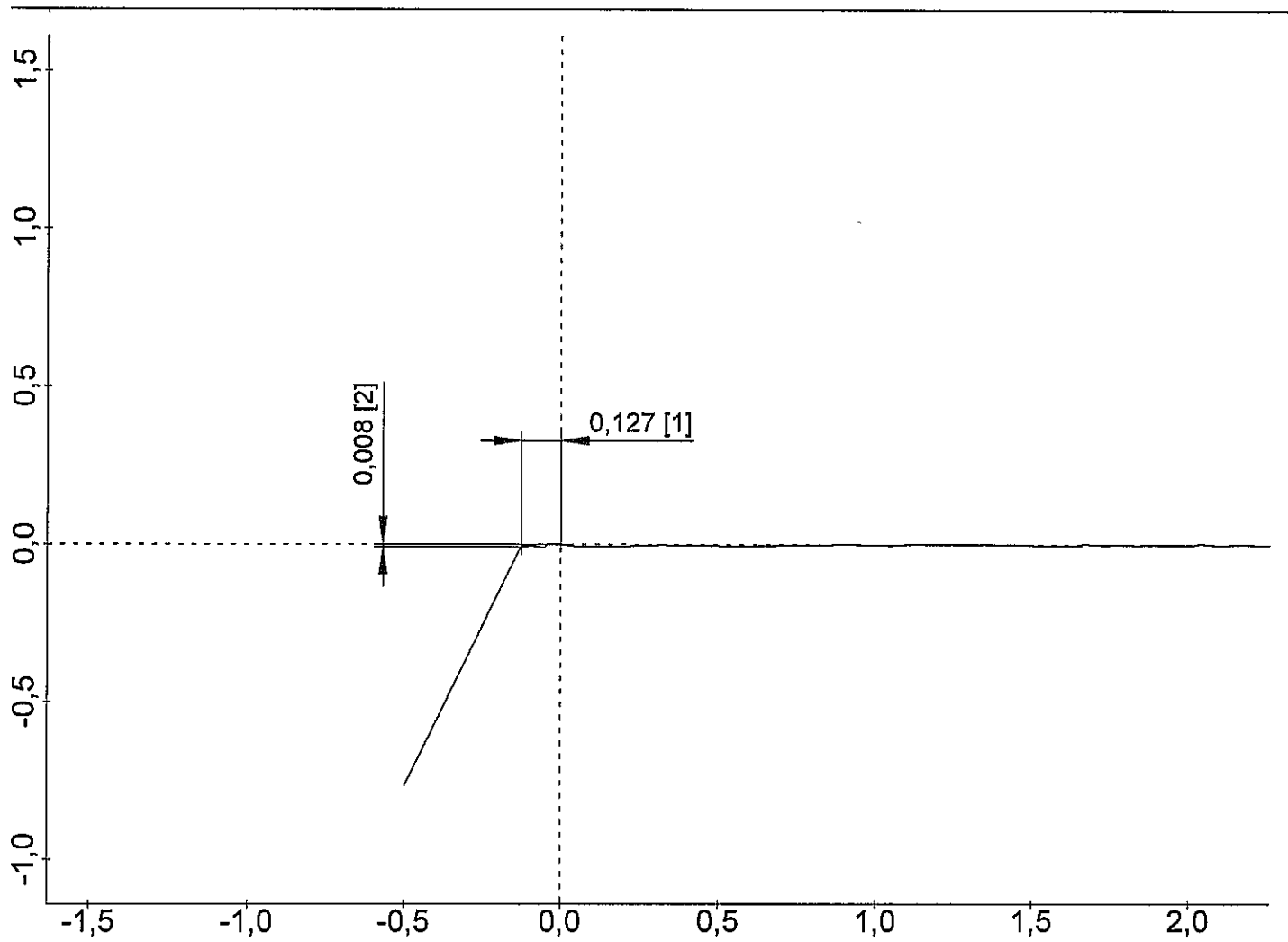


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.5  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:23  
Nota: PROFILO 20  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

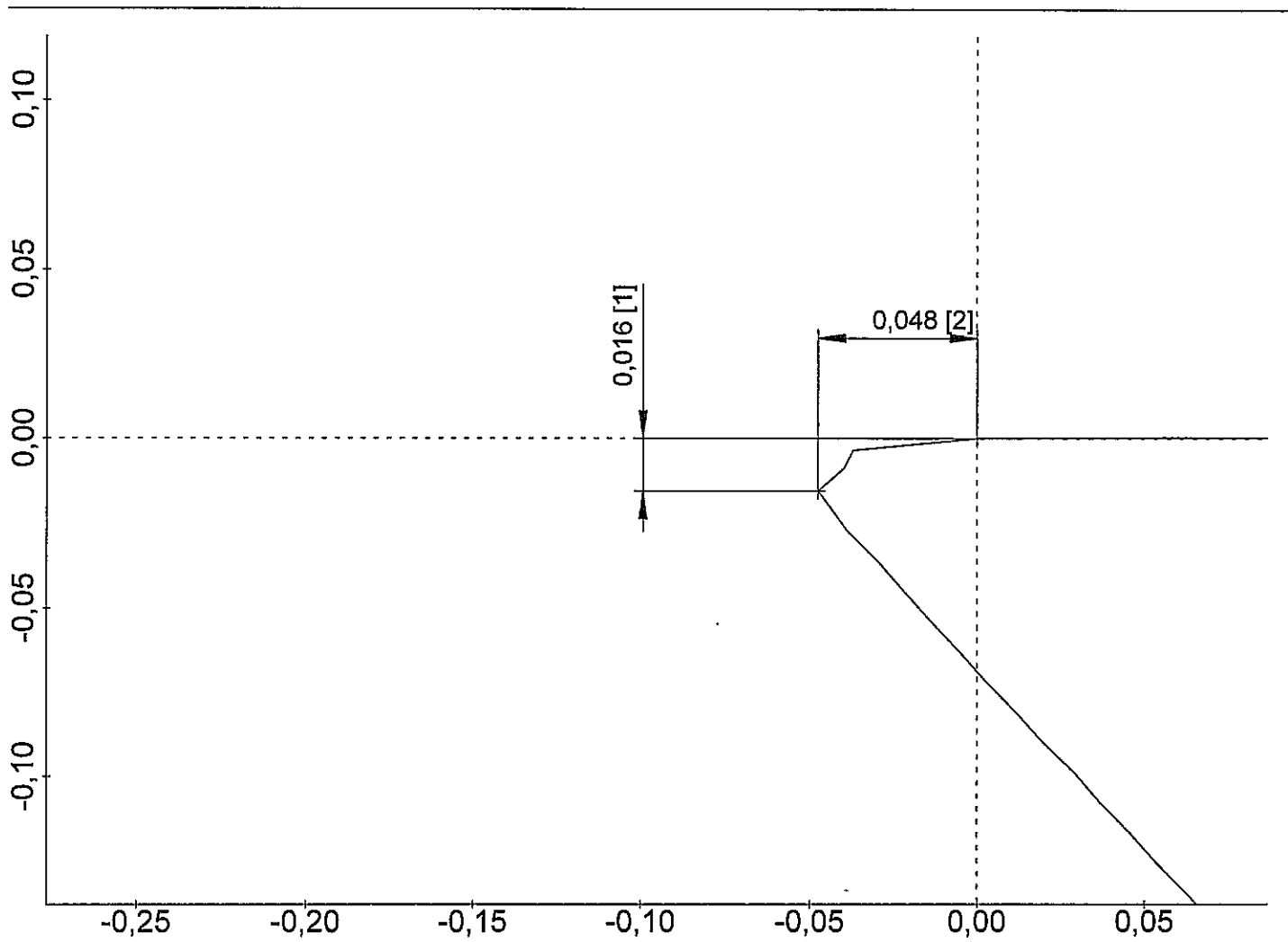


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.1  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:18  
Nota: PROFILO 17  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

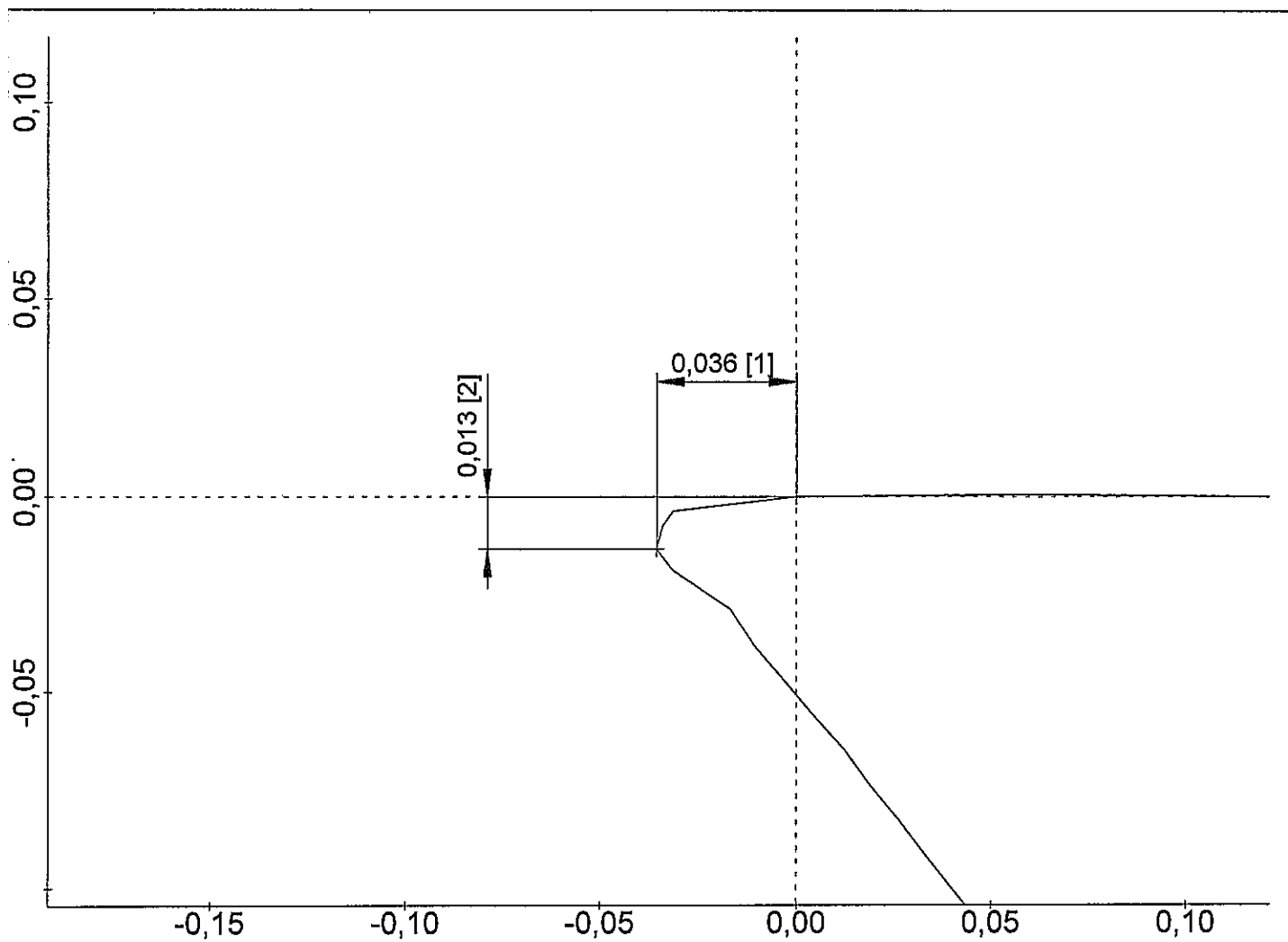


PERTHOMETER CONCEPT

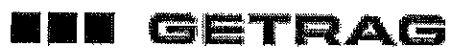
Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.2  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:15  
Nota: PROFILO 17  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001



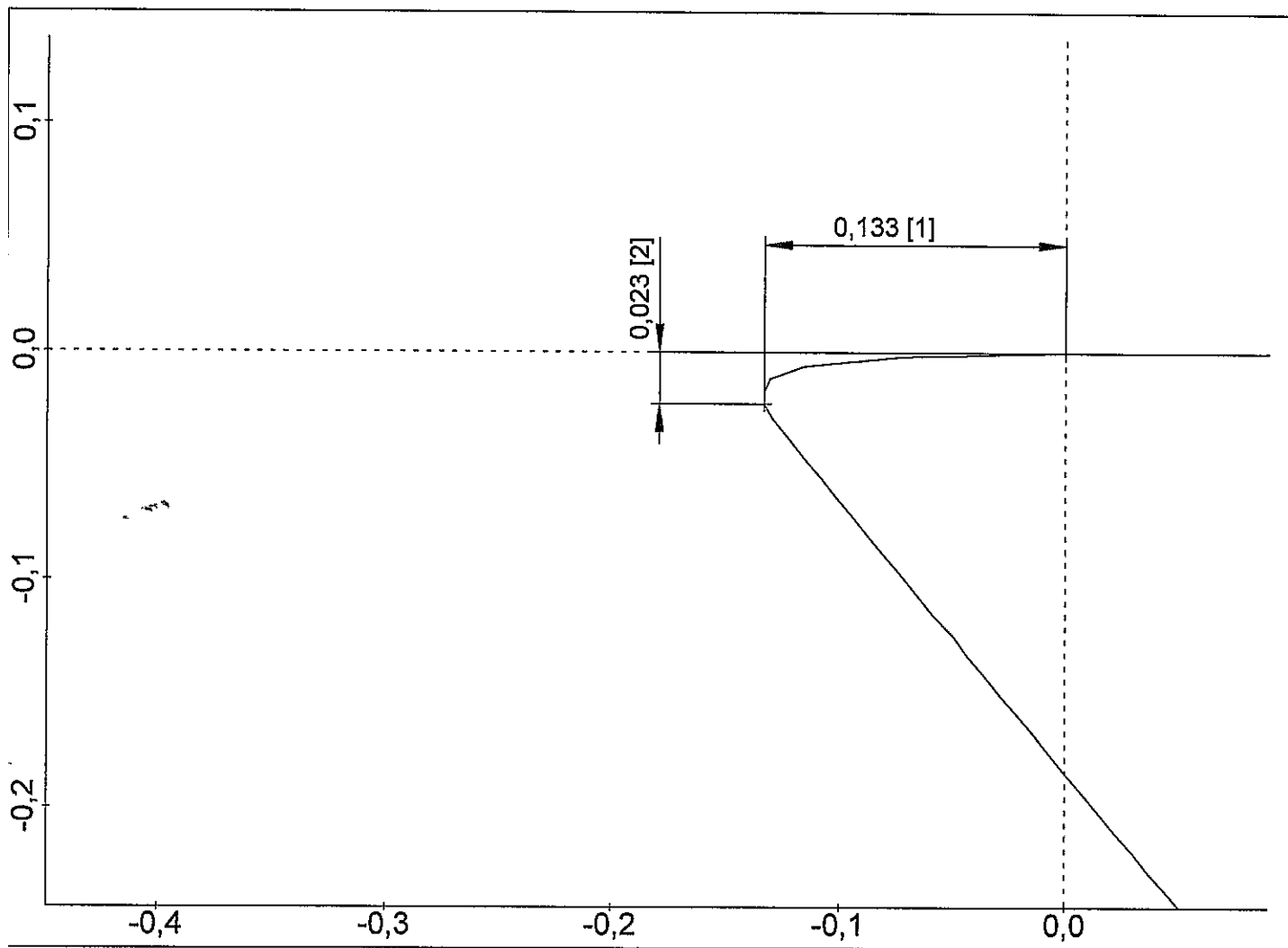
PERTHOMETER CONCEPT



Oggetto: ZR 5  
Numero: 3654 PPAP PZ.3  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:20  
Nota: PROFILO 17  
Tastatore: PCV 350 / 21 mm

Via dei Ciclamini 4, Modugno ( BA )

Macchina: MOA 416120 001



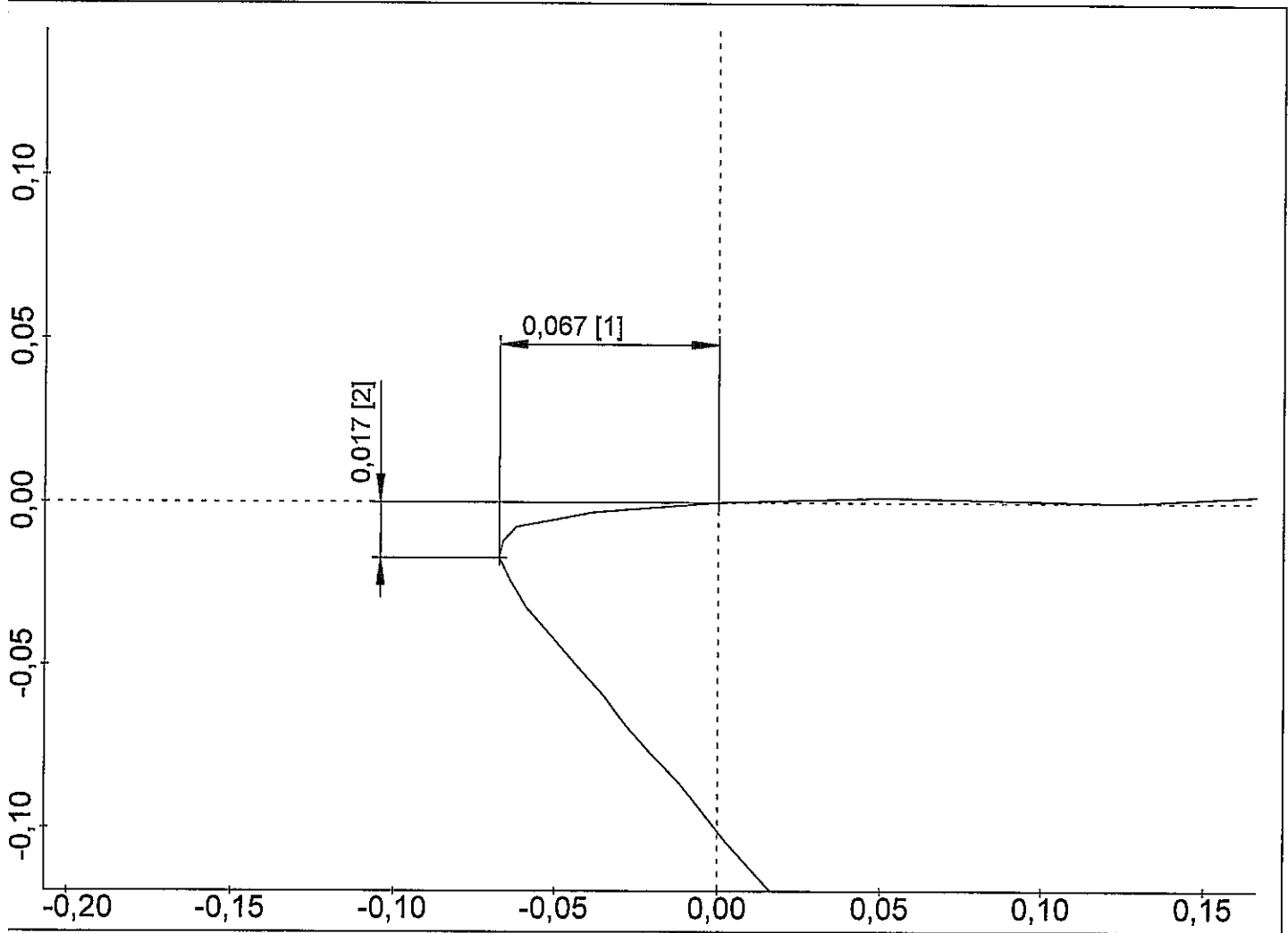
PERTHOMETER CONCEPT



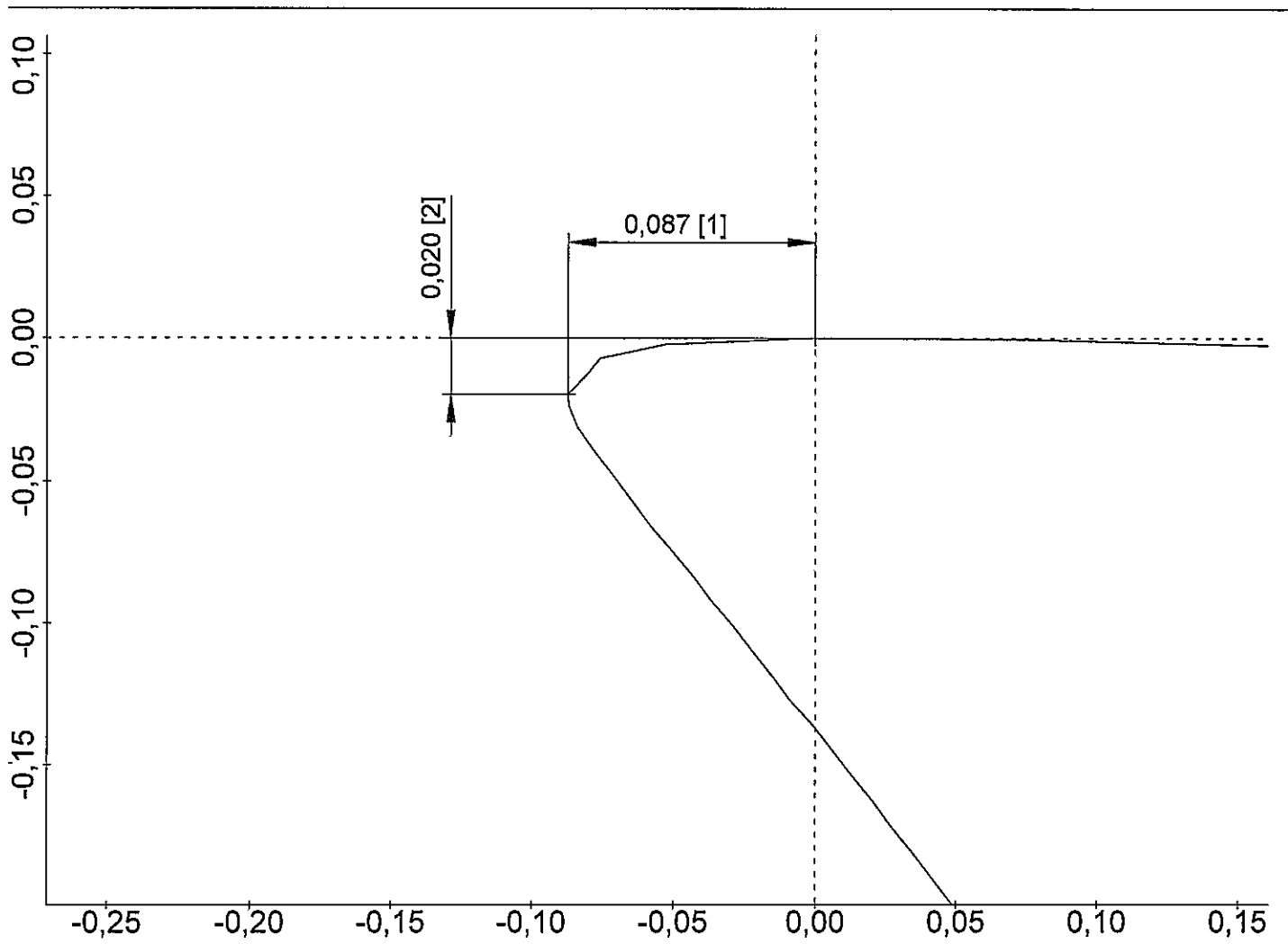
Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.4  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:16  
Nota: PROFILO 17  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001



PERTHOMETER CONCEPT

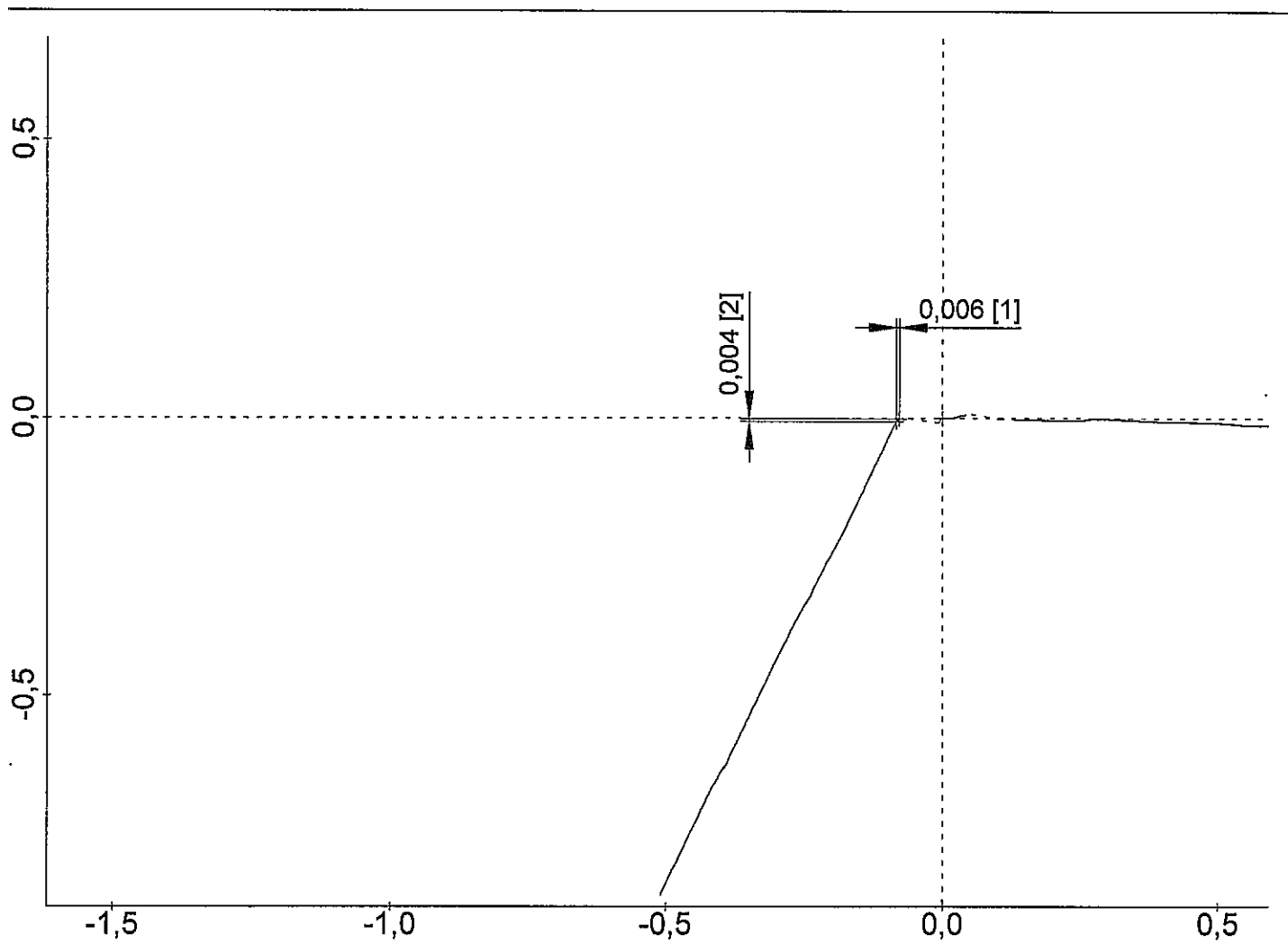


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.1  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:10  
Nota: PROFILO 19  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

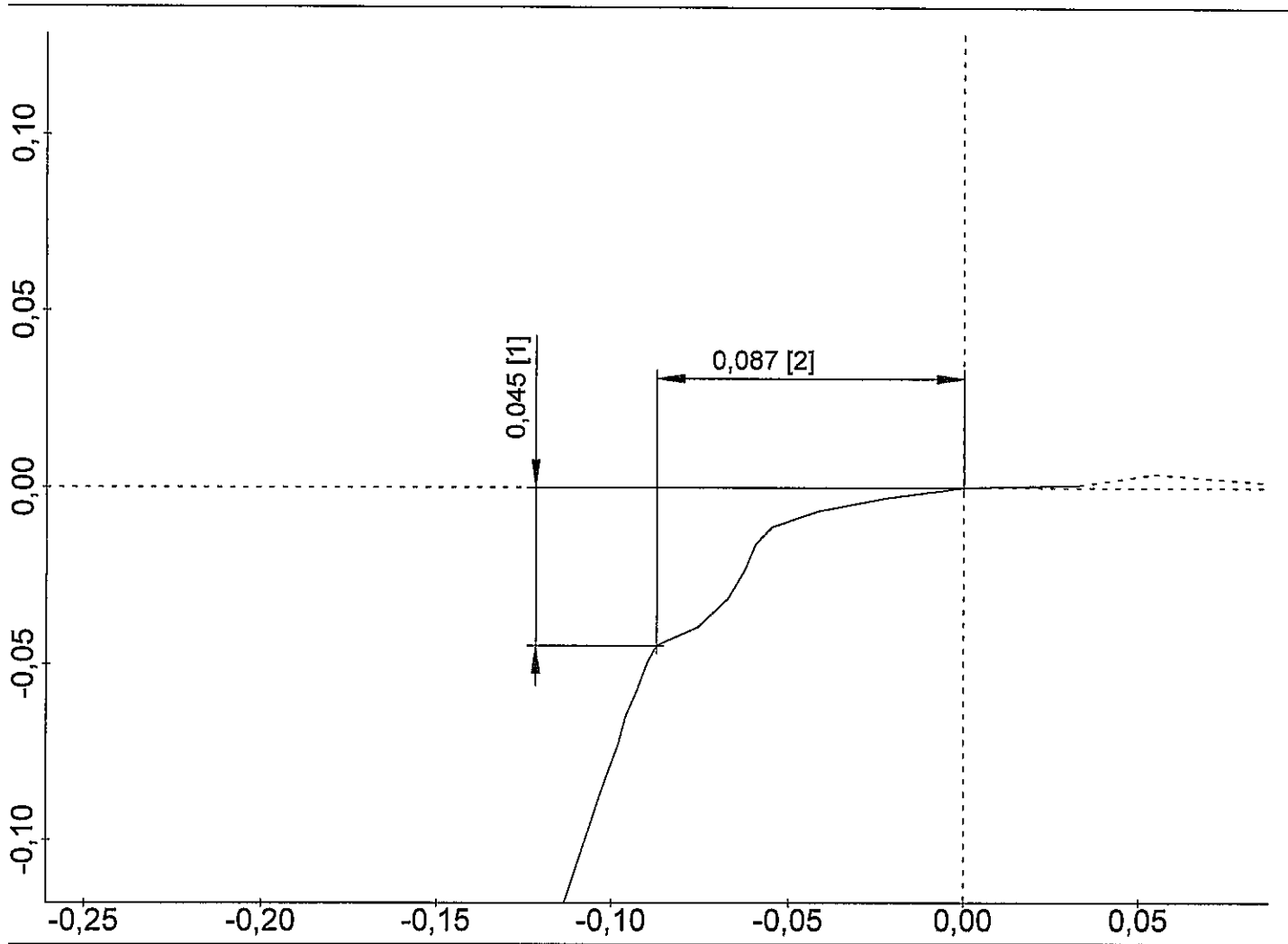


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.2  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:13  
Nota: PROFILO 19  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

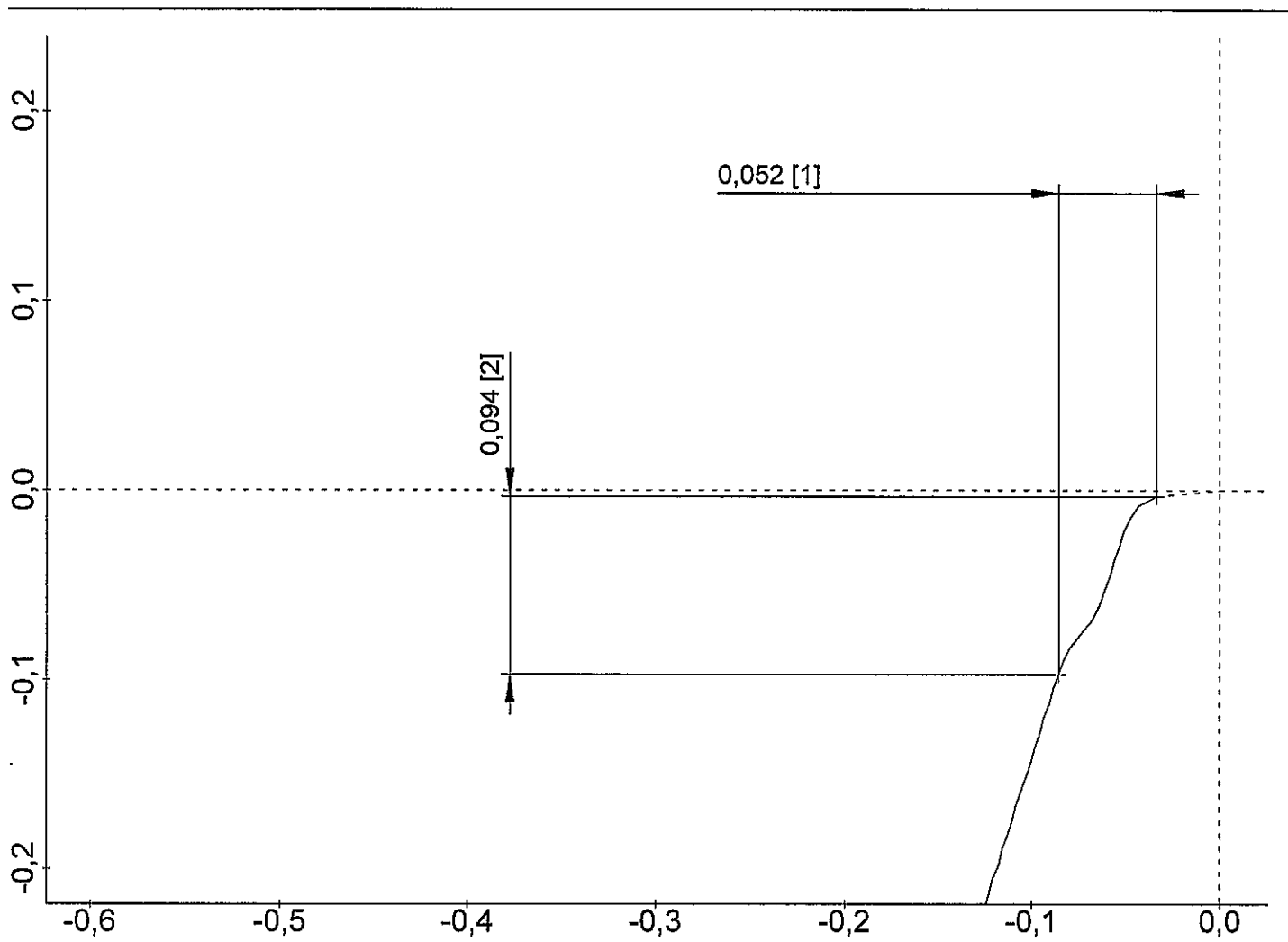


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.3  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:04  
Nota: PROFILO 19  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

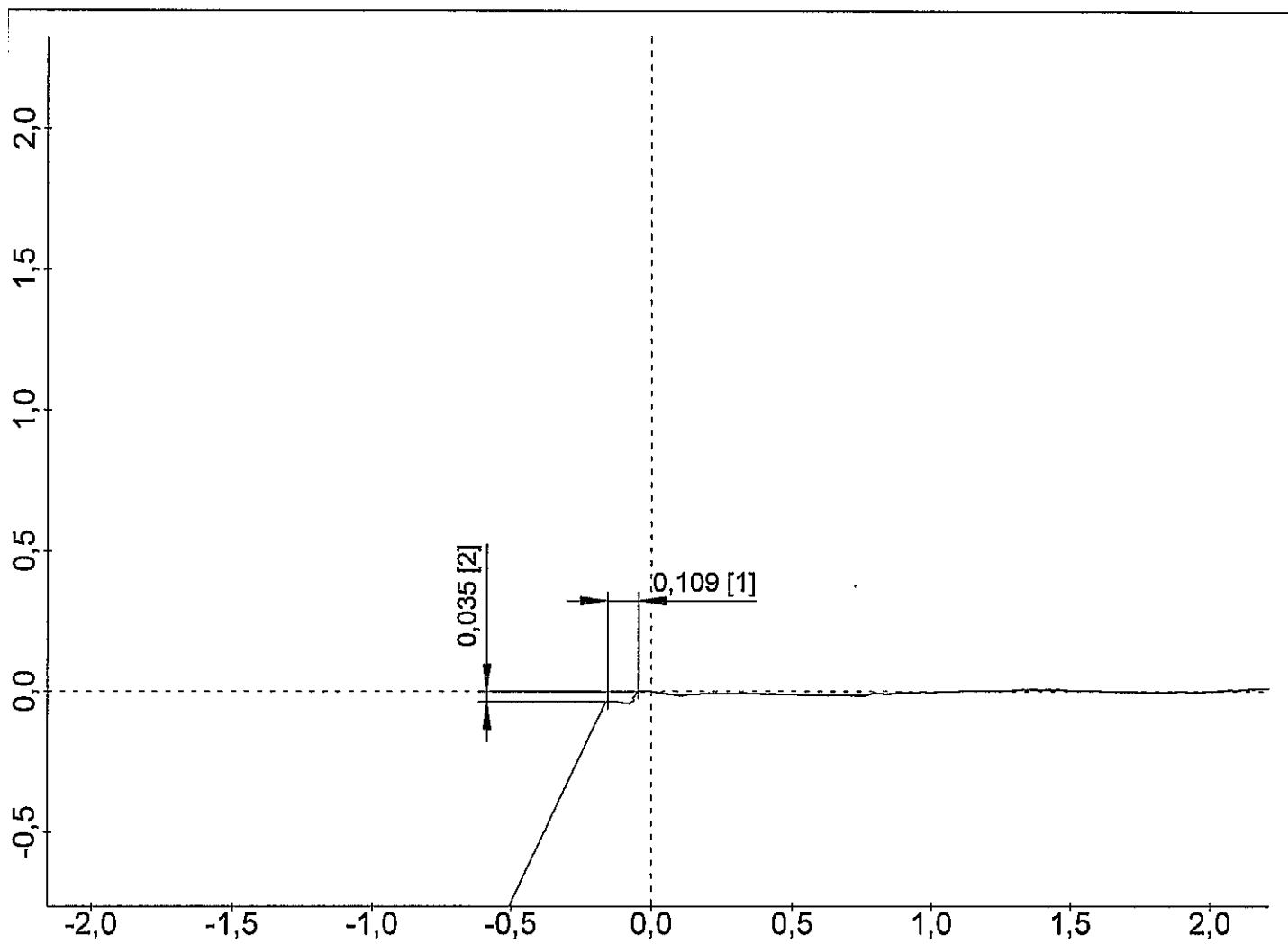


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.4  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:07  
Nota: PROFILO 19  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

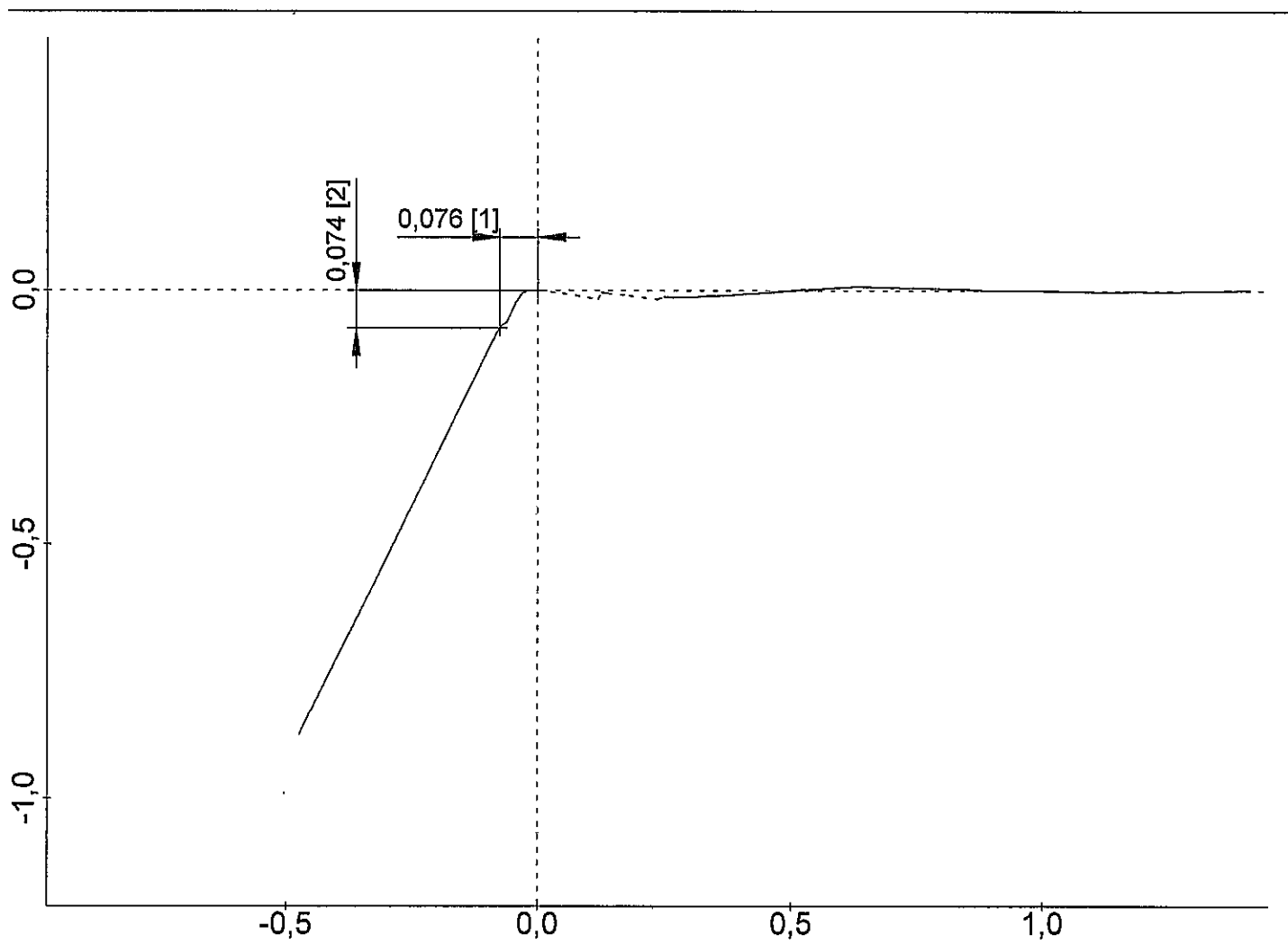


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.5  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:05  
Nota: PROFILO 19  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

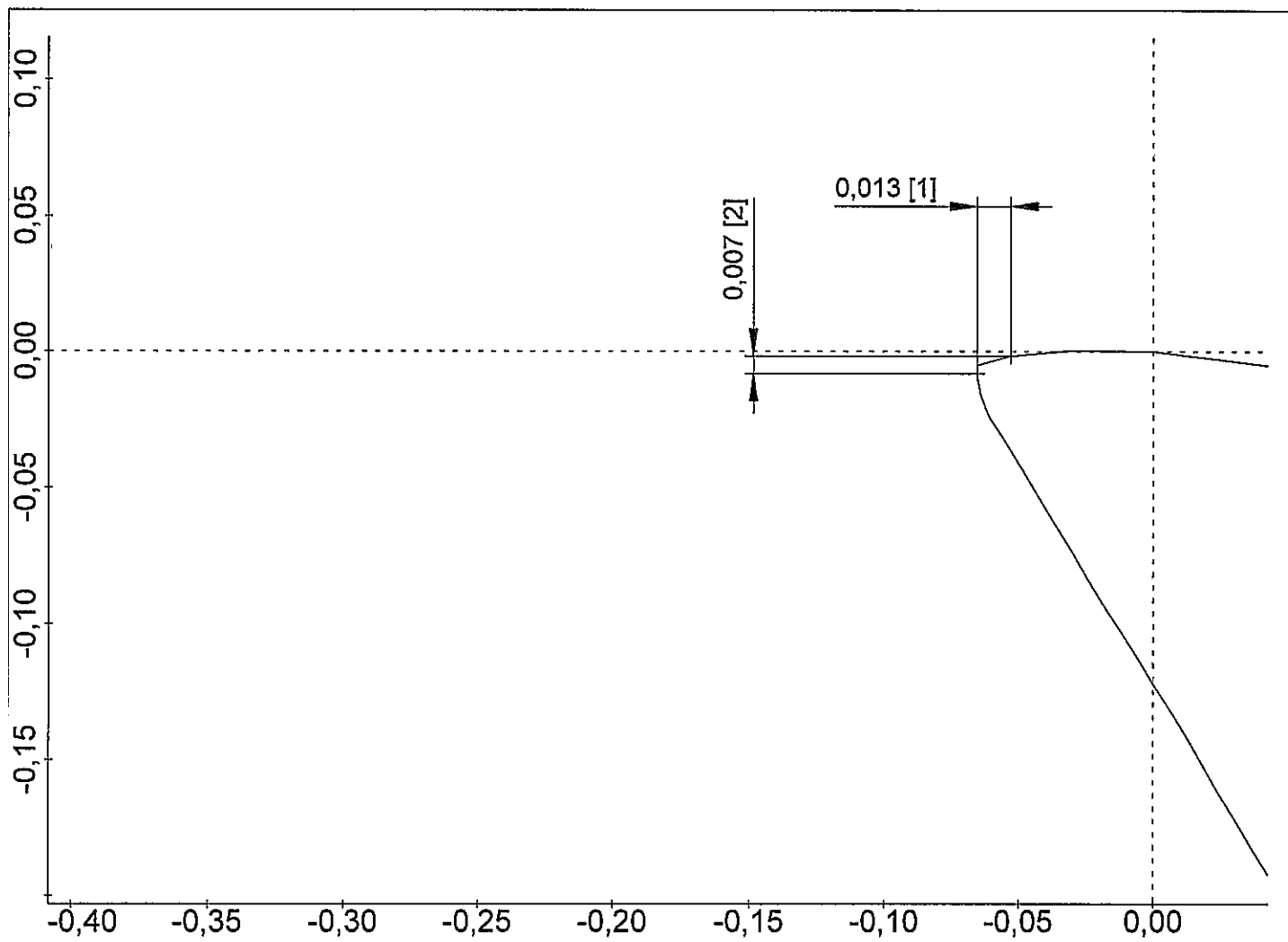


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.1  
Operatore: TURNO B  
Data, ora: 20.05.2014, 09:56  
Nota: PROFILO 18  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001



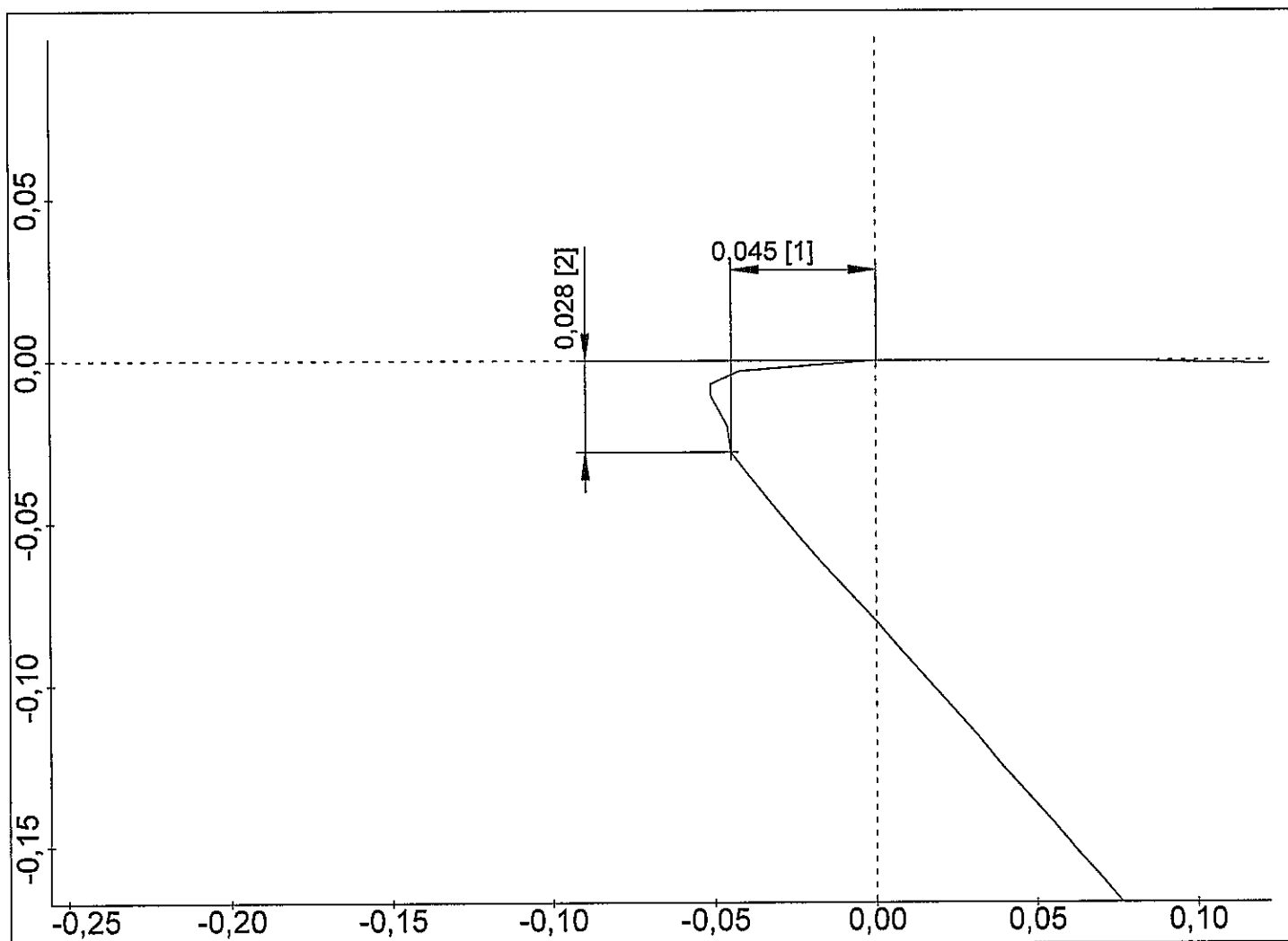
PERTHOMETER CONCEPT



Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.2  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:02  
Nota: PROFILO 18  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

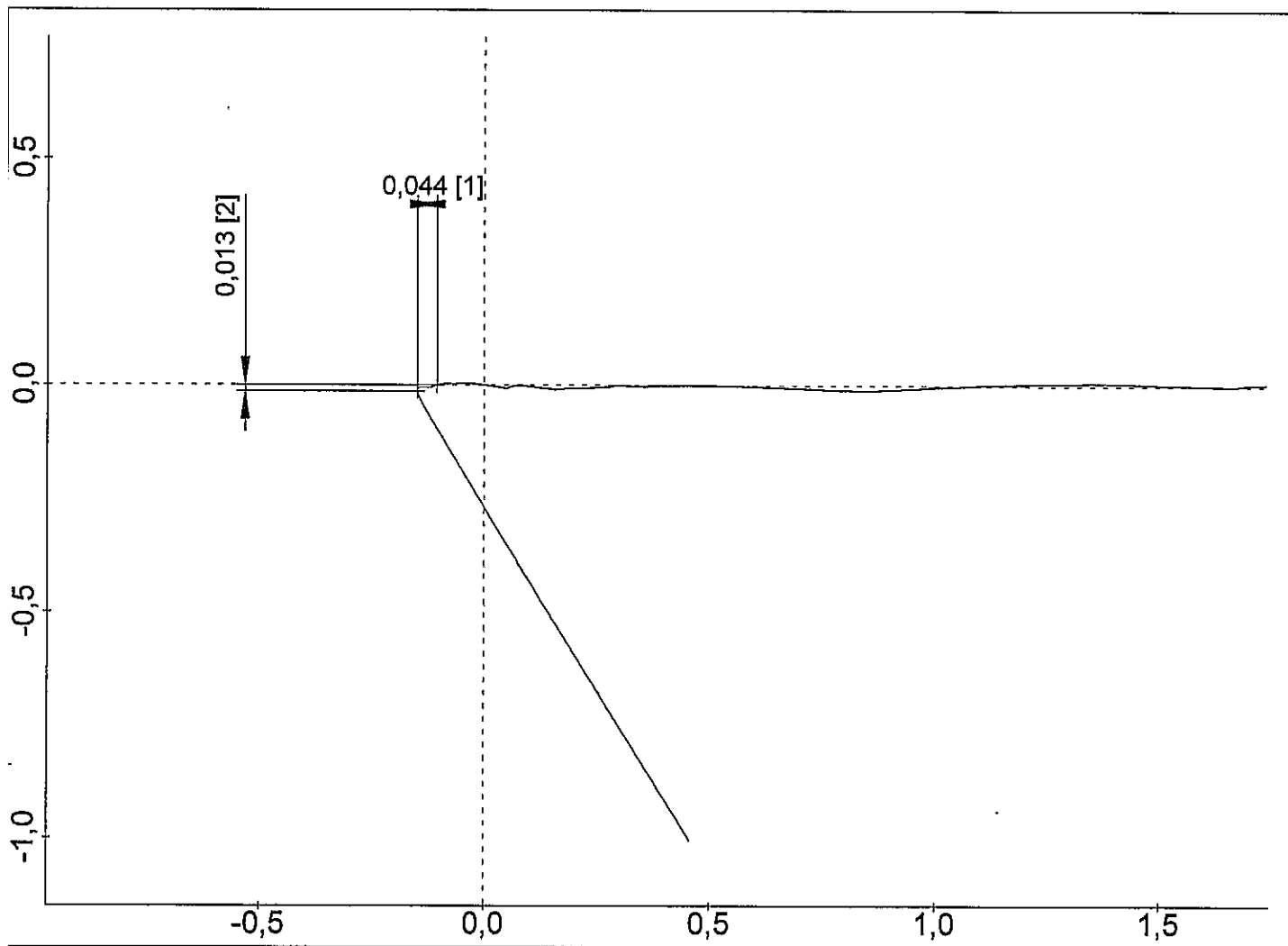


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.3  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:03  
Nota: PROFILO 18  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

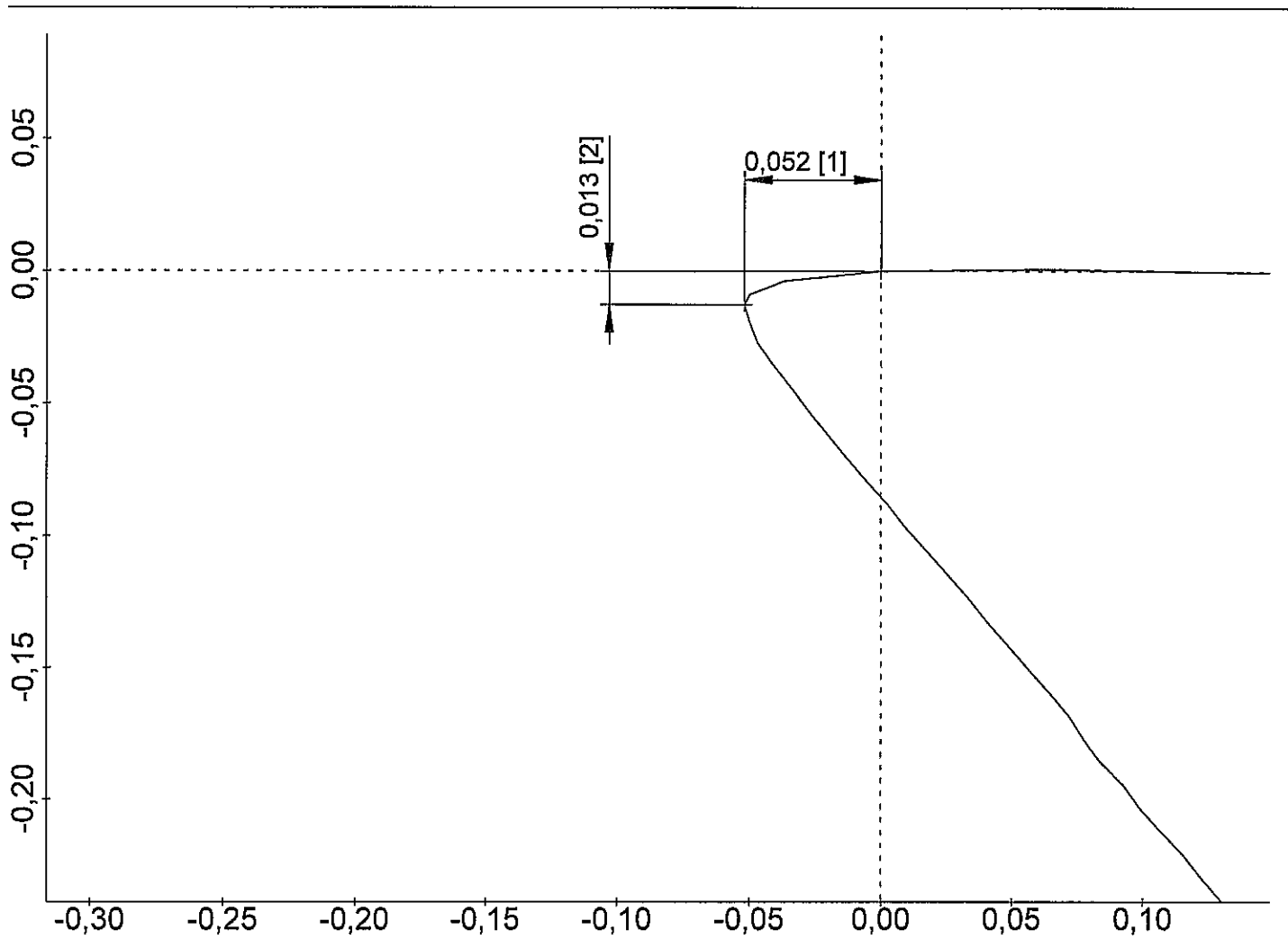


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.4  
Operatore: TURNO B  
Data, ora: 20.05.2014, 09:59  
Nota: PROFILO 18  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001

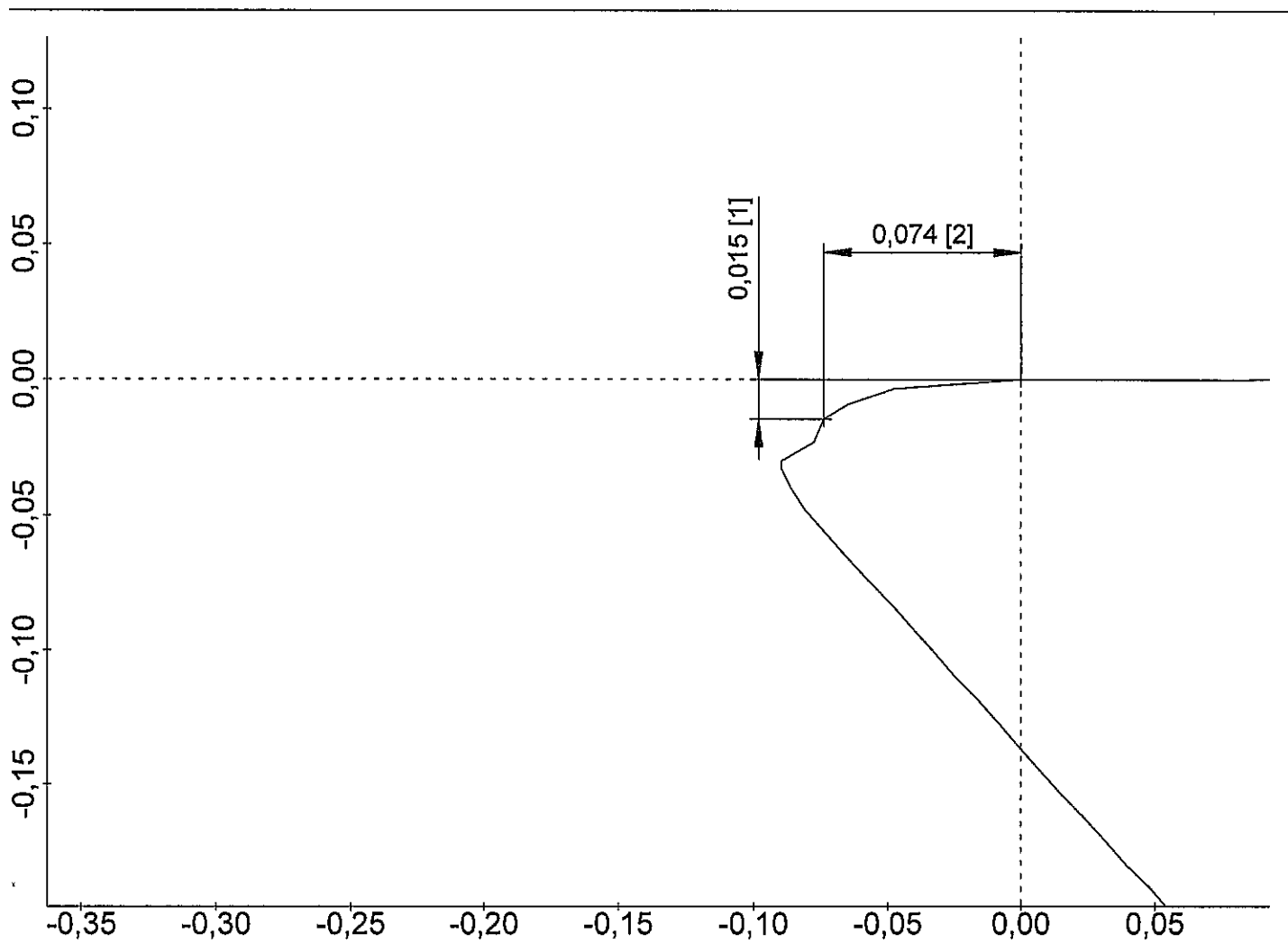


PERTHOMETER CONCEPT

Via dei Ciclamini 4, Modugno ( BA )

Oggetto: ZR 5  
Numero: 3654 PPAP PZ.5  
Operatore: TURNO B  
Data, ora: 20.05.2014, 10:00  
Nota: PROFILO 18  
Tastatore: PCV 350 / 21 mm

Macchina: MOA 416120 001



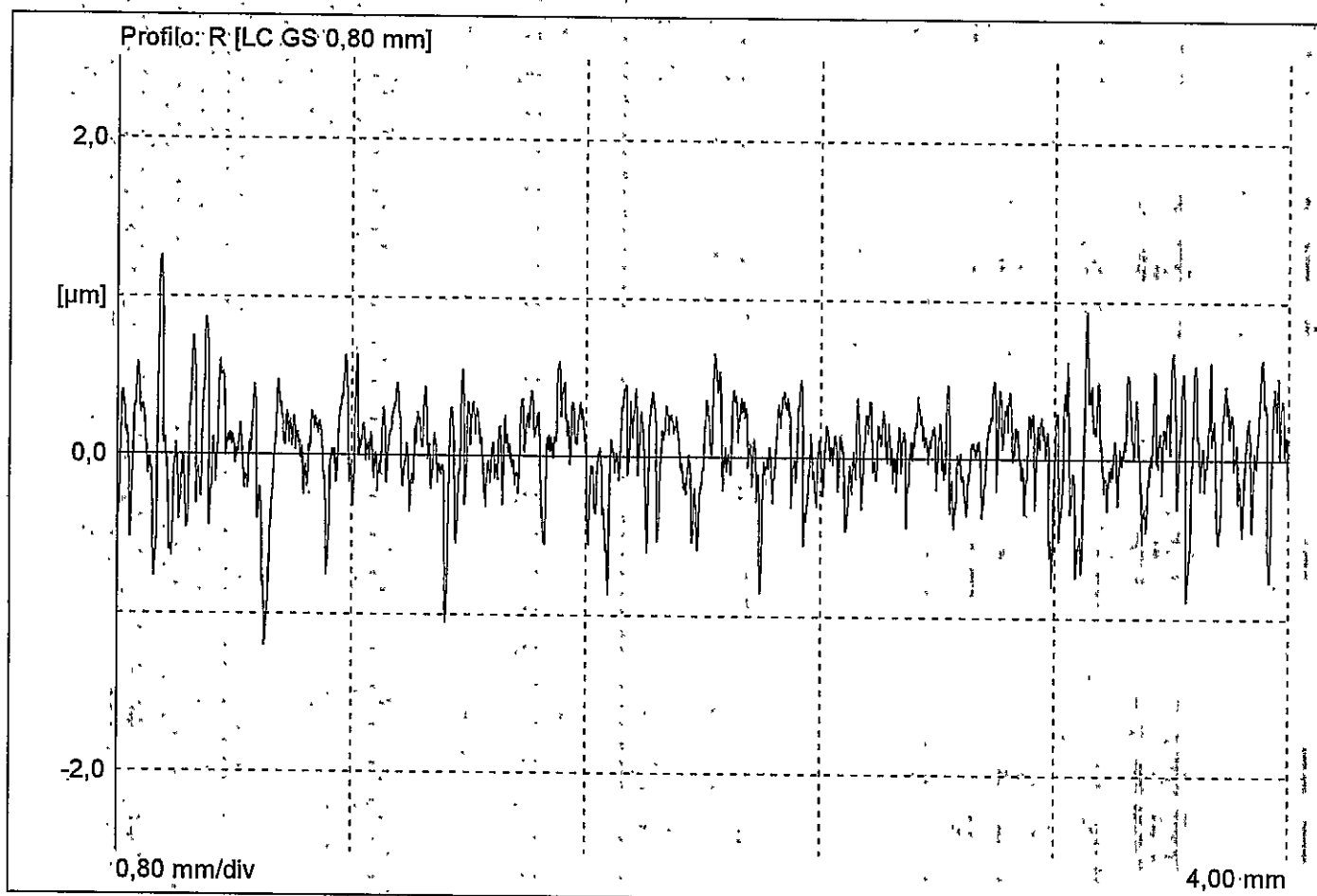
PERTHOMETER CONCEPT

Via dei Ciclamini, 4 Modugno (BA)

Sala Metrologica GPS5

Oggetto: ZR5 3654  
 Numero: PPAP PZ1  
 Operatore: TURNO B  
 Data, ora: 19/05/2014, 12:30  
 Nota: RZ DENTE  
 Tastatore: MFW-250 40

MACCHINA: MOA 416121 001



|      |        |    |
|------|--------|----|
| LT   | 5,60   | mm |
| LM   | 4,00   | mm |
| Z    | 5      |    |
| VB   | ±250,0 | µm |
| Ra   | 0,22   | µm |
| Rmax | 2,45   | µm |
| Rz   | 1,75   | µm |

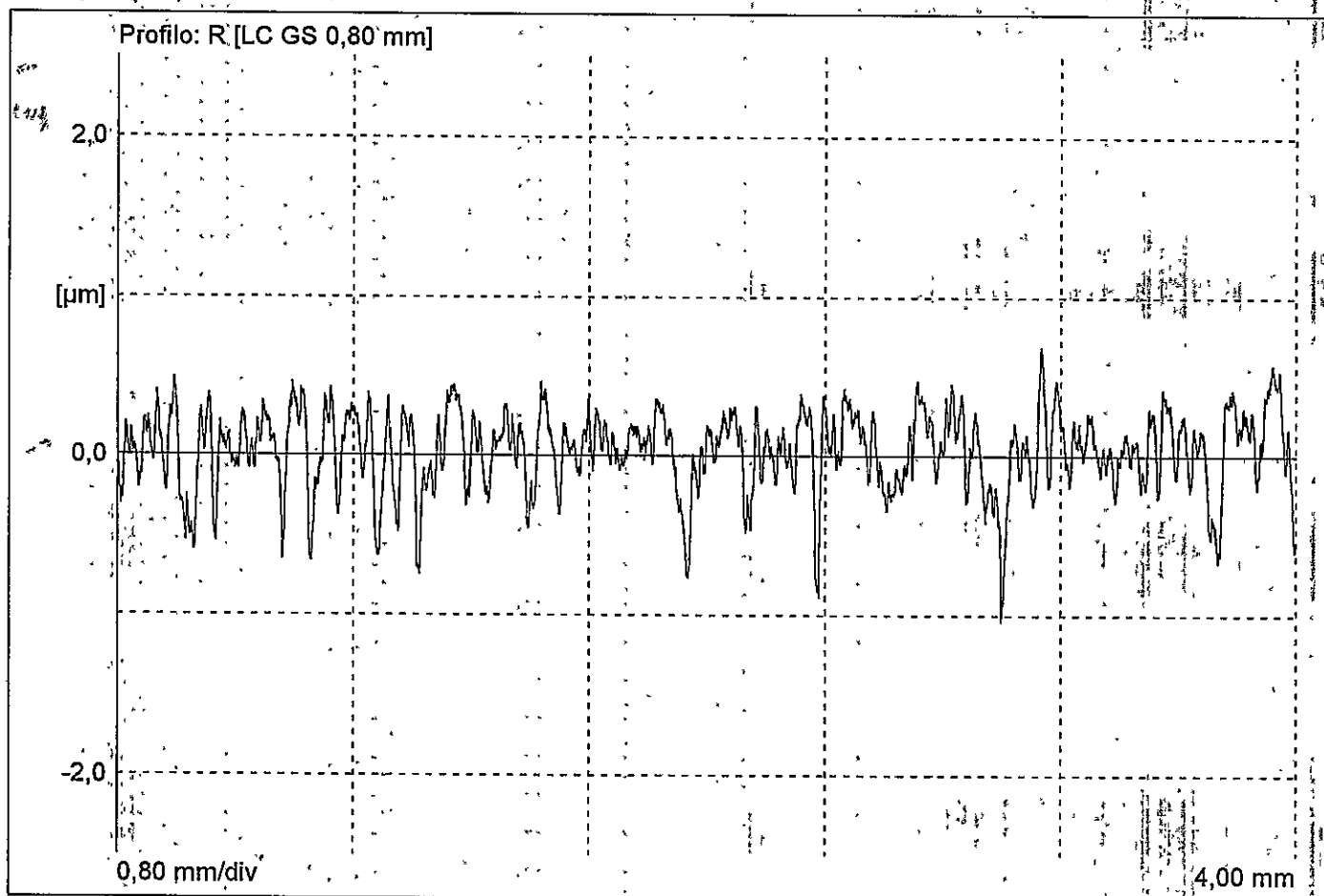
PERTHOMETER CONCEPT

Via dei Ciclamini, 4 Modugno (BA)

Sala Metrologica GPS5

Oggetto: ZR5 3654  
 Numero: PPAP PZ2  
 Operatore: TURNO B.  
 Data, ora: 19/05/2014, 12:46  
 Nota: RZ DENTE  
 Tastatore: MFW-250 40

MACCHINA: MOA 416121 001



|      |        |    |
|------|--------|----|
| LT   | 5,60   | mm |
| LM   | 4,00   | mm |
| Z    | 5      |    |
| VB   | ±250,0 | µm |
| Ra   | 0,20   | µm |
| Rmax | 1,71   | µm |
| Rz   | 1,32   | µm |

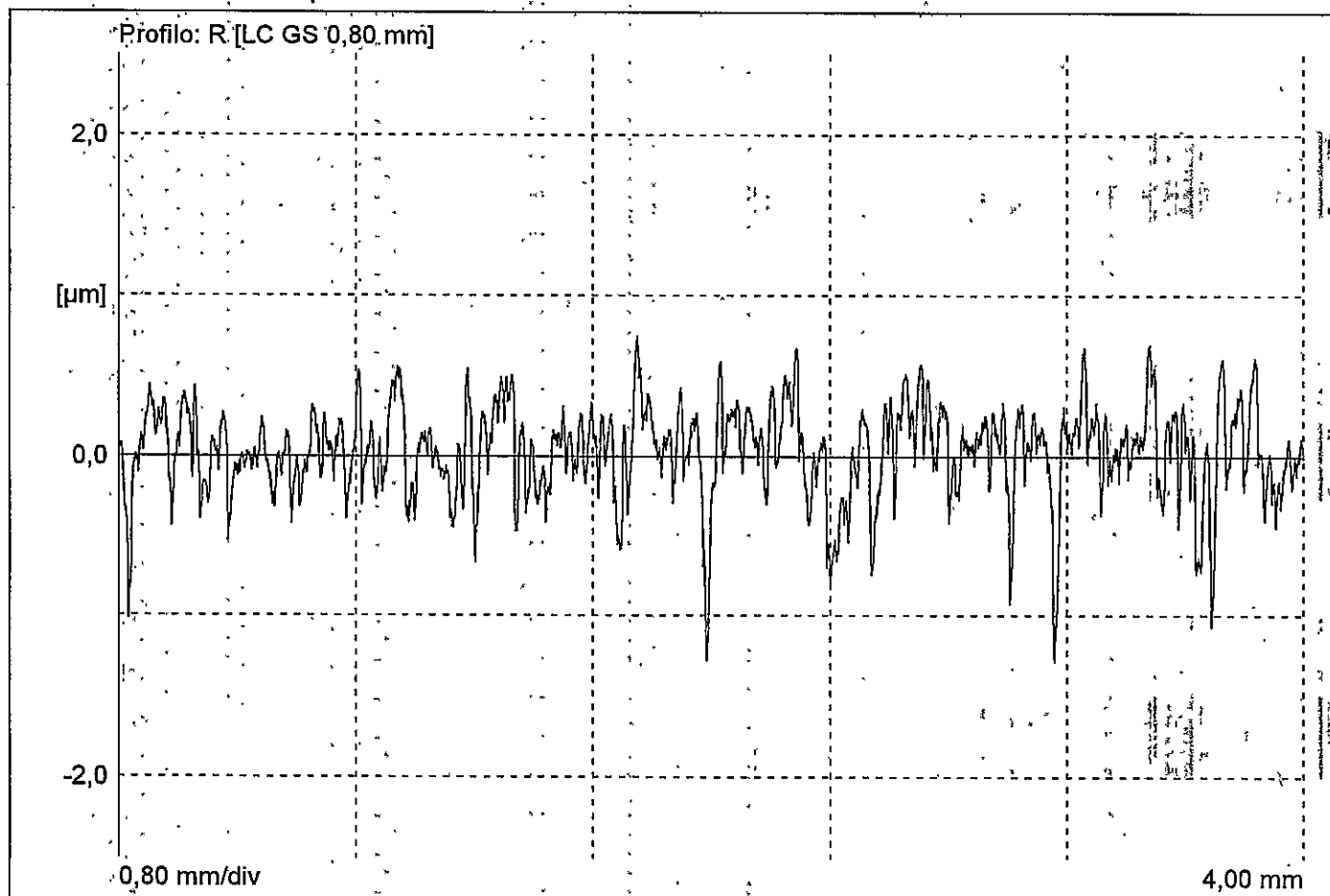
PERTHOMETER CONCEPT

Via dei Ciclamini, 4 Modugno (BA)

Sala Metrologica GPS5

Oggetto: ZR5 3654  
 Numero: PPAP PZ3  
 Operatore: TURNO B  
 Data, ora: 19/05/2014, 12:47  
 Nota: RZ DENTE  
 Tastatore: MFW-250 40

MACCHINA: MOA 416121 001



|      |        |    |
|------|--------|----|
| LT   | 5,60   | mm |
| LM   | 4,00   | mm |
| Z    | 5      |    |
| VB   | ±250,0 | µm |
| Ra   | 0,22   | µm |
| Rmax | 2,02   | µm |
| Rz   | 1,66   | µm |

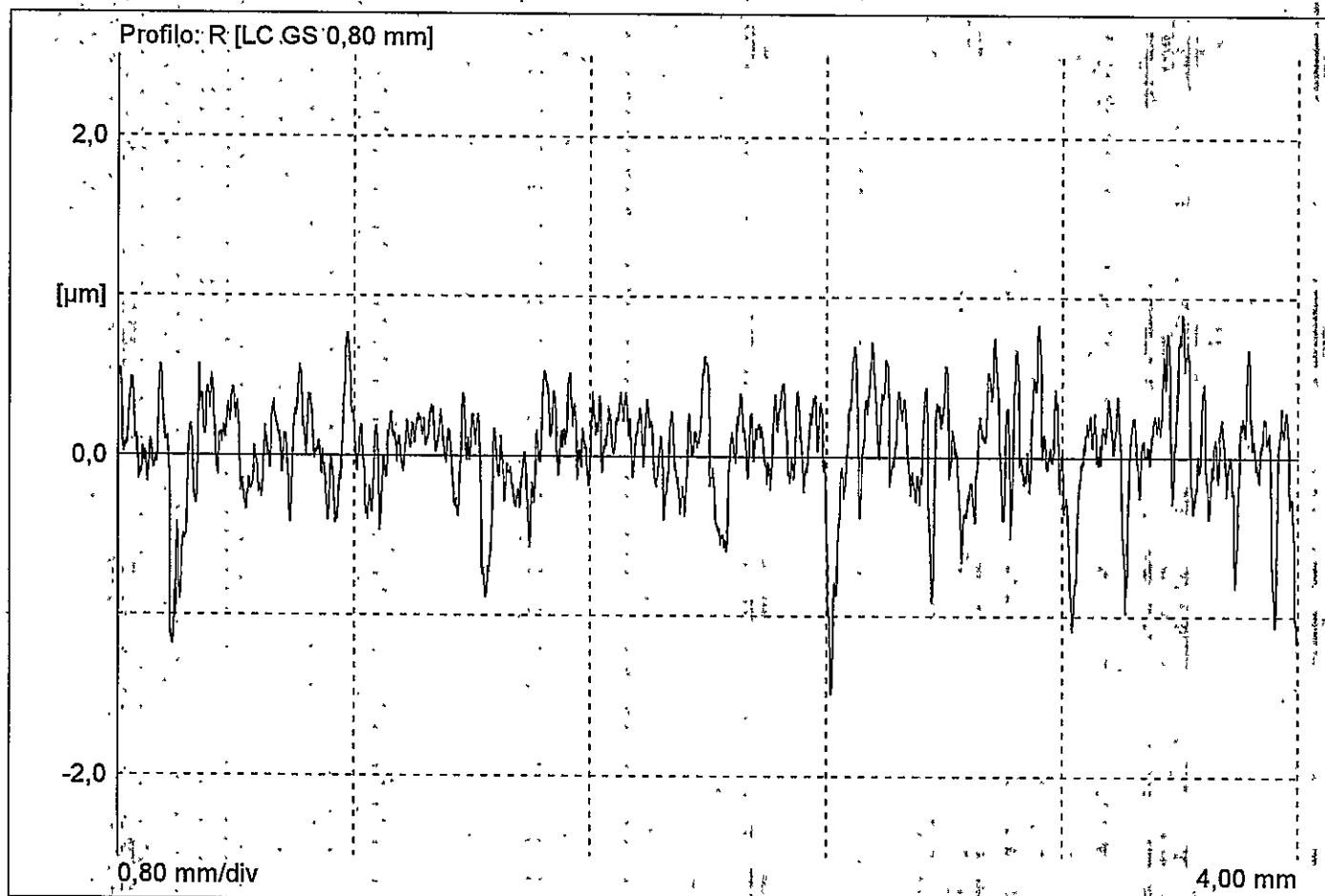
PERTHOMETER CONCEPT

Via dei Ciclamini, 4 Modugno (BA)

Sala Metrologica GPS5

Oggetto: ZR5 3654  
 Numero: PPAP PZ4  
 Operatore: TURNO B  
 Data, ora: 19/05/2014, 12:39  
 Nota: RZ DENTE  
 Tastatore: MFW-250 40

MACCHINA: MOA 416121 001



|      |        |    |
|------|--------|----|
| LT   | 5,60   | mm |
| LM   | 4,00   | mm |
| Z    | 5      |    |
| VB   | ±250,0 | µm |
| Ra   | 0,25   | µm |
| Rmax | 2,31   | µm |
| Rz   | 1,79   | µm |

PERTHOMETER CONCEPT

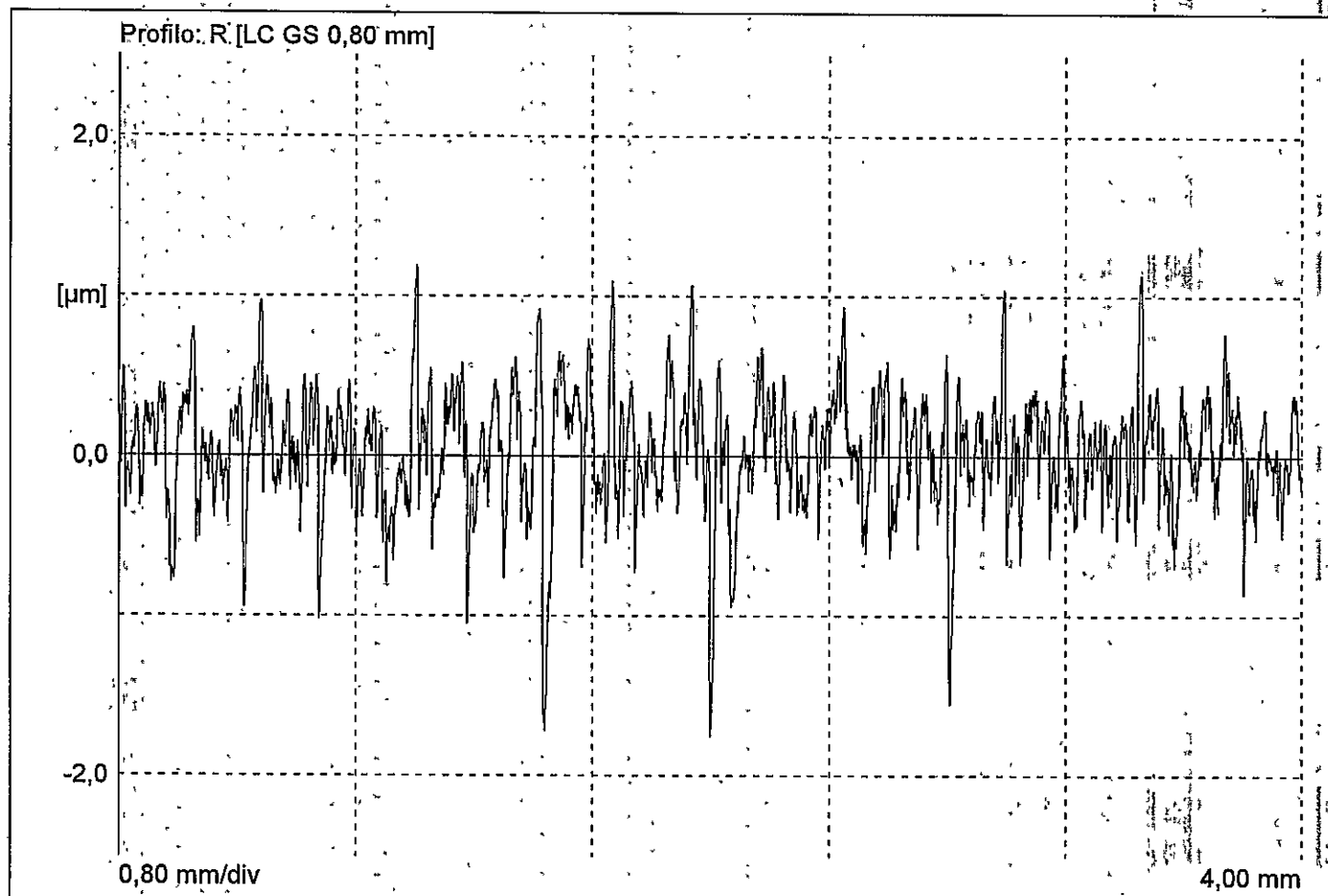


Via dei Ciclamini, 4 Modugno (BA)

Sala Metrologica GPS5

Oggetto: ZR5 3654  
 Numero: PPAP PZ5  
 Operatore: TURNO B  
 Data, ora: 19/05/2014, 12:41  
 Nota: RZ DENTE  
 Tastatore: MFW-250 40

MACCHINA: MOA 416121 001



|      |        |    |
|------|--------|----|
| LT   | 5,60   | mm |
| LM   | 4,00   | mm |
| Z    | 5      |    |
| VB   | ±250,0 | μm |
| Ra   | 0,28   | μm |
| Rmax | 2,90   | μm |
| Rz   | 2,46   | μm |

PERTHOMETER CONCEPT

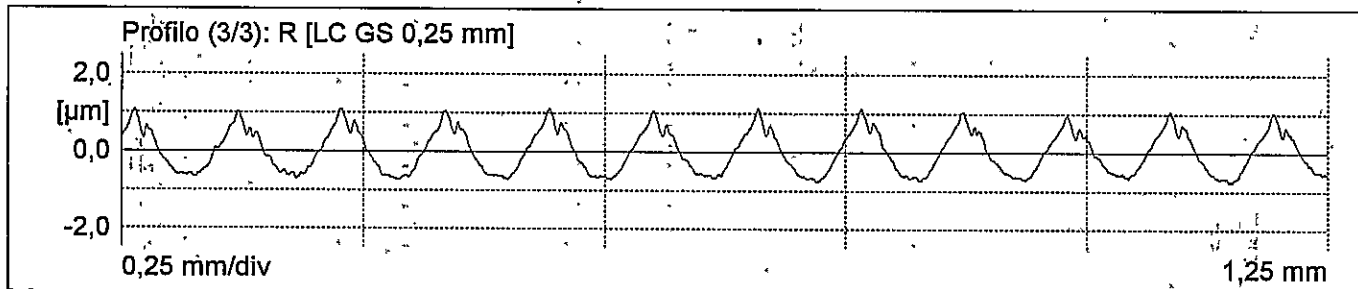
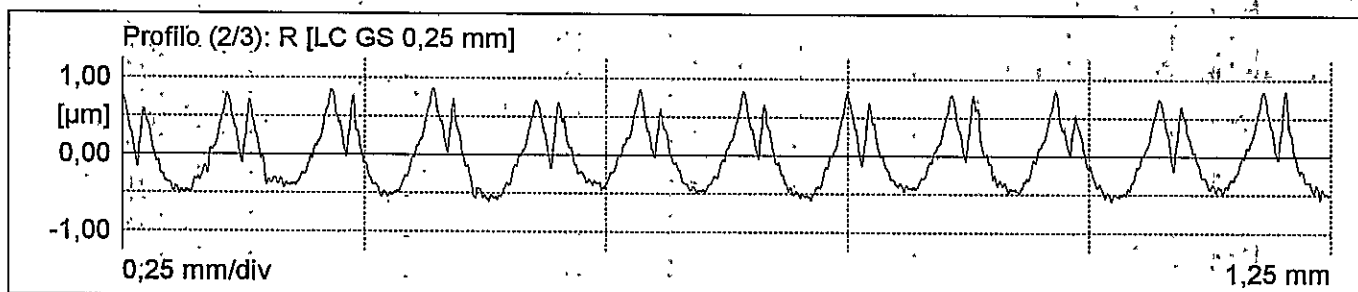
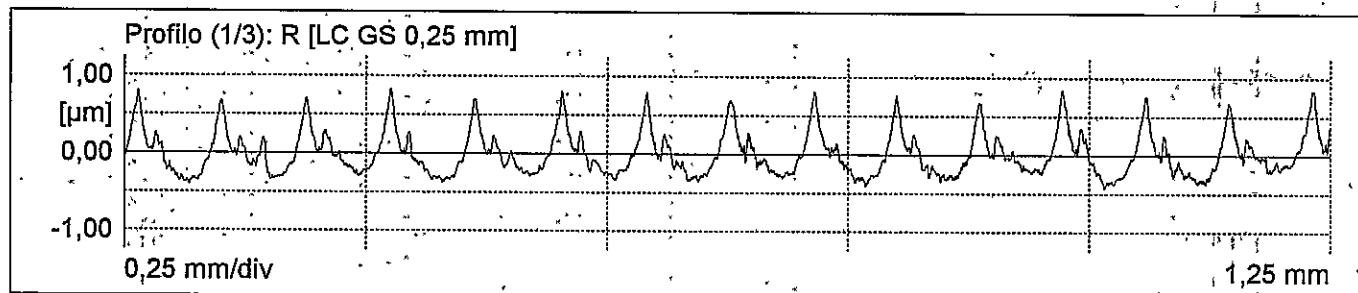


Via dei Ciclamini 4 Modugno Bari

Sala Metrologica GPS5

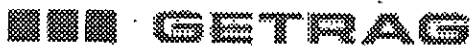
Oggetto: 3654 EDISON  
Numero: PPAP PZ1  
Operatore: TURNO A  
Data, ora: 19/05/2014, 11:53  
Nota: FORO -PIANOGRANDE-PIANO PIC  
Tastatore: MFW-250 CAL

MACCHINA: MOA 416121 002



|            |      |    |
|------------|------|----|
| 1: LC (GS) | 0,25 | mm |
| 1: LT      | 1,75 | mm |
| 1: LM      | 1,25 | mm |
| 1: Z       | 5    |    |
| 1: VB      | ±250 | μm |
| 1: Ra      | 0,22 | μm |
| 1: Rmax    | 1,27 | μm |
| 1: Rz      | 1,22 | μm |
| 2: Ra      | 0,34 | μm |
| 2: Rmax    | 1,48 | μm |
| 2: Rz      | 1,41 | μm |
| 3: Ra      | 0,48 | μm |
| 3: Rmax    | 1,89 | μm |
| 3: Rz      | 1,85 | μm |

PERTHOMETER CONCEPT



Via dei Ciclamini 4 Modugno Bari

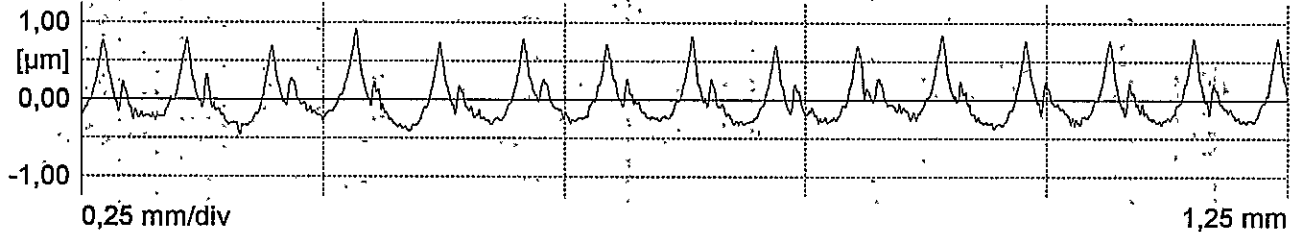
Sala Metrologica GPS5

Oggetto: 3654 EDISON  
Numero: PPAP PZ2  
Operatore: TURNO A  
Data, ora: 19/05/2014, 12:01  
Nota: FORO -PIANOGRANDE-PIANO PIC  
Tastatore: MFW-250 CAL

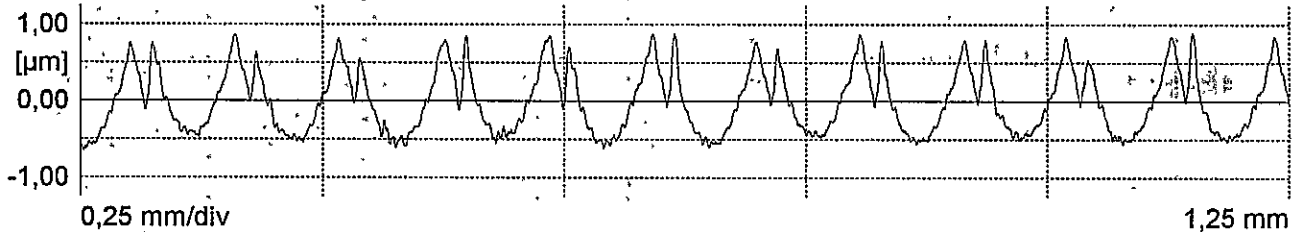
MACCHINA:

MOA 416121 002

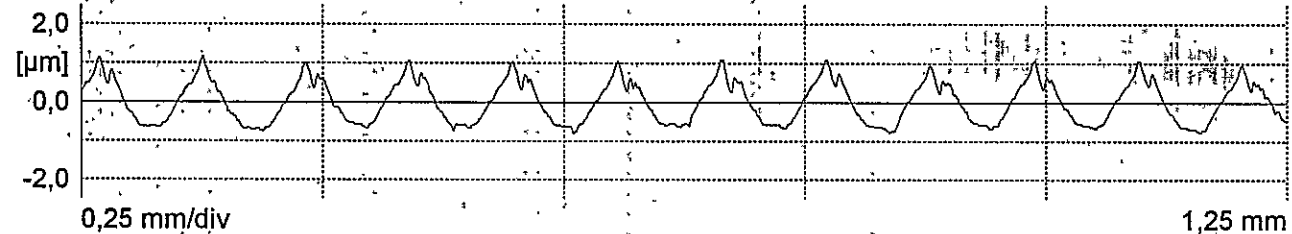
Profilo (1/3): R [LC GS 0,25 mm]



Profilo (2/3): R [LC GS 0,25 mm]

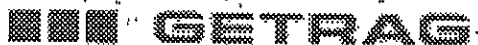


Profilo (3/3): R [LC GS 0,25 mm]



|            |      |    |
|------------|------|----|
| 1: LC (GS) | 0,25 | mm |
| 1: LT      | 1,75 | mm |
| 1: LM      | 1,25 | mm |
| 1: Z       | 5    | μm |
| 1: VB      | ±250 | μm |
| 1: Ra      | 0,22 | μm |
| 1: Rmax    | 1,32 | μm |
| 1: Rz      | 1,22 | μm |
| 2: Ra      | 0,36 | μm |
| 2: Rmax    | 1,52 | μm |
| 2: Rz      | 1,47 | μm |
| 3: Ra      | 0,47 | μm |
| 3: Rmax    | 1,91 | μm |
| 3: Rz      | 1,87 | μm |

PERTHOMETER CONCEPT

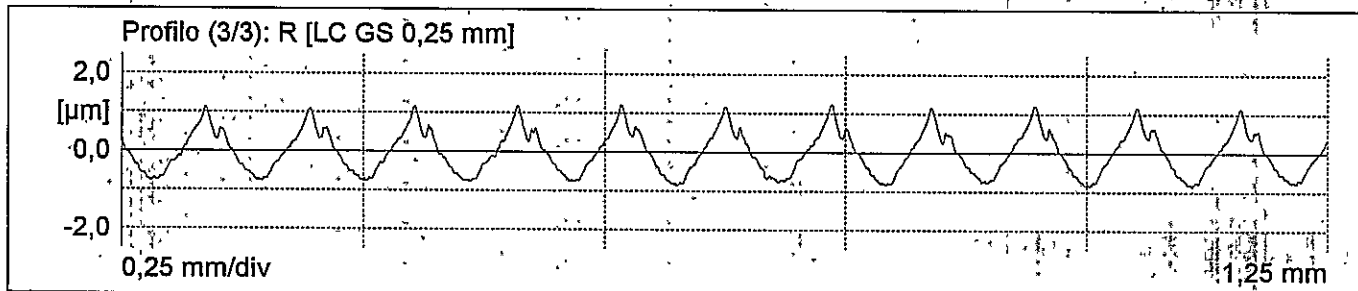
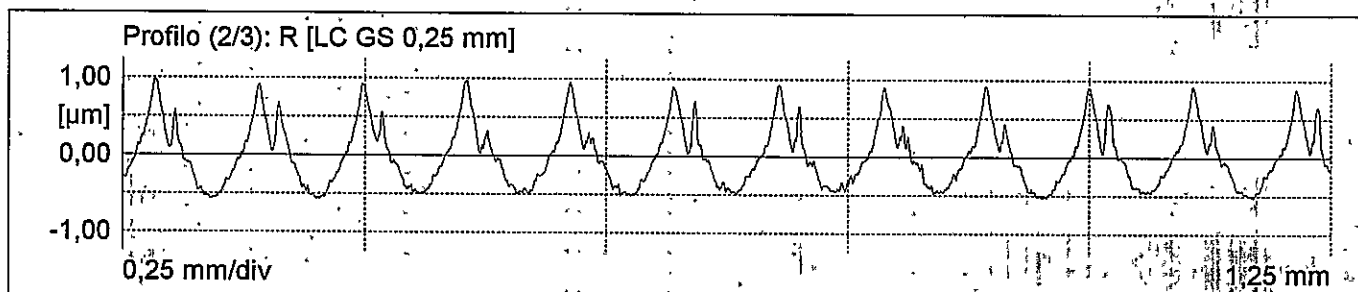
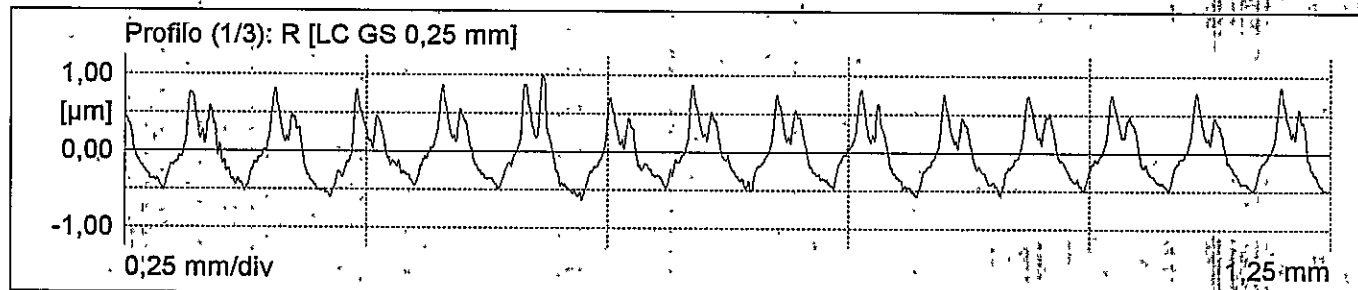


Via dei Ciclamini 4 Modugno Bari

Sala Metrologica GPS5

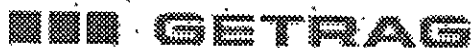
Oggetto: 3654 EDISON  
Numero: PPAP PZ3  
Operatore: TURNO A  
Data, ora: 19/05/2014, 12:04  
Nota: FORO -PIANOGRANDE-PIANO PIC  
Tastatore: MFW-250 CAL

MACCHINA: MOA 416121 002



|            |      |    |
|------------|------|----|
| 1: LC (GS) | 0,25 | mm |
| 1: LT      | 1,75 | mm |
| 1: LM      | 1,25 | mm |
| 1: Z       | 5    |    |
| 1: VB      | ±250 | μm |
| 1: Ra      | 0,31 | μm |
| 1: Rmax    | 1,63 | μm |
| 1: Rz      | 1,45 | μm |
| 2: Ra      | 0,34 | μm |
| 2: Rmax    | 1,55 | μm |
| 2: Rz      | 1,47 | μm |
| 3: Ra      | 0,48 | μm |
| 3: Rmax    | 2,10 | μm |
| 3: Rz      | 2,00 | μm |

PERTHOMETER CONCEPT



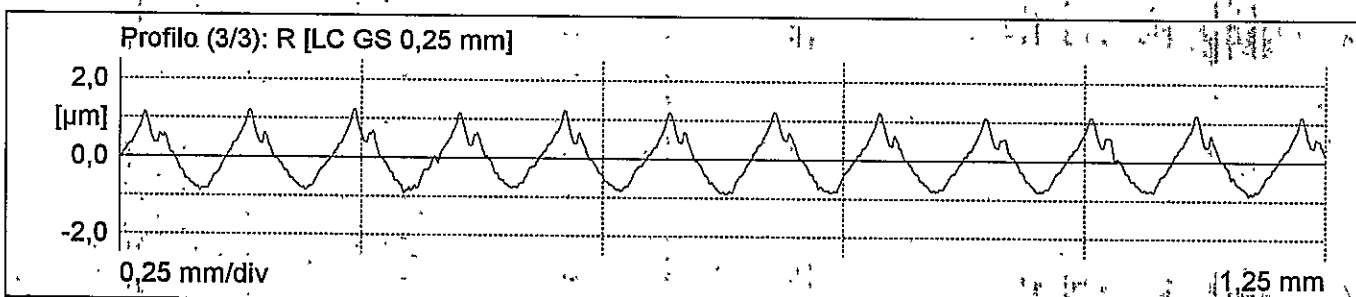
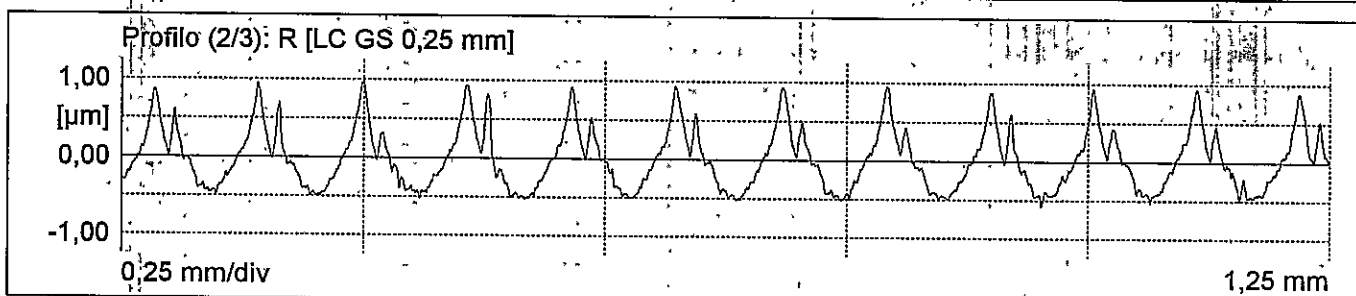
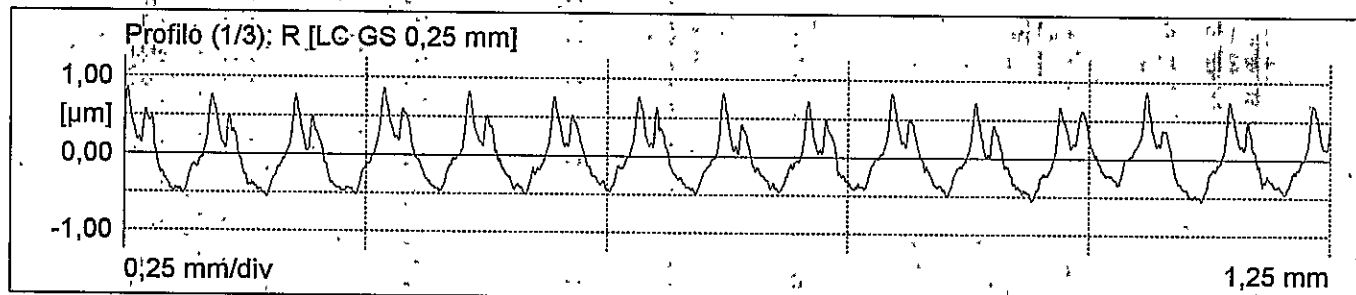
Via dei Ciclamini 4 Modugno Bari

Sala Metrologica GPS5

Oggetto: 3654 EDISON  
Numero: PPAP PZ4  
Operatore: TURNO A  
Data, ora: 19/05/2014, 12:08  
Nota: FORO -PIANOGRANDE-PIANO PIC  
Tastatore: MFW-250 CAL

MACCHINA:

MOA 416121 002



|            |      |    |
|------------|------|----|
| 1: LC (GS) | 0,25 | mm |
| 1: LT      | 1,75 | mm |
| 1: LM      | 1,25 | mm |
| 1: Z       | 5    |    |
| 1: VB      | ±250 | μm |
| 1: Ra      | 0,30 | μm |
| 1: Rmax    | 1,44 | μm |
| 1: Rz      | 1,38 | μm |
| 2: Ra      | 0,32 | μm |
| 2: Rmax    | 1,54 | μm |
| 2: Rz      | 1,48 | μm |
| 3: Ra      | 0,50 | μm |
| 3: Rmax    | 2,14 | μm |
| 3: Rz      | 2,09 | μm |

PERTHOMETER CONCEPT

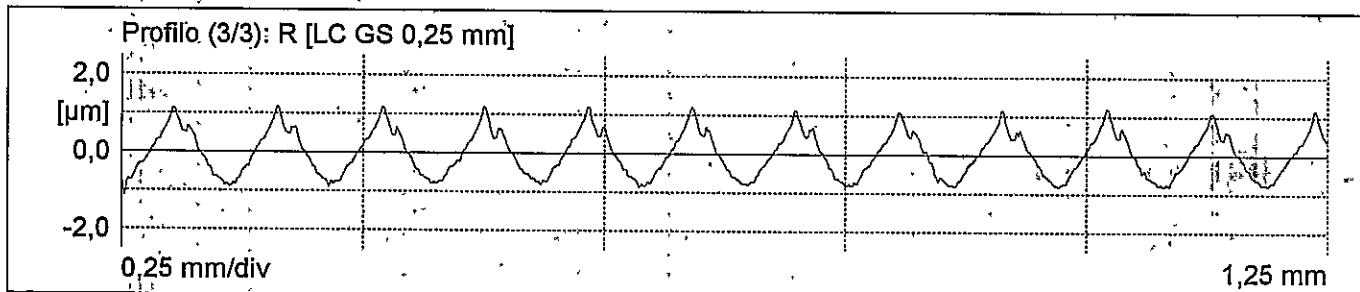
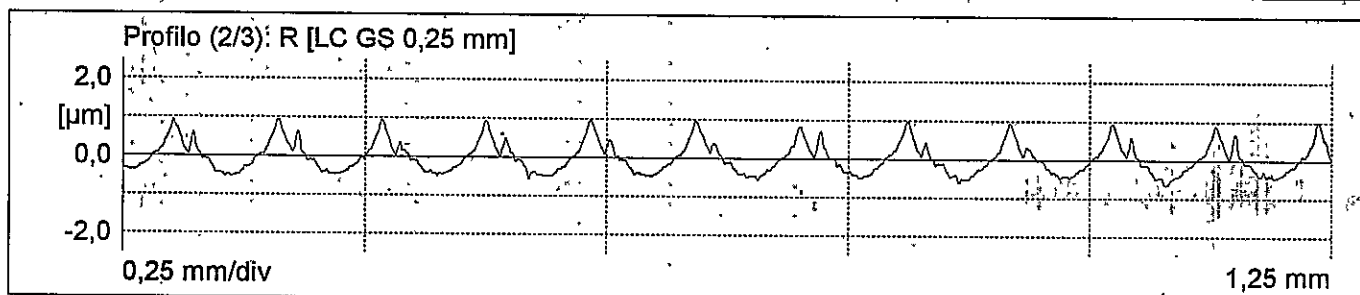
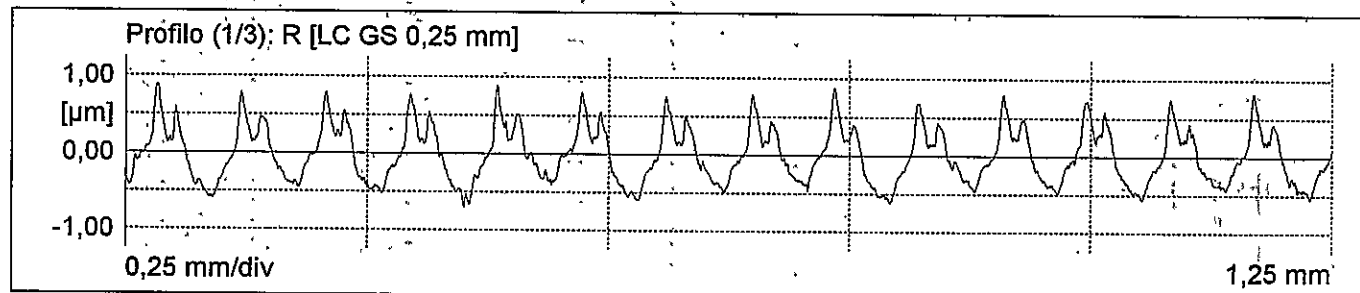


Via dei Ciclamini 4 Modugno Bari

Sala Metrologica GPS5

Oggetto: 3654 EDISON  
Numero: PPAP PZ5  
Operatore: TURNO A  
Data, ora: 19/05/2014, 12:12  
Nota: FORO -PIANOGRANDE-PIANO PIC  
Tastatore: MFW-250 CAL

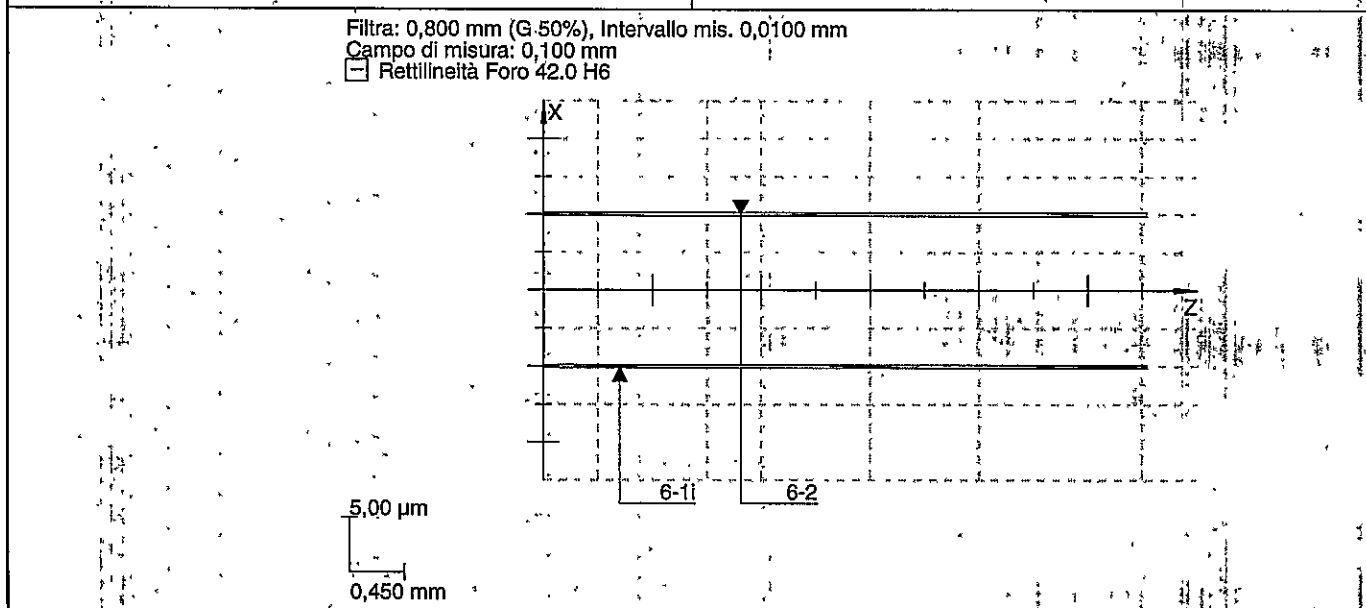
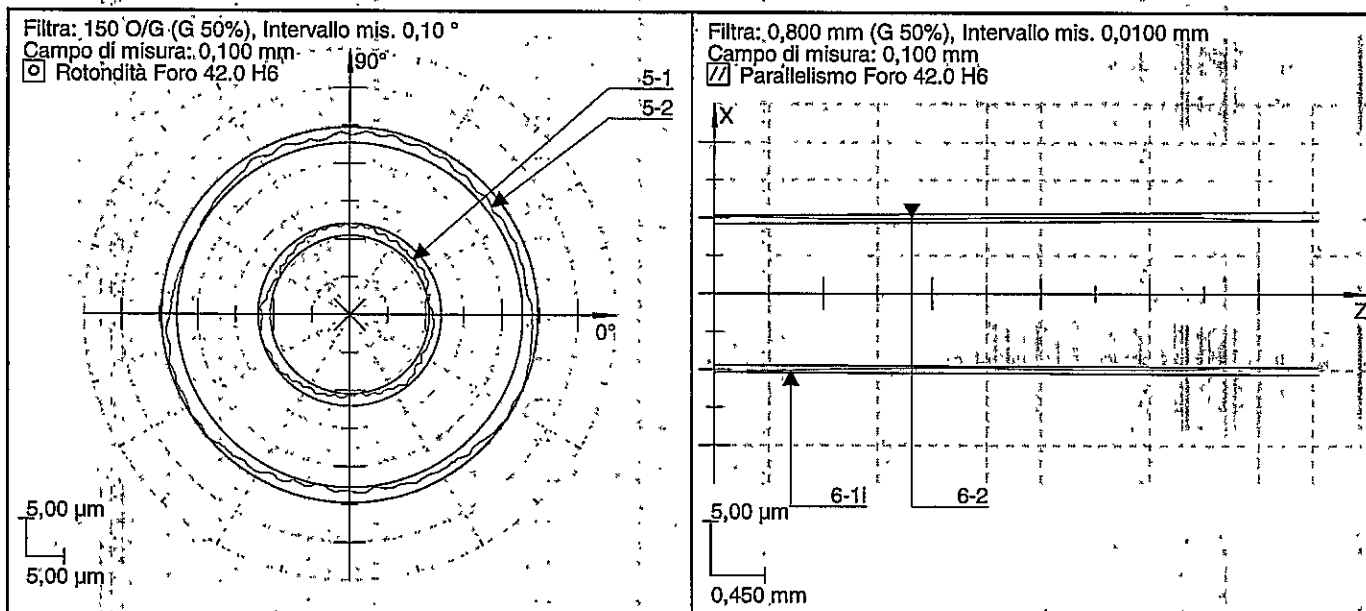
MACCHINA: MOA 416121 002



|            |      |    |
|------------|------|----|
| 1: LC (GS) | 0,25 | mm |
| 1: LT      | 1,75 | mm |
| 1: LM      | 1,25 | mm |
| 1: Z       | 5    |    |
| 1: VB      | ±250 | µm |
| 1: Ra      | 0,30 | µm |
| 1: Rmax    | 1,59 | µm |
| 1: Rz      | 1,47 | µm |
| 2: Ra      | 0,33 | µm |
| 2: Rmax    | 1,66 | µm |
| 2: Rz      | 1,56 | µm |
| 3: Ra      | 0,50 | µm |
| 3: Rmax    | 2,30 | µm |
| 3: Rz      | 2,08 | µm |

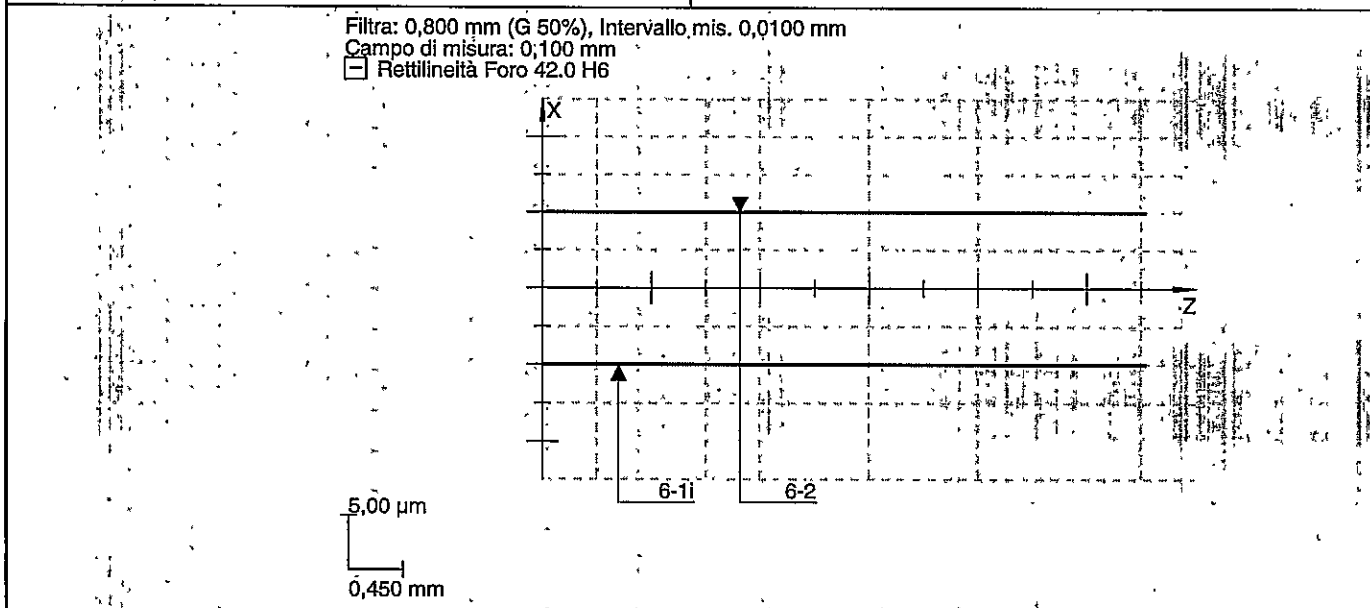
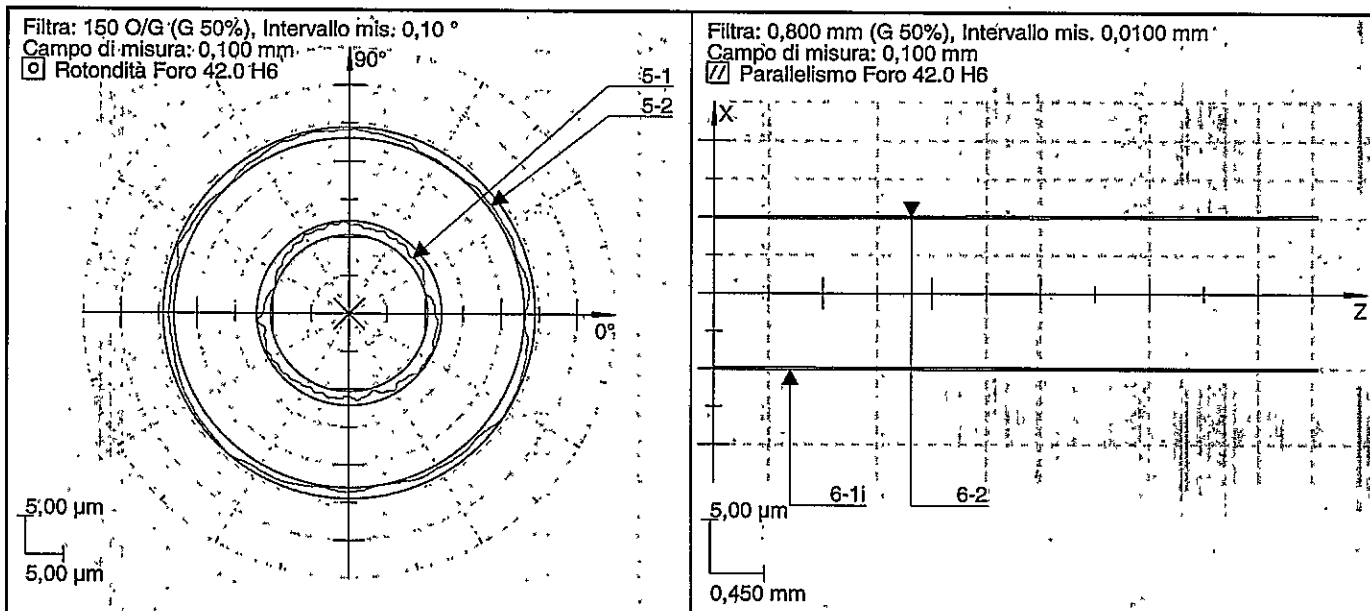
PERTHOMETER CONCEPT

|                                     |                                    |                                                         |  |                                                                |
|-------------------------------------|------------------------------------|---------------------------------------------------------|--|----------------------------------------------------------------|
| <b>Mahr</b> FORM-PC<br>V4.28.7 SP15 |                                    | GETRAG S.p.a<br>MODUGNO (BARI)<br>SALA METROLOGICA - M1 |  | 19.05.2014<br>09:05:15<br>Operatore<br><b>TURNO A</b><br>Firma |
| Particolare<br><b>ZR 5</b>          | N. disegno<br><b>250.1.3654.35</b> | Operazione<br><b>FINITO</b>                             |  |                                                                |
| <b>Rapporto delle misure 24</b>     |                                    | <b>Reparto: GPS 5</b>                                   |  |                                                                |
| <b>Formtester: MMQ40</b>            |                                    | <b>N. commessa: ppap pezzo 2</b>                        |  | <b>N. lotto: 103</b>                                           |
| Commento                            |                                    |                                                         |  | 1_3654_F.FPC                                                   |



| Profilo o Compito | Posizion [mm, °] | Risultato [µm]  :[mm] | Tolleranza [mm] | Rif. | Rifer. | Eccentricità [µm] | Fase [°] Inc [µm/m] |
|-------------------|------------------|-----------------------|-----------------|------|--------|-------------------|---------------------|
| 5-1               | 175,00           | 1,61                  |                 | MZC  |        | 1,41              | 33,57               |
| 5-2               | 178,50           | 2,02                  |                 | MZC  |        | 1,39              | 53,14               |
| 5:Compito 5       |                  | 2,02                  | 0,0060          | MZC  |        |                   |                     |
| 6-1               | 49,2             | 0,91                  |                 | MZS  | 6-2    |                   | 121                 |
| 6-2               | 229,2            | 1,09                  |                 | MZS  | 6-1    |                   | 125                 |
| 6:Compito 6       |                  | 1,09                  | 0,0070          |      |        |                   |                     |
| 6-1               | 49,2             | 0,40                  |                 | MZS  |        |                   | 99                  |
| 6-2               | 229,2            | 0,40                  |                 | MZS  |        |                   | 51                  |
| 7:Compito 7       |                  | 0,40                  | 0,0040          | MZS  |        |                   |                     |

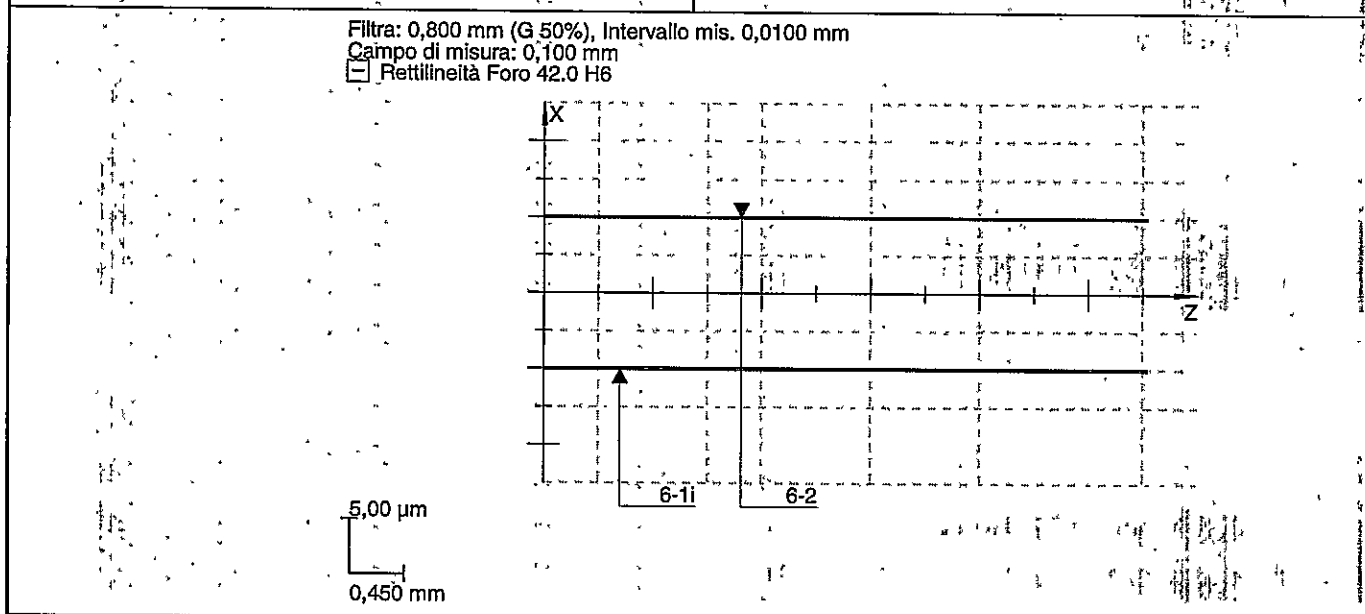
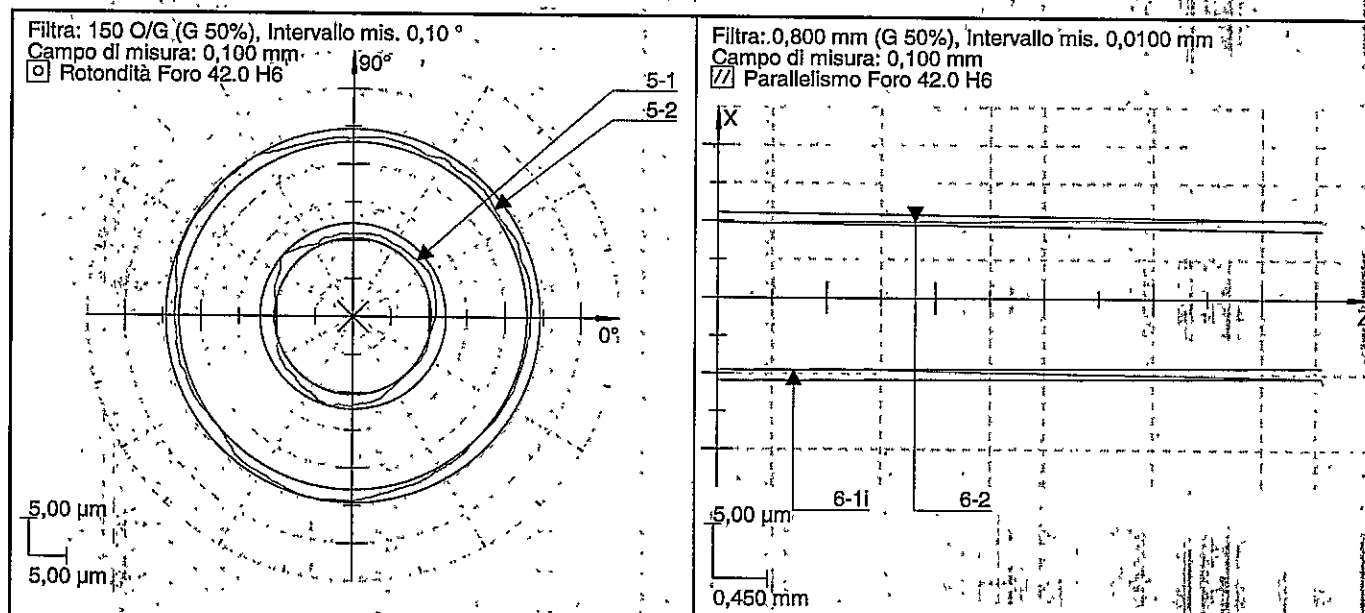
|                                     |                                    |                                                                              |  |                                                                              |
|-------------------------------------|------------------------------------|------------------------------------------------------------------------------|--|------------------------------------------------------------------------------|
| <b>Mahr</b> FORM-PC<br>V4.28.7 SP15 |                                    | <b>GETRAG S.p.a</b><br><b>MODUGNO (BARI)</b><br><b>SALA METROLOGICA - M1</b> |  | <b>19.05.2014</b><br><b>09:13:03</b><br>Operatore<br><b>TURNO A</b><br>Firma |
| Particolare<br><b>ZR 5</b>          | N. disegno<br><b>250.1.3654.35</b> | Operazione<br><b>FINITO</b>                                                  |  |                                                                              |
| <b>Rapporto delle misure 25</b>     |                                    | <b>Reparto: GPS 5</b>                                                        |  |                                                                              |
| <b>Formtester: MMQ40</b>            |                                    | <b>N. commessa: ppap pezzo 1</b>                                             |  | <b>N. lotto: 103</b>                                                         |
| Commento                            |                                    |                                                                              |  | <b>1_3654_F.FPC</b>                                                          |



| Profilo o Compito | Posizion [mm, °] | Risultato [μm] <input checked="" type="checkbox"/> : [mm] | Tolleranza [mm] | Rif. | Rifer. | Eccentricità [μm] | Fase [°]<br>Inc [μm/m] |
|-------------------|------------------|-----------------------------------------------------------|-----------------|------|--------|-------------------|------------------------|
| 5-1               | 175,00           | <input checked="" type="checkbox"/> 1,82                  |                 | MZC  |        | 2,75              | 317,85                 |
| 5-2               | 178,50           | <input checked="" type="checkbox"/> 1,43                  |                 | MZC  |        | 2,89              | 319,94                 |
| 5:Compito 5       |                  | <input checked="" type="checkbox"/> 1,82                  | 0,0060          | MZC  |        |                   |                        |
| 6-1               | 49,3             | <input checked="" type="checkbox"/> 0,34                  |                 | MZS  | 6-2    |                   | 55                     |
| 6-2               | 229,3            | <input checked="" type="checkbox"/> 0,32                  |                 | MZS  | 6-1    |                   | 43                     |
| 6:Compito 6       |                  | <input checked="" type="checkbox"/> 0,34                  | 0,0070          | MZS  |        |                   |                        |
| 6-1               | 49,3             | <input checked="" type="checkbox"/> 0,25                  |                 | MZS  |        |                   | -31                    |
| 6-2               | 229,3            | <input checked="" type="checkbox"/> 0,22                  |                 | MZS  |        |                   | -15                    |
| 7:Compito 7       |                  | <input checked="" type="checkbox"/> 0,25                  | 0,0040          | MZS  |        |                   |                        |

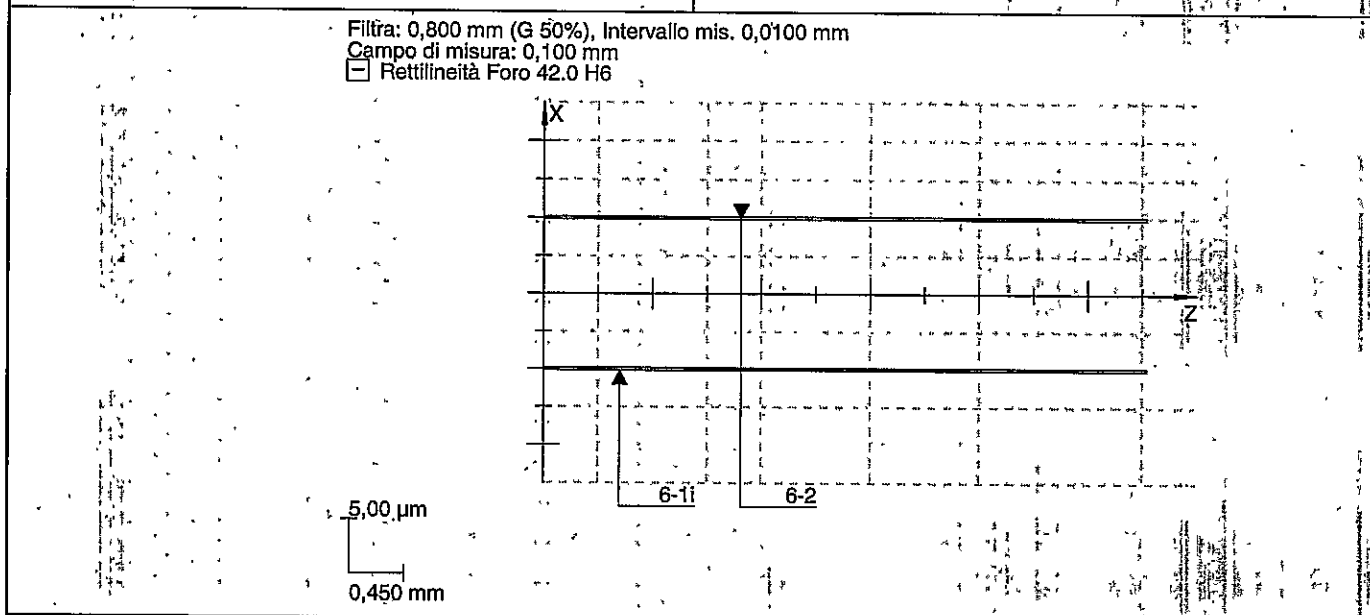
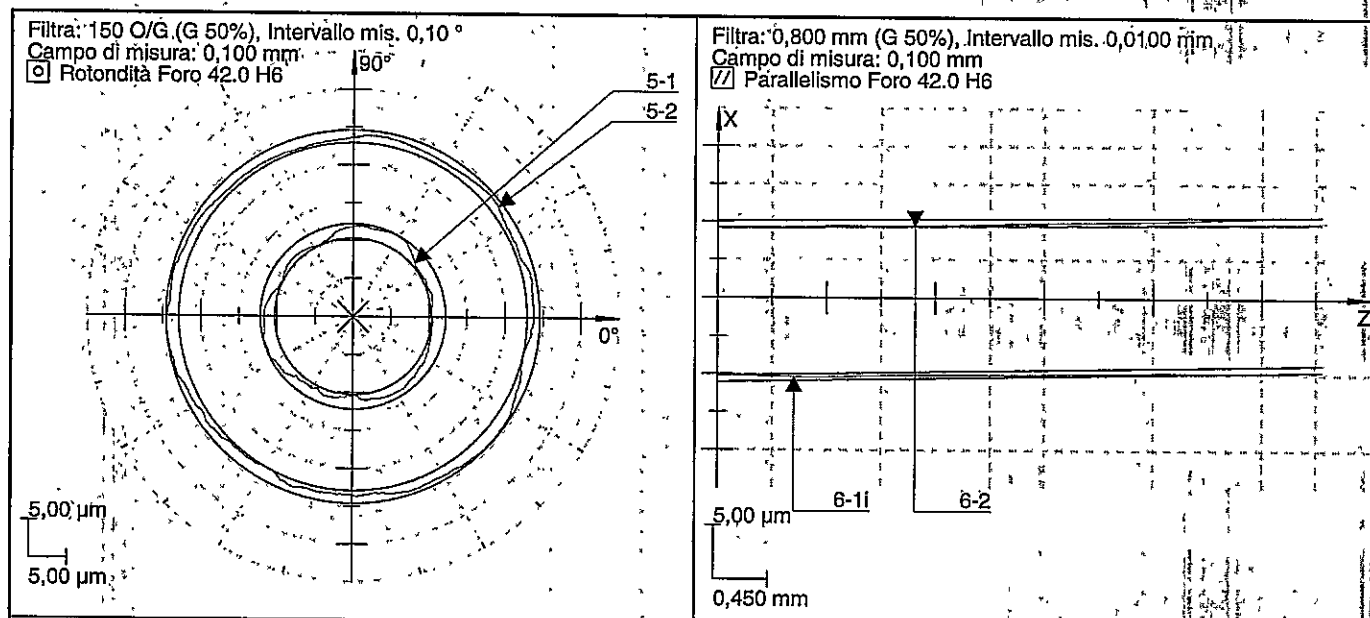


|                                     |                                    |                                                                                |  |                                                                              |
|-------------------------------------|------------------------------------|--------------------------------------------------------------------------------|--|------------------------------------------------------------------------------|
| <b>Mahr</b> FORM-PC<br>V4.28.7 SP15 |                                    | <b>GETRAG S.p.a</b><br><b>MODUGNO - (BARI)</b><br><b>SALA METROLOGICA - M1</b> |  | <b>19.05.2014</b><br><b>09:21:16</b><br>Operatore<br><b>TURNO A</b><br>Firma |
| Particolare<br><b>ZR 5</b>          | N. disegno<br><b>250.1.3654.35</b> | Operazione<br><b>FINITO</b>                                                    |  |                                                                              |
| <b>Rapporto delle misure 26</b>     |                                    | <b>Reparto: GPS 5</b>                                                          |  |                                                                              |
| <b>Formtester: MMQ40</b>            |                                    | <b>N. commessa: ppap pezzo 3</b>                                               |  | <b>N. lotto: 103</b>                                                         |
| Commento                            |                                    | 1_3654_F.FPC                                                                   |  |                                                                              |

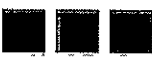


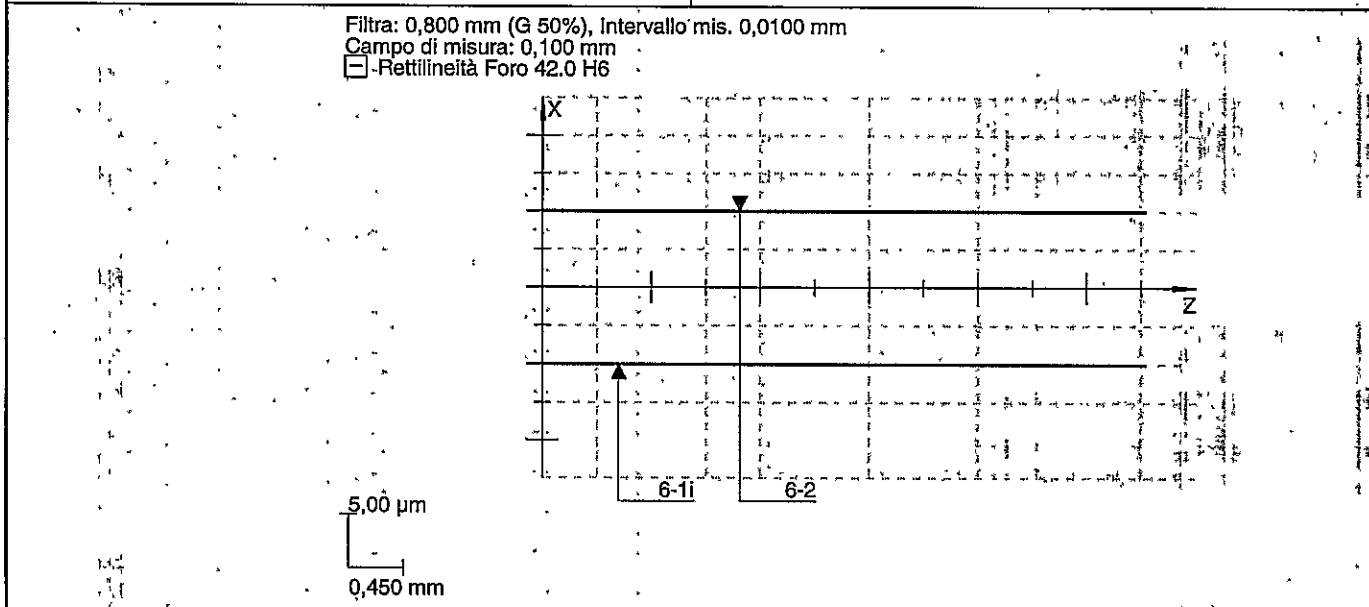
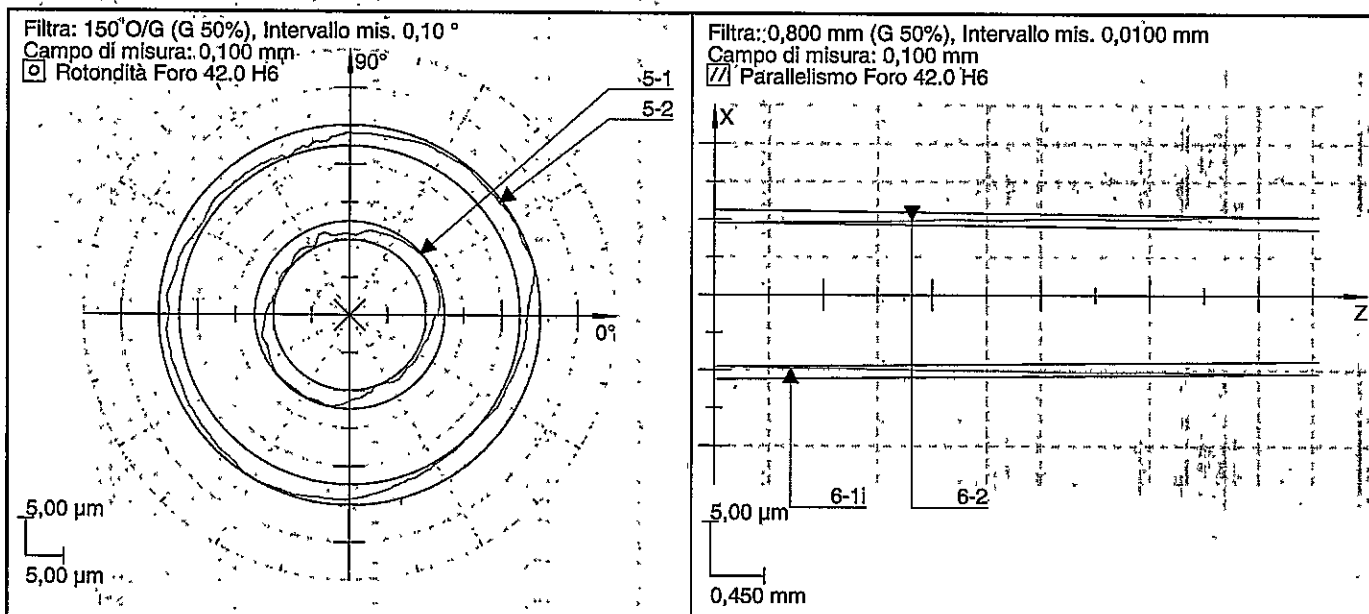
| Profilo o Compito. | Posizion [mm, °] | Risultato [µm] <input checked="" type="checkbox"/> [mm] | Tolleranza [mm] | Rif. | Rifer. | Eccentricità [µm] | Fase [°] Inc [µm/m] |
|--------------------|------------------|---------------------------------------------------------|-----------------|------|--------|-------------------|---------------------|
| 5-1                | 175,00           | <input checked="" type="checkbox"/> 1,92                | 0,0060          | MZC  | 6-2    | 2,62              | 114,80              |
| 5-2                | 178,50           | <input checked="" type="checkbox"/> 1,73                |                 | MZC  |        |                   | 105,78              |
| 5:Compito 5        |                  | <input checked="" type="checkbox"/> 1,92                |                 | MZC  |        |                   |                     |
| 6-1                | 49,2             | <input checked="" type="checkbox"/> 1,40                | 0,0070          | MZS  | 6-1    |                   | -301                |
| 6-2                | 229,2            | <input checked="" type="checkbox"/> 1,33                |                 | MZS  |        |                   | -278                |
| 6:Compito 6        |                  | <input checked="" type="checkbox"/> 1,40                |                 | MZS  |        |                   |                     |
| 6-1                | 49,2             | <input checked="" type="checkbox"/> 0,32                | 0,0040          | MZS  |        |                   | 176                 |
| 6-2                | 229,2            | <input checked="" type="checkbox"/> 0,24                |                 | MZS  |        |                   | 97                  |
| 7:Compito 7        |                  | <input checked="" type="checkbox"/> 0,32                |                 | MZS  |        |                   |                     |

|                                     |                                    |                                                                              |  |                                                                         |
|-------------------------------------|------------------------------------|------------------------------------------------------------------------------|--|-------------------------------------------------------------------------|
| <b>Mahr</b> FORM-PC<br>V4.28.7 SP15 |                                    | <b>GETRAG S.p.a</b><br><b>MODUGNO (BARI)</b><br><b>SALA METROLOGICA - M1</b> |  | <b>19.05.2014</b><br>09:27:44<br>Operatore:<br><b>TURNO A</b><br>Firma: |
| Particolare<br><b>ZR 5</b>          | N. disegno<br><b>250.1.3654.35</b> | Operazione<br><b>FINITO</b>                                                  |  |                                                                         |
| <b>Rapporto delle misure 27</b>     |                                    | <b>Reparto: GPS 5</b>                                                        |  |                                                                         |
| <b>Formtester: MMQ40</b>            |                                    | <b>N. commessa: ppap pezzo 4</b>                                             |  | <b>N. lotto: 103</b>                                                    |
| Commento                            |                                    |                                                                              |  | 1_3654_F.FPC                                                            |



| Profilo o Compito | Posizion [mm, °] | Risultato [µm] $\varnothing$ : [mm]      | Tolleranza [mm] | Rif. | Rifer. | Eccentricità [µm] | Fase [°] Inc [µm/m] |
|-------------------|------------------|------------------------------------------|-----------------|------|--------|-------------------|---------------------|
| 5-1               | 175,00           | <input checked="" type="checkbox"/> 1,89 | 0,0060          | MZC  |        | 1,80              | 107,51              |
| 5-2               | 178,50           | <input checked="" type="checkbox"/> 1,68 |                 | MZC  |        | 2,97              | 127,36              |
| 5:Compito 5       |                  | <input checked="" type="checkbox"/> 1,89 |                 | MZC  |        |                   |                     |
| 6-1               | 48,7             | <input checked="" type="checkbox"/> 0,86 | 0,0070          | MZS  | 6-2    |                   | -141                |
| 6-2               | 228,7            | <input checked="" type="checkbox"/> 0,96 |                 | MZS  | 6-1    |                   | -186                |
| 6:Compito 6       |                  | <input checked="" type="checkbox"/> 0,96 |                 | MZS  |        |                   |                     |
| 6-1               | 48,7             | <input checked="" type="checkbox"/> 0,33 | 0,0040          | MZS  |        |                   | -130                |
| 6-2               | 228,7            | <input checked="" type="checkbox"/> 0,33 |                 | MZS  |        |                   | 303                 |
| 7:Compito 7       |                  | <input checked="" type="checkbox"/> 0,33 |                 | MZS  |        |                   |                     |

|                                                                                                                  |                                    |                                                                                                                                                         |  |                                                                        |
|------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------|
|  <b>FORM-PC</b><br>V4.28.7 SP15 |                                    |  <b>GETRAG S.p.a</b><br><b>MODUGNO (BARI)</b><br>SALA METROLOGICA - M1 |  | <b>19.05.2014</b><br>09:37:14<br>Operatore<br><b>TURNO A</b><br>Firma. |
| Particolare<br><b>ZR 5</b>                                                                                       | N. disegno<br><b>250.1.3654.35</b> | Operazione<br><b>FINITO</b>                                                                                                                             |  |                                                                        |
| <b>Rapporto delle misure 28</b>                                                                                  |                                    | <b>Reparto: GPS 5</b>                                                                                                                                   |  |                                                                        |
| <b>Formtester: MMQ40</b>                                                                                         |                                    | <b>N. commessa: ppap pezzo 5</b>                                                                                                                        |  | <b>N. lotto: 103</b>                                                   |
| Commento                                                                                                         |                                    |                                                                                                                                                         |  | 1_3654_F.FPC                                                           |



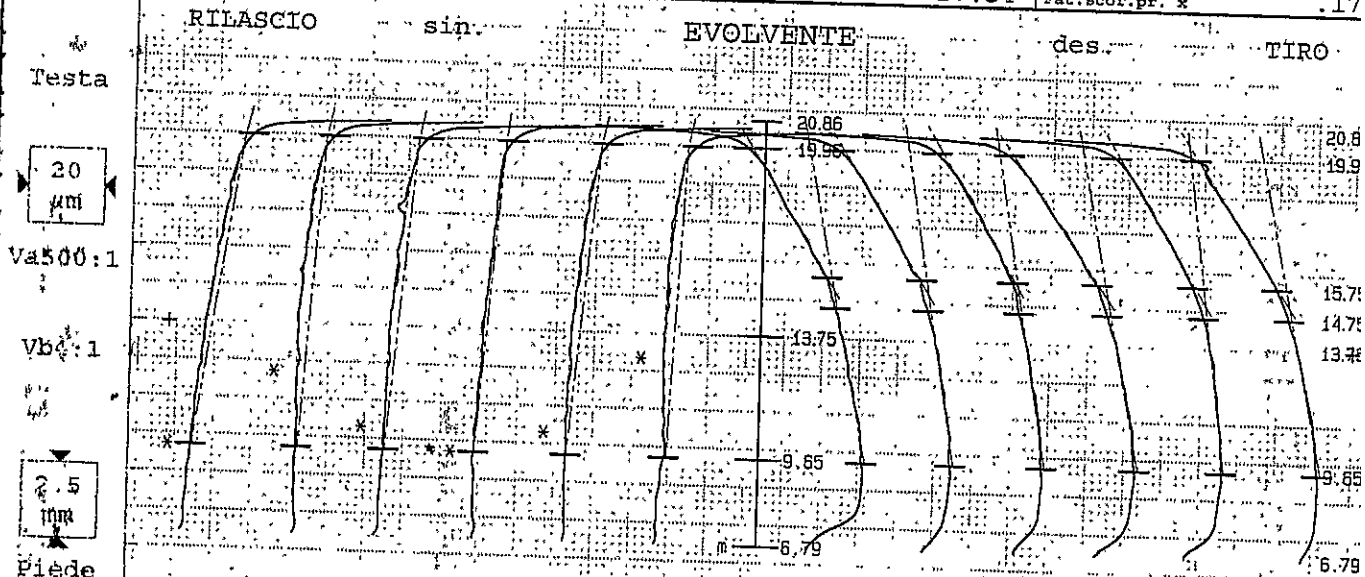
| Profilo o Compito | Posizion [mm, °] | Risultato [µm] □: [mm] | Tolleranza [mm] | Rif. | Rifer. | Eccentricità [µm] | Fase [°]<br>Inc [µm/m] |
|-------------------|------------------|------------------------|-----------------|------|--------|-------------------|------------------------|
| 5-1               | 175,00           | □ 2,45                 |                 | MZC  |        | 1,87              | 319,69                 |
| 5-2               | 178,50           | □ 2,72                 |                 | MZC  |        | 2,26              | 317,80                 |
| 5:Compito 5       |                  | □ 2,72                 | 0,0060          | MZC  |        |                   |                        |
| 6-1               | 49,1             | ▨ 1,64                 |                 | MZS  | 6-2    |                   | -331                   |
| 6-2               | 229,1            | ▨ 1,69                 |                 | MZS  | 6-1    |                   | -340                   |
| 6:Compito 6       |                  | ▨ 1,69                 | 0,0070          | MZS  |        |                   |                        |
| 6-1               | 49,1             | — 0,21                 |                 | MZS  |        |                   | 177                    |
| 6-2               | 229,1            | — 0,24                 |                 | MZS  |        |                   | 158                    |
| 7:Compito 7       |                  | — 0,24                 | 0,0040          | MZS  |        |                   |                        |

GETRAG

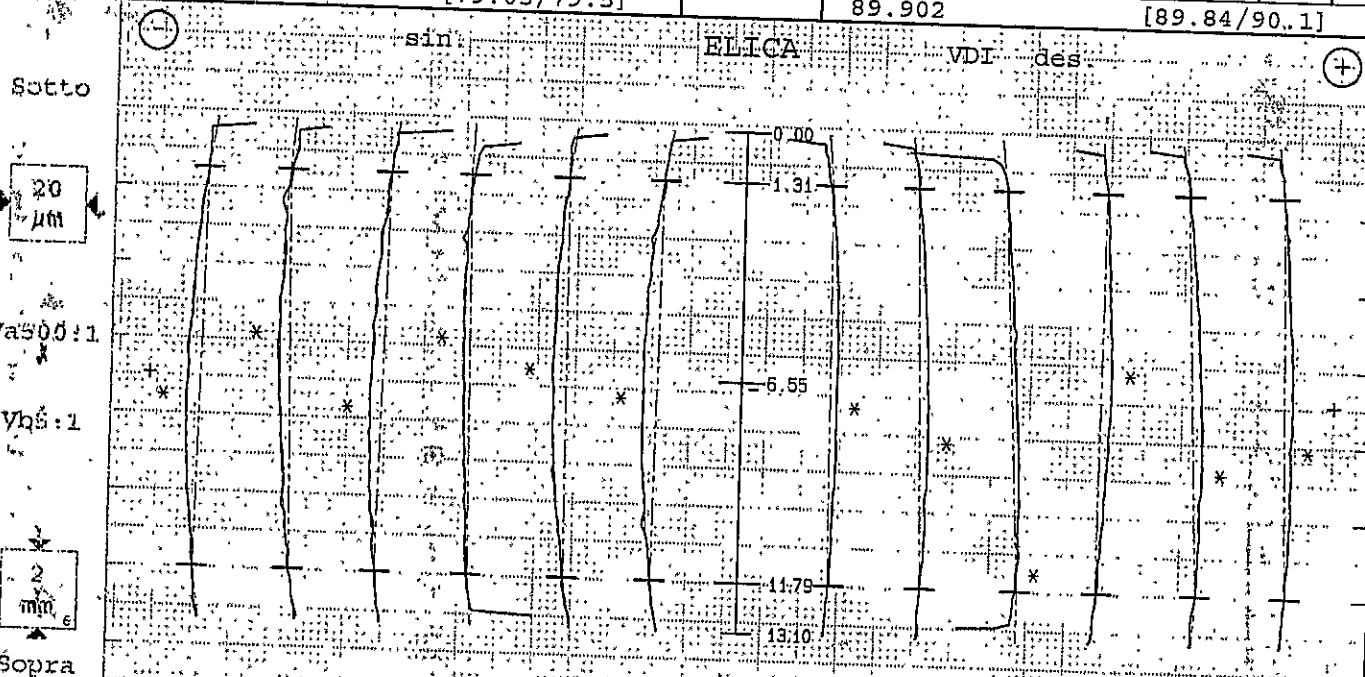
## Ruota cilindrica Evolvente/Elica



|                     |                   |                  |                  |          |                      |                |
|---------------------|-------------------|------------------|------------------|----------|----------------------|----------------|
| Nr. Ordine:         | STI0410005 0      | PNC35 B4784      | Controllore:     | turno A  | Data:                | 20.05.2014 08: |
| Designazione:       | ZR5               |                  | Numero denti z   | 45       | Largh. fasc. dent. b | 13.1           |
| Numero disegno:     | 250.1.3654.36-IPA |                  | Modulo m         | 1.65mm   | Tratto evolvent. La  | 10.31/5.       |
| Commissa/serie nr.: | 1                 |                  | Angolo pressione | 17.5°    | Tratto elica Ls      | 10.48          |
| Masch. Nr.:         | M001              | Spindel: Formica |                  | 29°      | Inizio elab. M1      | 9.65           |
| Integrazione/uso:   | Laufende Messung  |                  | Ø Base db        | 79.863mm | Palpatore Ø          | (#1) 1         |
| Verzeug:            |                   | Charge:          | Ang. Base        | 27.54°   | Fat. scor. pr. x     | .17            |



| Tolleranze      | Medio  | Val. misur. [ $\mu$ m] | Qual | Tolleranze  | Val. misur. [ $\mu$ m]  | Medio        | Qu |
|-----------------|--------|------------------------|------|-------------|-------------------------|--------------|----|
| EHom -6 $\pm$ 6 | -9     | Var 7                  |      | -6 $\pm$ 6  | Var 3                   | -7           |    |
| fHa -6 $\pm$ 10 | -9     | -13 -6 -7 -7 -8 -4     |      | -6 $\pm$ 10 | -8 -7 -7 -8 -5 -8       | -7           |    |
| Fq              | 7      | 9 6 6 4 5 5            |      |             | 3 2 2 3 2 3             |              |    |
| ffd 4           | 3      | 3 3 5 2 2 3            |      | 4           | 1 1 1 2 1 1             |              |    |
| Ca 0/4          | 2      | 2 3 2 1 2 3            |      |             |                         |              |    |
| fKa             | 0      | 0 0 0 0 0 0            |      |             |                         |              |    |
| fKo             |        |                        |      |             |                         |              |    |
| L/E- $\mu$ m    | 79.288 | [79.05/79.5]           |      | -22/-14     | -15 -17 -15 -19 -19 -17 | -18          |    |
|                 |        |                        |      |             | 89.902                  | [89.84/90.1] |    |



|                                             |   |       |    |   |    |    |   |   |     |       |    |    |   |    |    |    |
|---------------------------------------------|---|-------|----|---|----|----|---|---|-----|-------|----|----|---|----|----|----|
| N.E.                                        |   |       |    |   |    |    |   |   |     |       |    |    |   |    |    |    |
| 35 24 13 1t 1c 1p O Dente 1p 1c 1t 13 24 35 |   |       |    |   |    |    |   |   |     |       |    |    |   |    |    |    |
| EHom ±6                                     | 1 | Var 5 |    |   |    |    |   |   | ±6  | Var 6 |    |    |   |    |    |    |
| EHB ±13                                     | 1 | 3     | -2 | 3 | -1 | -1 | 2 |   | ±13 | -1    | -3 | -6 | 1 | -5 | -3 | -3 |
| FE                                          | 4 | 4     | 3  | 4 | 2  | 3  | 4 |   |     |       |    |    | 1 | -5 | -3 | -3 |
| FES                                         | 4 | 1     | 1  | 2 | 1  | 2  | 1 | 2 |     | 2     | 3  | 5  | 3 | 4  | 3  | 3  |
| CR 1/5                                      | 3 | 3     | 3  | 3 | 2  | 4  | 4 |   | 4   | 1     | 1  | 1  | 1 | 1  | 1  | 1  |
| BD 4±4                                      | 3 |       |    |   |    |    |   |   | 1/5 | 2     | 2  | 1  | 2 | 2  | 2  | 2  |
|                                             |   |       |    |   |    |    |   |   | 4±4 |       |    |    |   |    |    |    |



GETRAG

## Ruota cilindrica Divisione



|                                   |               |                                      |                         |
|-----------------------------------|---------------|--------------------------------------|-------------------------|
| prog.: STI0410005 0               | PNC35 B4784   | Controllore: turno A                 | Data: 20.05.2014 08:48  |
| nominazione: ZR5                  |               | Numero denti z: 45                   | Angolo pressione: 17.5° |
| numero disegno: 250.1.3654.36-IPA |               | Modulo m: 1.65mm                     | Angolo elic: 29°        |
| missione/serie nr.: 1             |               | Untersuchungszweck: Laufende Messung |                         |
| sch.Nr.: M001                     | Spindel: Form | Charge:                              |                         |

Errori singoli di divisione fp fianco sinistro

20µm

500:1

Errore somma di divisione Fp fianco sinistro

20µm

500:1

Errori singoli di divisione fp fianco destro

20µm

500:1

Errore somma di divisione Fp fianco destro

20µm

500:1

Corso per misura divis.: 84.465 z=6.6mm

fianco sinistro / RILASCIO

fianco destro / RILASCIO

|                                   | Val. misur | Qual. | Val. amm | Qual. | Val. misur | Qual. | Val. amm | Qual. |
|-----------------------------------|------------|-------|----------|-------|------------|-------|----------|-------|
| Gr. err. singoli divisione fp max | 3          |       | 14       |       | 3          |       | 14       |       |
| Gr. salto di passo fu max         | 2          |       | 18       |       | 2          |       | 18       |       |
| Scarto di divisione Rp            | 5          |       |          |       | 6          |       |          |       |
| Err. globale di divisione Fp      | 17         |       | 50       |       | 19         |       | 50       |       |
| Err. cordale di divisione Fpz/8   | 12         |       |          |       | 14         |       |          |       |

Centricità Fr (Ø-sfera =2.5mm)

⊙ : 22µm

20µm

500:1

|                           |    |    |
|---------------------------|----|----|
| Err. di concentricità Fr  | 26 | 32 |
| Variaz. spessore dente Ra |    |    |

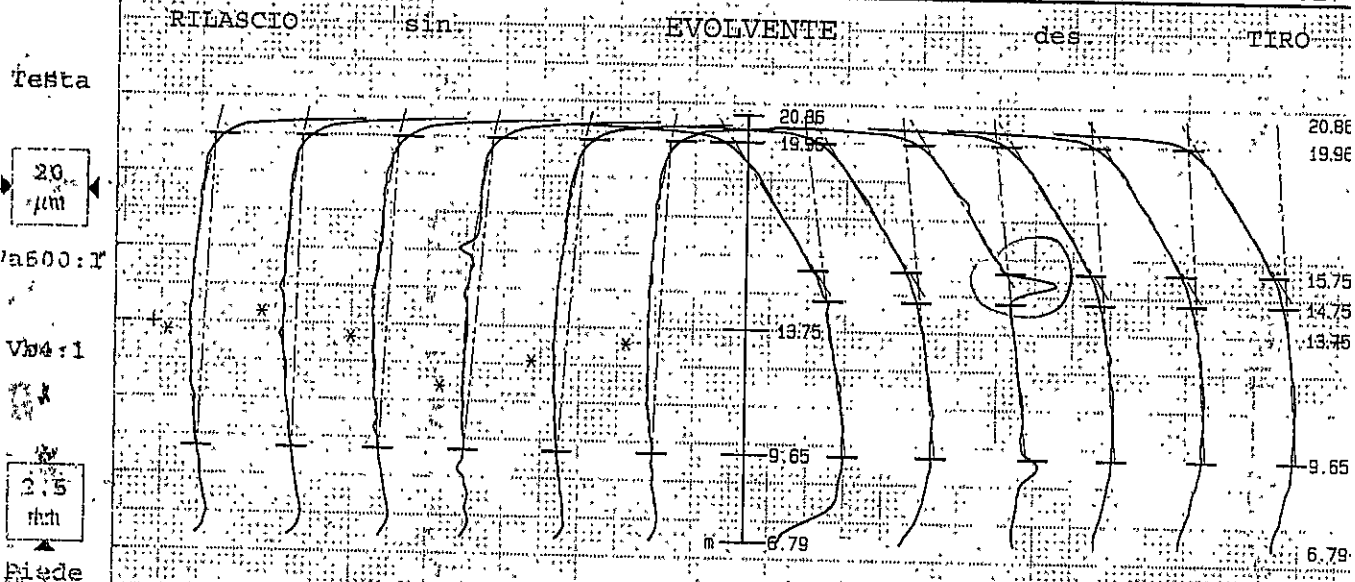


GETRAG

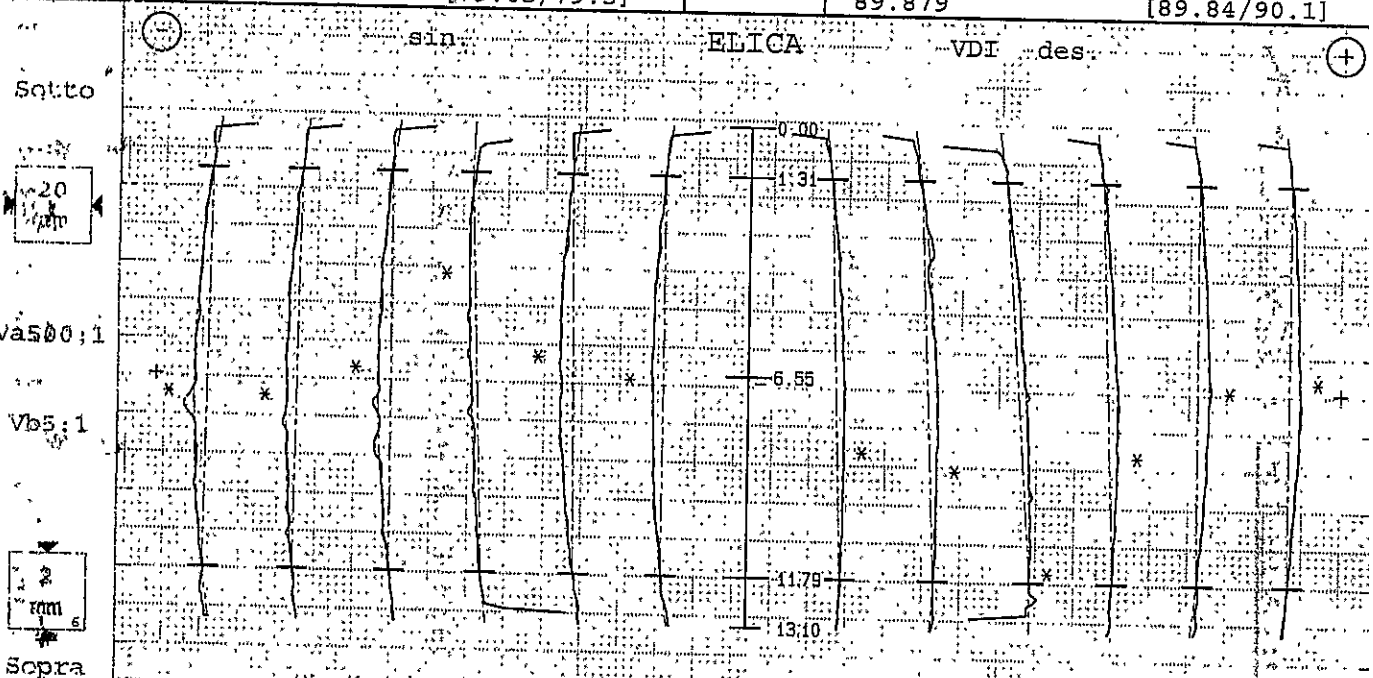
## Ruota cilindrica Evolvente/Elica



|                        |                   |                                  |                  |          |                      |                |
|------------------------|-------------------|----------------------------------|------------------|----------|----------------------|----------------|
| Nr. prog:              | STI0410005 0      | PNC35 B4784                      | Controllore:     | turno A  | Data:                | 20.05.2014 08: |
| Denominazione:         | ZR5               |                                  | Numero denti z   | 45       | Largh. fasc. dent. b | 13.11          |
| Numero disegno:        | 250.1.3654.36-IPA |                                  | Modulo m         | 1.65mm   | Tratto evolv. La     | 10.31/5.1      |
| Connessioni/serie nr.: | 2                 |                                  | Angolo pressione | 17.5°    | Tratto elica Ls      | 10.48/         |
| Mod. Nr.:              | M001              | Spindel: Form. a filo elicoidale |                  | 29°      | Inizio elab. M1      | 9.65/          |
| Untersuchungsweck:     | Laufende Messung  |                                  | Ø Base db        | 79.863mm | Palpatore Ø          | (#1) 11        |
| Werkzeug:              | Charge:           |                                  | Ang. Base        | 27.54°   | Fat. scor. pr. x     | .17            |



| Tolerance | Medio  | Val. misur [µm]   | Qual | Tolerance | Val. misur [µm]             | Medio        | Qual |
|-----------|--------|-------------------|------|-----------|-----------------------------|--------------|------|
| tHm -6±6  | -4     | Var 4             |      | -6±6      | Var 1                       | -3           |      |
| fHm -6±10 | -4     | -4 -2 -4 -7 -6 -4 |      | -6±10     | -5 -4 -4 -3 -3 -3           | -3           |      |
| Fm 6      | 5      | 7 6 9 6 5         |      |           | 2 3 15 4 4 4                | 4            |      |
| fFm 4     | 3      | 3 3 4 6 3 4       |      | 4         | 2 2 14 2 2 2                | 2            |      |
| Ca 0/4    | 4      | 4 4 4 3 4 3       |      |           |                             |              |      |
| fKa 0     | 0      | 0 0 0 0 0 0       |      |           |                             |              |      |
| fFo       |        |                   |      |           |                             |              |      |
| PT±0.01mm | 79.274 | [79.05/79.5]      |      | -22/-14   | -19 -20 -19 -21 -22 -22 -21 |              |      |
|           |        |                   |      |           | 89.879                      | [89.84/90.1] |      |



| N:Z     | 35 | 24 | 13 | 1t    | 1c | 1p | Ø Dente | 1p | 1c  | 1t | 13 | 24 | 35 |
|---------|----|----|----|-------|----|----|---------|----|-----|----|----|----|----|
| tHm ±6  | 1  |    |    | Var 3 |    |    |         |    | ±6  |    |    |    | -3 |
| fHm ±13 | 1  | 2  | 2  | 0     | -4 | -1 | 0       |    | ±13 | -4 | -5 | -9 | -4 |
| Fm 4    | 4  | 6  | 4  | 4     | 4  | 3  | 2       |    |     | 4  | 6  | 10 | 4  |
| fFm 4   | 2  | 3  | 2  | 2     | 2  | 1  | 1       |    | 4   | 1  | 2  | 2  | 2  |
| Ca 1/5  | 3  | 3  | 3  | 3     | 2  | 3  | 3       |    | 1/5 | 2  | 2  | 2  | 3  |
| fKa 4±4 | 4  |    |    |       |    |    |         |    | 4±4 |    |    |    |    |

GETRAG

## Ruota cilindrica Divisione



|                                   |               |                                      |                        |
|-----------------------------------|---------------|--------------------------------------|------------------------|
| Tr. prog.: STI0410005 0           | PNC35 B4784   | Controllore: turno A                 | Data: 20.05.2014 08:58 |
| Denominazione: ZR5                |               | Numero denti z 45                    | Angolo pressione 17.3° |
| Numero disegno: 250.1.3654.36-IPA |               | Modulo m 1.65mm                      | Angolo elic. 29°       |
| Commessa/serie nr.: 2             |               | Untersuchungszweck: Laufende Messung |                        |
| Lasch.Nr.: M001                   | Spindel: Form | saizelg:                             | Charge:                |

## Errori singoli di divisione fp fianco sinistro

20µm  
500:1

## Errore somma di divisione Fp fianco sinistro

20µm  
500:1

## Errori singoli di divisione fp fianco destro

20µm  
500:1

## Errore somma di divisione Fp fianco destro

20µm  
500:1

| Corso per misura divis.: 84.465 z=6.6mm |        | fianco sinistro / RILASCIO |       |          |       | fianco destro / TRG |       |          |       |
|-----------------------------------------|--------|----------------------------|-------|----------|-------|---------------------|-------|----------|-------|
|                                         |        | Val. misur                 | Qual. | Val. amm | Qual. | Val. misur          | Qual. | Val. amm | Qual. |
| Gr. err. singoli divisione              | fp max | 3                          |       | 14       |       | 5                   |       | 14       |       |
| Gr. salto di passo                      | fu max | 2                          |       | 18       |       | 3                   |       | 18       |       |
| Scarto di divisione                     | Rp     | 6                          |       |          |       | 9                   |       |          |       |
| Err. globale di divisione               | Fp     | 20                         |       | 50       |       | 22                  |       | 50       |       |
| Err. cordale di divisione               | Fpz/8  | 17                         |       |          |       | 19                  |       |          |       |

Centricità Fr (Ø-sfera =2.5mm)

⊙ : 11µm

20µm  
500:1

|                        |    |    |    |
|------------------------|----|----|----|
| Err. di concentricità  | Fr | 18 | 32 |
| Variaz. spessore dente | Rs |    |    |



|                     |                   |               |                  |          |                    |                  |
|---------------------|-------------------|---------------|------------------|----------|--------------------|------------------|
| Nr. prog.:          | STI0410005 0      | PNC35 B4784   | Controllere:     | turno A  | Data:              | 20.05.2014 09:00 |
| Denominazione:      | ZR5               |               | Numero denti z   | 45       | Largh.fasc.dent. b | 13.11            |
| Numero disegno:     | 250.1.3654.36-IPA |               | Modulo m         | 1.65mm   | Tratto evol. La    | 10.31/5.1        |
| Comessa/serie nr.:  | 3                 |               | Angolo pressione | 17.5°    | Tratto elica LS    | 10.48            |
| Mod. Sch. Nr.:      | M001              | Spindel: Form | Angolo elica     | 29°      | Inizio elab. M1    | 9.65             |
| Untersuchungszweck: | Laufende Messung  |               | Ø Base db        | 79.863mm | Palpatore Ø        | (#1) 1r          |
| Werkzeug:           |                   | Charge:       | Ang. Base        | 27.54°   | Fat.scor.pr. x     | .17              |

RILASCIO sin EVOLVENTE des TITO

### Tests

20  
3  
11m

Va500:1

Vp4:1

2.5  
mm

Fiede

35 24 13 1s 1c 1b Dente 1b 1c 1s 13 24 35

| Tolerance                             | Medio  | Val. misur [μm] |    |    |    |   |    |  | Qual | Tolerance | Val. misur [μm] |               |     |     |     |     |  | Medio | Qual |  |
|---------------------------------------|--------|-----------------|----|----|----|---|----|--|------|-----------|-----------------|---------------|-----|-----|-----|-----|--|-------|------|--|
|                                       |        | Var             |    |    |    |   |    |  |      |           | Var             |               |     |     |     |     |  |       |      |  |
| H <sub>8</sub> /f <sub>7</sub> -6/+5  | -3     |                 |    |    |    |   |    |  |      | -6/+5     |                 |               |     |     |     |     |  | -3    |      |  |
| F <sub>8</sub> /f <sub>7</sub> -6/+10 | -3     | -6              | -5 | -1 | -1 | 0 | 1  |  |      | -6/+10    | -3              | -2            | -2  | -3  | -4  | -4  |  | -3    |      |  |
| F <sub>7</sub> /f <sub>6</sub>        | 7      | 6               | 6  | 7  | 7  | 7 | 14 |  |      |           | 4               | 4             | 4   | 4   | 3   | 3   |  | 4     |      |  |
| f <sub>5</sub> /f <sub>4</sub> 4      | 3      | 3               | 4  | 3  | 3  | 3 | 11 |  |      | 4         | 1               | 2             | 2   | 2   | 2   | 2   |  | 2     |      |  |
| G <sub>6</sub> /f <sub>5</sub> 0/4    | 4      | 4               | 4  | 4  | 3  | 4 | 4  |  |      |           |                 |               |     |     |     |     |  |       |      |  |
| F <sub>6</sub> /f <sub>5</sub>        | 0      | 0               | 0  | 0  | 0  | 0 | 0  |  |      |           |                 |               |     |     |     |     |  |       |      |  |
| F <sub>5</sub> /f <sub>4</sub>        |        |                 |    |    |    |   |    |  |      | -22/-14   | -18             | -19           | -17 | -18 | -19 | -19 |  | -19   |      |  |
| P/T/φ [μm]                            | 79.293 | [79.05/79.5]    |    |    |    |   |    |  |      |           | 89.912          | [89.84/90.11] |     |     |     |     |  |       |      |  |

|                        |        |              |        |              |
|------------------------|--------|--------------|--------|--------------|
| P/T <sub>20</sub> (mm) | 79.293 | [79.05/79.5] | 89.912 | [89.84/90.1] |
|------------------------|--------|--------------|--------|--------------|

sin. ELICA VDI des

গণিত

20  
1/100

Va500:1

Vb5: 1

2

**Sopra**

W: 2 35 24 13 1t 1c 1p 0 Dente 1p 1c 1t 13 24 35

|    |     |    |       |   |   |    |    |    |  |     |       |    |    |    |    |    |    |
|----|-----|----|-------|---|---|----|----|----|--|-----|-------|----|----|----|----|----|----|
| ms | ±6  | -3 | Var 6 |   |   |    |    |    |  | ±6  | Var 4 |    |    |    |    |    | -5 |
| FE | ±13 | -3 | -4    | 0 | 0 | -7 | -6 | -3 |  | ±13 | -4    | -7 | -9 | -3 | -3 | -5 | -5 |
| FE |     | 4  | 4     | 3 | 2 | 6  | 6  | 4  |  |     | 5     | 6  | 7  | 3  | 3  | 5  | 4  |
| FE | 4   | 1  | 1     | 1 | 1 | 2  | 1  | 1  |  | 4   | 1     | 1  | 1  | 1  | 1  | 2  | 1  |
| LS | 1/5 | 3  | 3     | 3 | 3 | 1  | 3  | 3  |  | 1/5 | 2     | 2  | 1  | 3  | 3  | 2  | 3  |
| Bd | ±4  | 4  |       |   |   |    |    |    |  | ±4  |       |    |    |    |    |    | 5  |





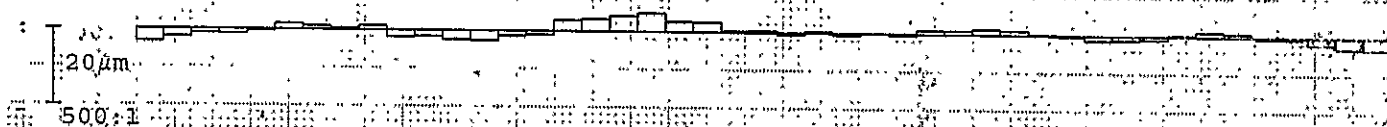
GETRAG

## Ruota cilindrica Divisione

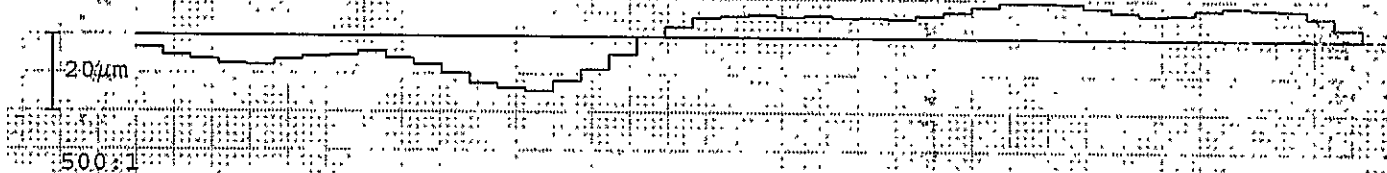


|                                   |                 |                                      |                        |
|-----------------------------------|-----------------|--------------------------------------|------------------------|
| nr. prog.: STI0410005 0           | PNC35 B4784     | Controllore: turno A                 | Data: 20.05.2014 09:03 |
| Denominazione: ZR5                |                 | Numero denti z 45                    | Angolo pressione 17,5° |
| Numero disegno: 250.1.3654.36-IPA |                 | Modulo m 1.65mm                      | Angolo elicica 29°     |
| Commessa/serie nr.: 3             |                 | Untersuchungszweck: Laufende Messung |                        |
| Asch.Nr.: M001                    | Spindel: Formel | Gez. Nr.: 1                          | Charge:                |

## Errori singoli di divisione fp fianco sinistro



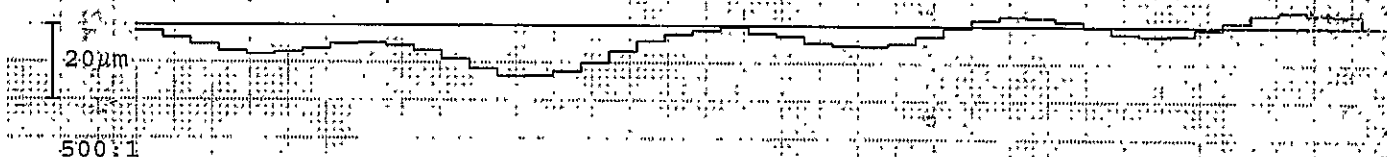
## Errore somma di divisione Fp fianco sinistro



## Errori singoli di divisione fp fianco destro



## Errore somma di divisione Fp fianco destro

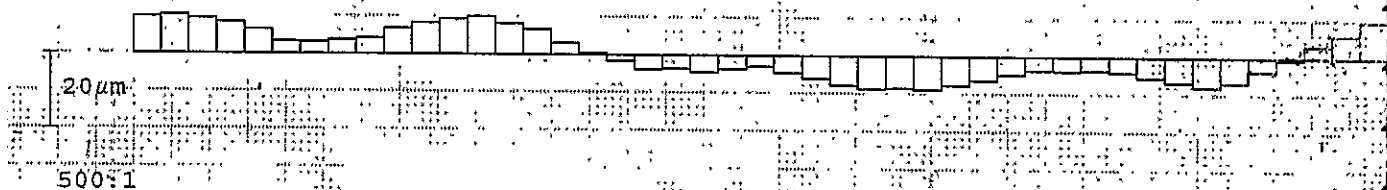


Corona per misura divis. 184.465 z=6.6mm

|                                    | fianco sinistro / RILASCIO |       |          |       | fianco destro / TIR0 |       |          |       |
|------------------------------------|----------------------------|-------|----------|-------|----------------------|-------|----------|-------|
|                                    | Val. misur                 | Qual. | Val. amm | Qual. | Val. misur           | Qual. | Val. amm | Qual. |
| Err. err. singoli divisione fp max | 5                          |       | 14       |       | 3                    |       | 14       |       |
| Err. salto di passo fu max         | 4                          |       | 18       |       | 3                    |       | 18       |       |
| Scarto di divisione Rp             | 8                          |       |          |       | 6                    |       |          |       |
| Err. globale di divisione Fp       | 24                         |       | 50       |       | 18                   |       | 50       |       |
| Err. cordale di divisione Fpz/8    | 20                         |       |          |       | 12                   |       |          |       |

Centricità Fr (Ø-sfera =2.5mm)

⊙ : 16µm



|                           |    |    |  |
|---------------------------|----|----|--|
| Err. di concentricità Fr  | 19 | 32 |  |
| Variaz. spessore dente Rs |    |    |  |

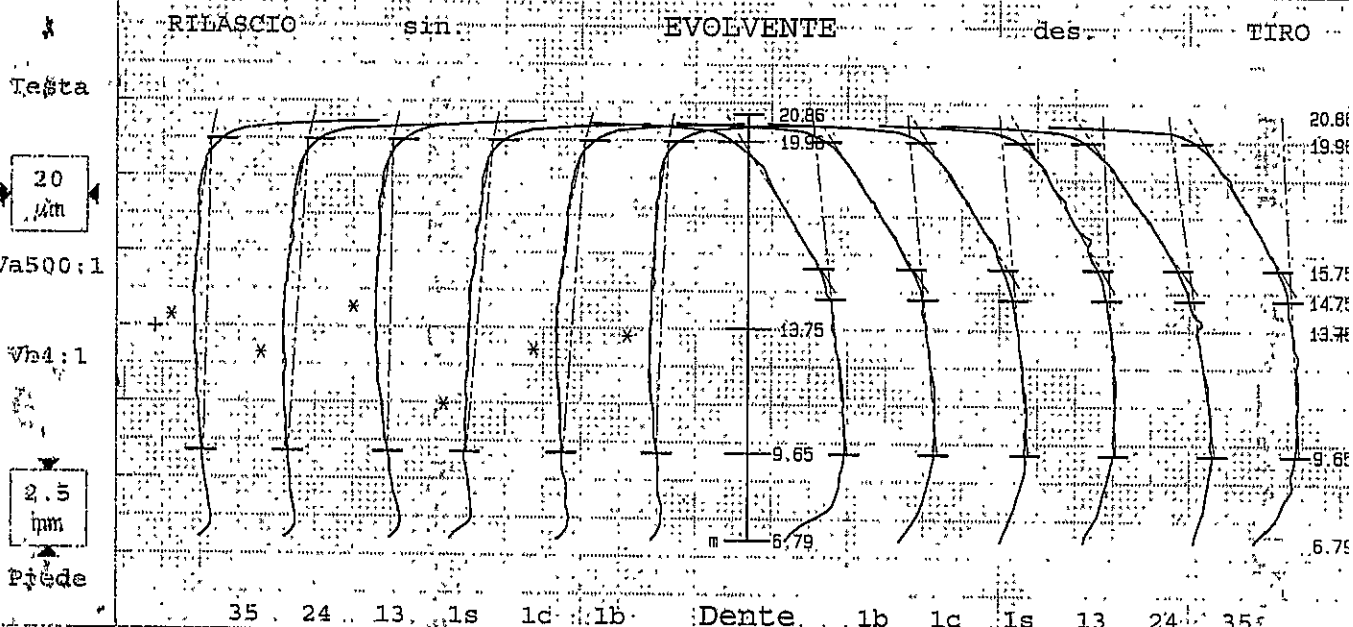


GETRAG

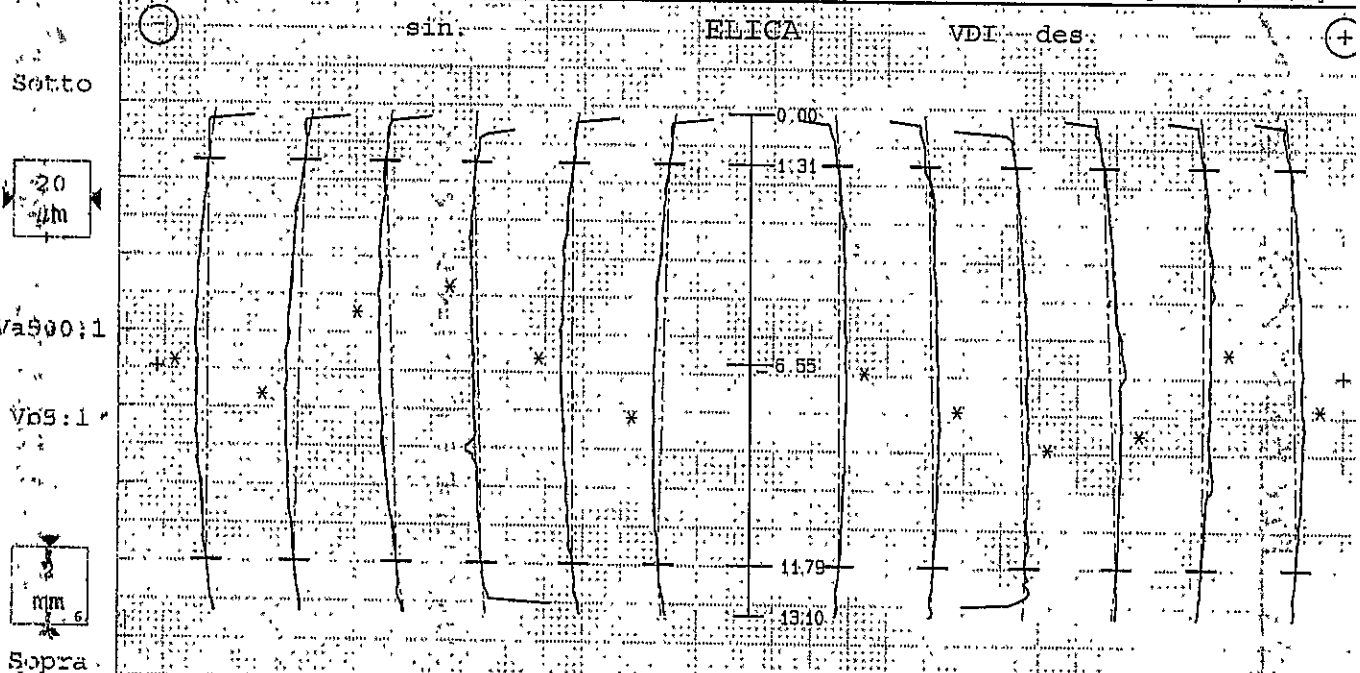
## Ruota cilindrica Evolvente/Elica



|                                      |                |                      |                       |
|--------------------------------------|----------------|----------------------|-----------------------|
| N. prog.: STI0410005 0               | PNC35 B4784    | Controllore: turno A | Data: 20.05.2014 09:1 |
| Denominazione: ZR5                   |                | Numero denti z       | 45                    |
| Univ. disegno: 250.1.3654.36-IPA     |                | Modulo m             | 1.65mm                |
| Connessione/serie nr.: 4             |                | Angolo pressione     | 17.5°                 |
| Ass. Nr.: M001                       | Spindel: Forme | Angolo elicale       | 29°                   |
| Untersuchungszweck: Laufende Messung |                | Ø Base db            | 79.863mm              |
| Werkzeug:                            | Charge:        | Ang. Base            | 27.54°                |
|                                      |                |                      | Palpatore Ø (#1) 1    |
|                                      |                |                      | Fat. scor. pr. x .17  |



| Tolleranza | Medio  | Val. misur [μm] |       |    |    |    |    | Qual | Tolleranza | Val. misur [μm] |              |     |     |     |     | Medio | Q   |   |
|------------|--------|-----------------|-------|----|----|----|----|------|------------|-----------------|--------------|-----|-----|-----|-----|-------|-----|---|
| Filam      | -6±6   | -4              | Var 5 |    |    |    |    |      |            | -6±6            | Var 4        |     |     |     |     |       | -4  | Q |
| Fila       | -6±10  | -4              | -2    | -5 | -1 | -7 | -6 | -3   |            | -6±10           | -4           | -4  | -4  | -2  | -6  | -2    | -4  | Q |
| Fa         |        | 7               | 6     | 6  | 7  | 6  | 7  | 5    |            |                 | 3            | 3   | 3   | 4   | 3   | 5     | 4   | Q |
| Ffe        |        | 4               | 4     | 4  | 4  | 4  | 3  | 4    |            | 4               | 1            | 2   | 2   | 2   | 3   | 2     | 2   | Q |
| Lo         | 0/4    | 4               | 3     | 3  | 4  | 2  | 4  | 3    |            |                 |              |     |     |     |     |       |     | Q |
| fko        |        | 0               | 0     | 0  | 0  | 0  | 0  | 0    |            |                 |              |     |     |     |     |       |     | Q |
| fko        |        |                 |       |    |    |    |    |      |            | -22/-14         | -19          | -20 | -19 | -20 | -21 | -21   | -21 | Q |
| P/T-p [mm] | 79.285 | [79.05/79.5]    |       |    |    |    |    |      |            | 89.903          | [89.84/90.1] |     |     |     |     |       |     |   |



| N.º  |     | 35 | 24    | 13 | 1t | 1c | 1p | Ø Dente | 1p  | 1c    | 1t | 13 | 24 | 35 |    |
|------|-----|----|-------|----|----|----|----|---------|-----|-------|----|----|----|----|----|
| FH5a | ±6  | 0  | Var 7 |    |    |    |    |         | ±6  | Var 6 |    |    |    |    |    |
| FHB  | ±13 | 0  | 0     | 3  | -4 | -3 | 0  | 3       | ±13 | 0     | -2 | -4 | -5 | 1  | -2 |
| FR   | 4   | 4  | 3     | 4  | 4  | 4  | 3  | 3       |     | 2     | 3  | 4  | 5  | 2  | 3  |
| FE5  | 4   | 1  | 1     | 1  | 1  | 3  | 1  | 1       | 4   | 1     | 2  | 1  | 2  | 2  | 1  |
| CR   | 1/5 | 3  | 3     | 3  | 3  | 2  | 3  | 2       | 1/5 | 2     | 2  | 2  | 3  | 2  | 2  |
| BG   | 4±4 | 6  |       |    |    |    |    |         | 4±4 |       |    |    |    |    |    |



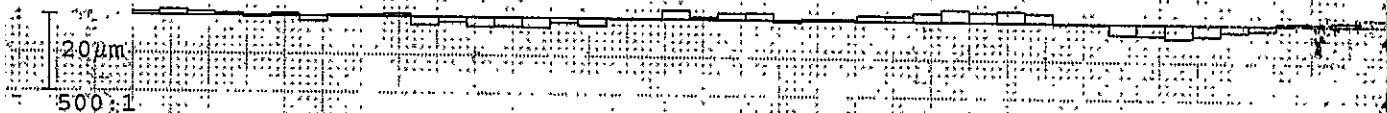
GETRAG

## Ruota cilindrica Divisione

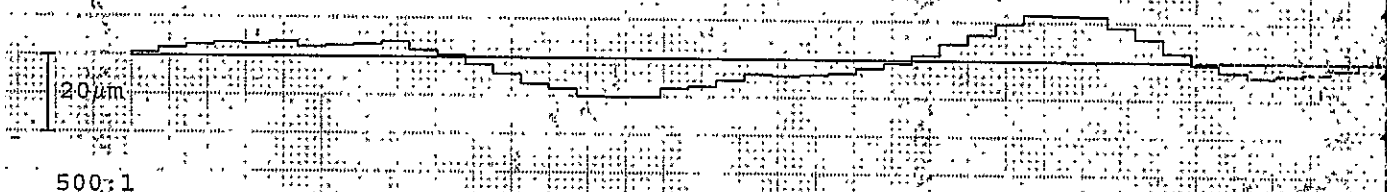


|                                   |                 |                                      |                        |
|-----------------------------------|-----------------|--------------------------------------|------------------------|
| tr. prog.: STI0410005 0           | PNC35 B4784     | Controllore: turno A                 | Data: 20.05.2014 09:09 |
| denominazione: ZR5                |                 | Numero denti z 45                    | Angolo pressione 17.5° |
| numero disegno: 250.1.3654.36-IPA |                 | Modulo m 1.65mm                      | Angolo elicica 29°     |
| commessa/serie nr.: 4             |                 | Untersuchungszweck: Laufende Messung |                        |
| lasch.Nr.: M001                   | Spindel: FORMER | Gezeichnet:                          | Charge:                |

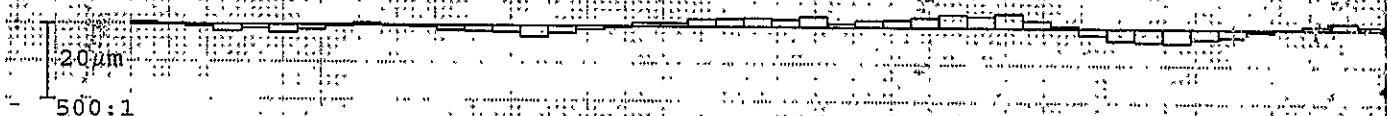
## Errori singoli di divisione fp fianco sinistro



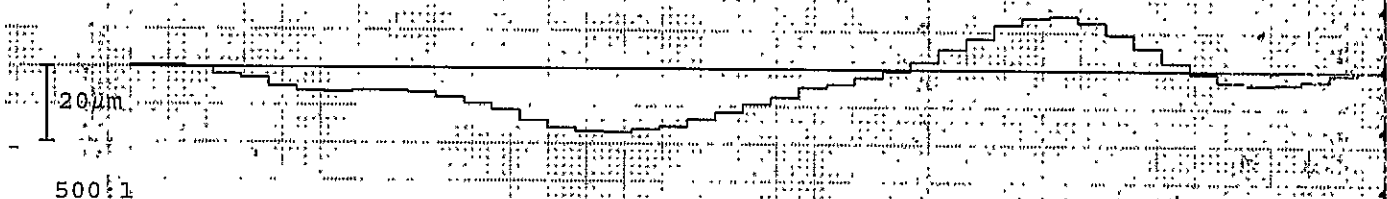
## Errore somma di divisione Fp fianco sinistro



## Errori singoli di divisione fp fianco destro



## Errore somma di divisione Fp fianco destro

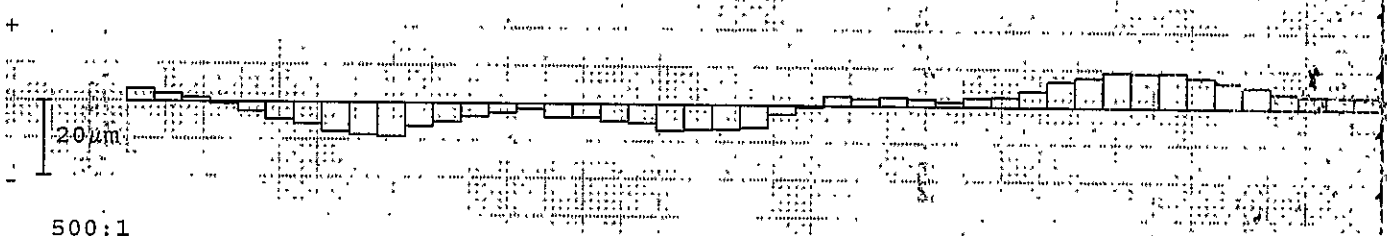


orsa per misura divis. 184.465 z=6.6mm

|                                  | fianco sinistro / RILASCIO |       |          |       | fianco destro / TIRAO |       |          |       |
|----------------------------------|----------------------------|-------|----------|-------|-----------------------|-------|----------|-------|
|                                  | Val. misur                 | Qual. | Val. amm | Qual. | Val. misur            | Qual. | Val. amm | Qual. |
| r. err. singoli divisione fp max | 4                          |       | 14       |       | 4                     |       | 14       |       |
| r. salto di passo fu max         | 3                          |       | 18       |       | 2                     |       | 18       |       |
| Scarto di divisione Rp           | 7                          |       |          |       | 8                     |       |          |       |
| rr. globale di divisione Fp      | 22                         |       | 50       |       | 31                    |       | 50       |       |
| rr. cordale di divisione Fpz/8   | 16                         |       |          |       | 17                    |       |          |       |

Centricità Fr (Ø-sfera =2.5mm)

⊙ : 13µm



|                         |    |    |
|-------------------------|----|----|
| r. di concentricità Fr  | 18 | 32 |
| riaz. spessore dente Rs |    |    |

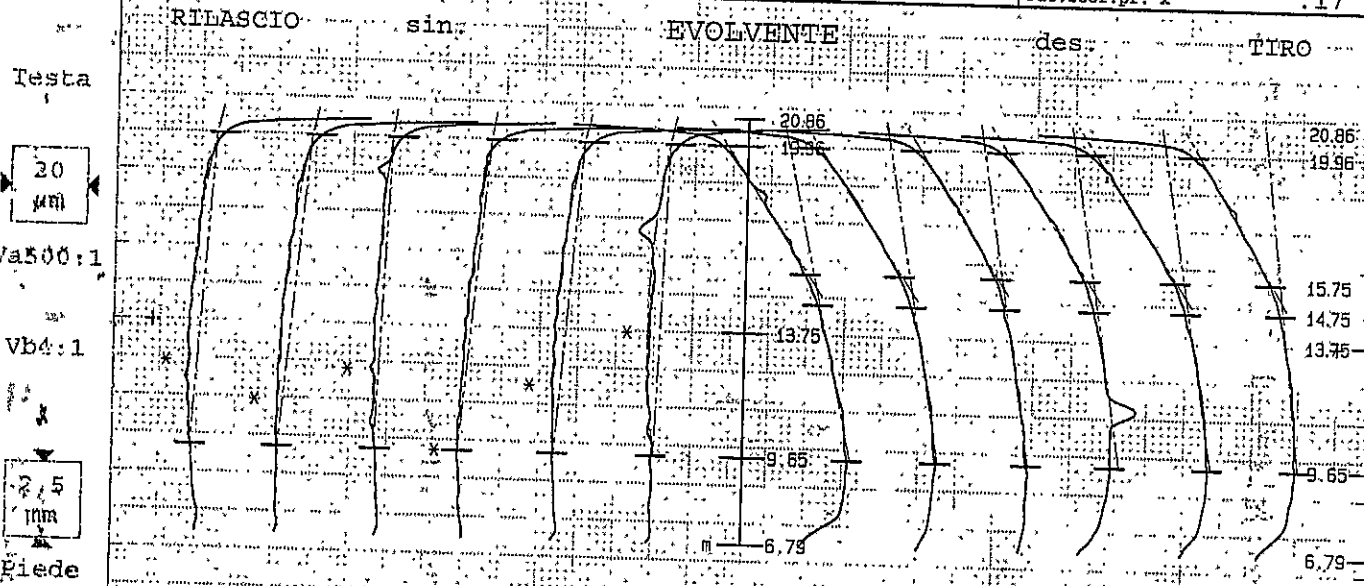


GETRAG

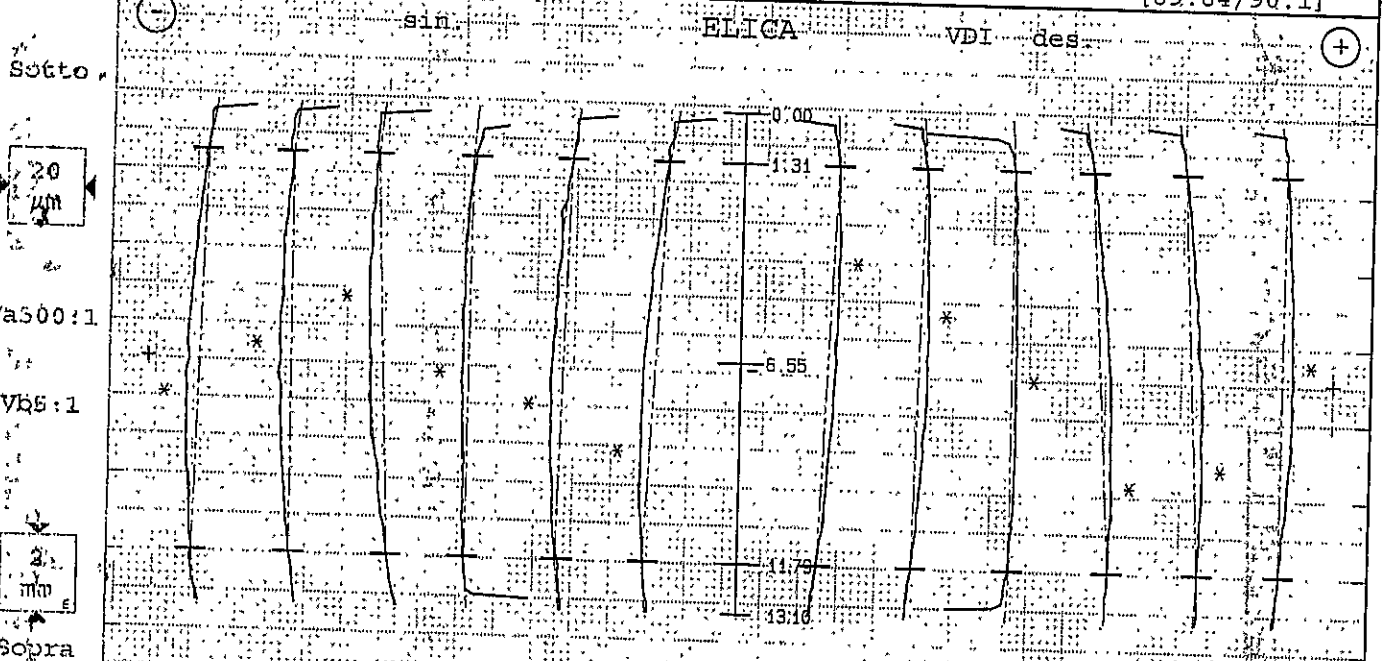
## Ruota cilindrica Evolvente/Elica



|                    |                   |                |                  |          |                    |                 |
|--------------------|-------------------|----------------|------------------|----------|--------------------|-----------------|
| Nr. Vog.:          | STI0410005 0      | PNC35 B4784    | Controllora:     | turno A  | Data:              | 20.05.2014 09:1 |
| Denominazione:     | ZR5               |                | Numero denti z   | 45       | Largh.fasc.dent. b | 13.1m           |
| Numero disegno:    | 250.1.3654.36-IPA |                | Modulo m         | 1.65mm   | Tratto evol. La    | 10.31/5.4m      |
| Comessa/serie nr.: | 5                 |                | Angolo pressione | 17.5°    | Tratto elica Lb    | 10.48m          |
| Maach.Nr.:         | M001              | Spindel: Forme | Angolo elica     | 29°      | Inizio elab. MI    | 9.65m           |
| Dibattimento:      | Laufende Messung  |                | Ø Base db        | 79.863mm | Palpatore Ø        | (#1) 1m         |
| Verbaug:           |                   | Charge:        | Ang. Base        | 27.54°   | Fat.scor.pr. x     | .17             |



| Tolerance       | Medio  | Val. misur [ $\mu$ m] |    |    |    |    |    |  | Qual | Tolerance | Val. misur [ $\mu$ m] |     |     |     |     |     |     | Medio | Qual |
|-----------------|--------|-----------------------|----|----|----|----|----|--|------|-----------|-----------------------|-----|-----|-----|-----|-----|-----|-------|------|
| fHm -6±6        | -6     | Var 4                 |    |    |    |    |    |  |      | -6±6      | Var 2                 |     |     |     |     |     |     | -6    |      |
| fHa -6±10       | -6     | -6                    | -8 | -4 | -7 | -7 | -3 |  |      | -6±10     | -9                    | -7  | -6  | -6  | -7  | -5  | -6  |       |      |
| Pa              | 6      | 5                     | 6  | 6  | 5  | 6  | 9  |  |      |           | 3                     | 2   | 1   | 9   | 2   | 2   | 4   |       |      |
| fHa 4           | 4      | 3                     | 3  | 5  | 3  | 3  | 7  |  |      | 4         | 2                     | 2   | 1   | 9   | 2   | 1   | 4   |       |      |
| Ca 0/4          | 3      | 3                     | 3  | 2  | 1  | 3  | 3  |  |      |           |                       |     |     |     |     |     |     |       |      |
| fKa             | 0      | 0                     | 0  | 0  | 0  | 0  | 0  |  |      |           |                       |     |     |     |     |     |     |       |      |
| fKo             |        |                       |    |    |    |    |    |  |      |           |                       |     |     |     |     |     |     |       |      |
| 1/T- $\mu$ [mm] | 79.269 | [79.05/79.5]          |    |    |    |    |    |  |      | -22/-14   | -16                   | -19 | -17 | -18 | -18 | -18 | -18 |       |      |
|                 |        |                       |    |    |    |    |    |  |      | 89.893    | [89.84/90.1]          |     |     |     |     |     |     |       |      |



| Tolerance | Medio | Val. misur [ $\mu$ m] |    |    |   |   |   |  | Qual | Tolerance | Val. misur [ $\mu$ m] |   |   |    |    |   |    | Medio | Qual |
|-----------|-------|-----------------------|----|----|---|---|---|--|------|-----------|-----------------------|---|---|----|----|---|----|-------|------|
| fHm ±6    | 0     | Var 8                 |    |    |   |   |   |  |      | ±6        | Var 10                |   |   |    |    |   |    | -2    |      |
| fHa ±13   | 0     | 3                     | -1 | -5 | 1 | 3 | 7 |  |      | ±13       | 5                     | 3 | 0 | -7 | -6 | 1 | -2 |       |      |
| Pa        | 4     | 4                     | 3  | 5  | 2 | 4 | 6 |  |      |           | 5                     | 4 | 1 | 6  | 5  | 2 | 4  |       |      |
| fHa 4     | 1     | 1                     | 1  | 1  | 1 | 2 | 1 |  |      | 4         | 1                     | 1 | 1 | 1  | 1  | 1 | 1  |       |      |
| Ca 1/5    | 3     | 3                     | 3  | 3  | 2 | 3 | 3 |  |      | 1/5       | 2                     | 2 | 1 | 2  | 2  | 3 | 2  |       |      |
| fKa       | 4±4   | 6                     |    |    |   |   |   |  |      | 4±4       |                       |   |   |    |    |   |    |       |      |



GETRAG

## Ruota cilindrica Divisione



|                     |                   |                |                     |                  |                  |                  |
|---------------------|-------------------|----------------|---------------------|------------------|------------------|------------------|
| Nr. prog.:          | STI0410005 0      | PNC35 B4784    | Controllore:        | turno A          | Data:            | 20.05.2014 09:16 |
| Denominazione:      | ZR5               |                | Numero denti z      | 45               | Angolo pressione | 17° 59'          |
| Numero disegno.:    | 250.1.3654.36-IPA |                | Modulo m            | 1.65mm           | Angolo elicita   | 29°              |
| Commessa/serie nr.: | 5                 |                | Untersuchungszweck: | Laufende Messung |                  |                  |
| Masch.Nr.:          | M001              | Spindel: Formu | Setzeig:            |                  | Charge:          |                  |

Errori singoli di divisione fp fianco sinistro

20µm

500:1

Errore somma di divisione Fp fianco sinistro

20µm

500:1

Errori singoli di divisione fp fianco destro

20µm

500:1

Errore somma di divisione Fp fianco destro

20µm

500:1

Corso per misura divis.: 84.465 z=6.6mm

|                                   | fianco sinistro / RILASCIO |       |          |       | fianco destro / DIRE |       |          |       |
|-----------------------------------|----------------------------|-------|----------|-------|----------------------|-------|----------|-------|
|                                   | Val. misur                 | Qual. | Val. amm | Qual. | Val. misur           | Qual. | Val. amm | Qual. |
| Gr. err. singoli divisione fp max | 3                          |       | 14       |       | 10                   |       | 14       |       |
| Gr. salto di passo fu max         | 5                          |       | 18       |       | 19                   | X     | 18       |       |
| Scarto di divisione Rp            | 6                          |       |          |       | 18                   |       |          |       |
| Err. globale di divisione Fp      | 23                         |       | 50       |       | 29                   |       | 50       |       |
| Err. cordale di divisione Fpz/8   | 13                         |       |          |       | 15                   |       |          |       |

Centricità Fr (Ø-sfera =2.5mm)

⊙ : 13µm

20µm

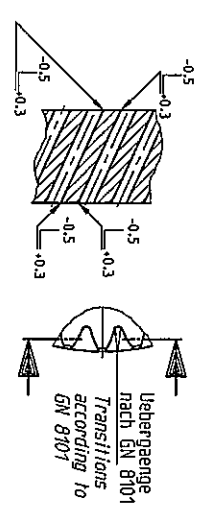
500:1

|                        |    |
|------------------------|----|
| Err. di concentricità  | Fr |
| Variaz. spessore dente | Rs |

18

32

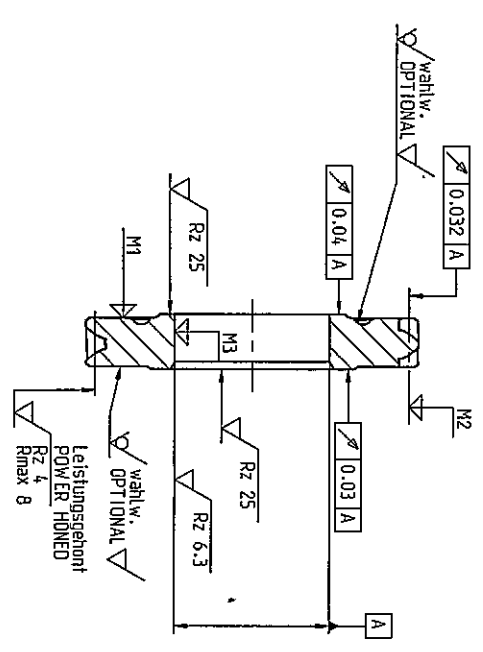
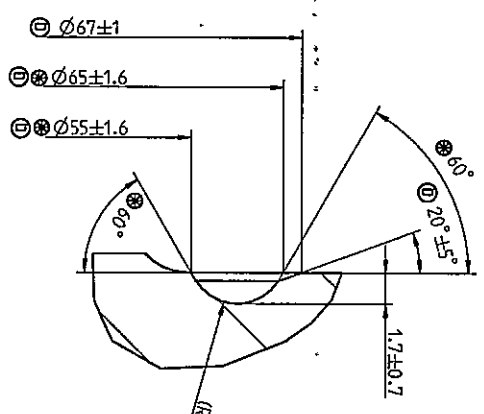




Uebergaenge  
nach GN 8101  
Transitions  
according to  
GN 8101

THE SHAFT.

1. *What is the purpose of this study?*



Technische Sauberkeit / TECHNICAL CLEANLINESS:

$$\left( \frac{\Delta R_z}{40} \right)$$
$$\begin{pmatrix} -0.3 \\ -0.1 \end{pmatrix}$$

Einsetzungshearte) und angelassen  
 M1 (überflackernhearte) : 60,5+2,5 HRA  
 M2 (Zahnflackernhearte) : CHD (EnH) 550 = 0,5+0,4  
 M3 (Bohrung) : CHD (EnH) 550 = 0,3 min.,  
 M4 (Kernhearte) : min. 300 HV10

CASE HARDENED AND TEMPERED  
 M1 (CASE HARDENESS) : 60,5+2,5 HRA  
 M2 (TOOTH FLANK) : CHD (EnH) 550 = 0,5+0,4  
 M3 (BORE) : CHD (EnH) 550 = 0,3 min.  
 M4 (INSIDE BASE OF TOOTH) : min. 300 HV10

|   |   |
|---|---|
| B | A |
|---|---|

|        |     |      |
|--------|-----|------|
| GEAR   | 2R5 | 3654 |
| <hr/>  |     |      |
| EPISON |     | 7PAP |
|        |     | t    |

|    | <u>ndk</u> |
|----|------------|
| 1) | 87.6838    |
| 2) | 82.7061    |
| 3) | 87.6858    |
| 4) | 81.6967    |
| 5) | 87.7030    |