



Part Name: All variants of IS Inner & IS Outer
 See T-Report 72544 of 27/jun/2017 attached

Cust. Part No.: See T-Report 72544 of 27/jun/2017 attached

Shown on Drawing No.: See T-Report 72544 of 27/jun/2017 attached

Org. Part No.: _____

Engineering Change Level: C000391_MIP_1

Dated: See T-Report 72544

Additional Engineering Changes: na

Dated: na

Safety and/or Government Regulation: Yes No Purchase Order No.: _____

Weight (kg): na

Checking Aid No.: na Checking Aid Engineering Change Level: na

Dated: na

ORGANIZATION MANUFACTURING INFORMATION

CUSTOMER SUBMITTAL INFORMATION

Getrag S.p.A.
 Organization Name & Supplier / Supplier Code

Via dei Ciclamini, 4
 Street Address

Modugno (Ba) Puglia 70026 Italy
 City Region Postal Code Country

Bari assembly line (GPS4)
 Customer Name / Division

na
 Buyer / Buyer Code

DCT250
 Application

MATERIALS REPORTING

Has customer-required Substances of Concern information been reported? Yes No n/a

Submitted by IMDS or other customer format: _____
 (IMDS=International Material Data System)

Are polymeric parts identified with appropriate ISO marking codes? Yes No n/a

REASON FOR SUBMISSION (Check at least one)

- Initial Submission
- Engineering Change(s)
- Tooling: Transfer, Replacement, Refurbishment, or additional
- Correction of Discrepancy
- Tooling Inactive > than 1 year
- Change to Optional Construction or Material
- Supplier or Material Source Change
- Change in Part Processing
- Parts Produced at Other or Additional Location
- Other - please specify below (e.g. additional specific customer requirement or e.g. change of EP parts)

REQUESTED SUBMISSION LEVEL (Check one)

- Level 1 - Warrant only (and for designated appearance items, an Appearance Approval Report) submitted to customer.
- Level 2 - Warrant with product samples and limited supporting data submitted to customer.
- Level 3 - Warrant with product samples and complete supporting data submitted to customer.
- Level 4 - Warrant and other requirements as defined by customer.
- Level 5 - Warrant with product samples and complete supporting data reviewed at organization's manufacturing location.

SUBMISSION RESULTS

The results for: dimensional measurements material and functional tests appearance criteria statistical process package

These results meet all drawing and specification requirements: Yes No (If "NO" - Explanation Required)

Mold / Cavity / Production Process na

DECLARATION

I hereby affirm that the samples represented by this warrant are representative of our parts which were made by a process that meets all Production Part Approval Process Manual 4th Edition Requirements. I further affirm that these samples were produced at the production rate of 1860 / 24 hours. I also certify that documented evidence of such compliance is on file and available for review. I have noted any deviations from the declaration below.

EXPLANATION / COMMENTS: - Introduction of the standard for scratch definition and measurement (already in place internally since Mar.2014).
 - Getrag standard for heat treatment measurement points has to be applied (internal standard for Heat Treatment measurement points already in place. For PPAP validation are used measurement points stated on final drawing).

Is each Customer Tool properly tagged and numbered? Yes No n/a

Organization Authorized Signature: *Camarda* Date: 21/09/2017

Print Name: Camarda Ettore Phone No.: +39 0805858220 Fax No.: _____

Title: Area 1 Manager E-Mail: ettore.camarda@magna.com

FOR CUSTOMER USE ONLY (If applicable))

Part Warrant Disposition: Approved Rejected Other _____

Customer Signature: *J. Smetacek* Date: 21.09.2017

Print Name: _____ Customer Tracking No.: _____

Change Request <input type="checkbox"/>	Change Order <input checked="" type="checkbox"/>	Initiator of Change	
Reason for Change		External: Customer <input type="checkbox"/>	
Drawings & Information Distribution		Supplier <input type="checkbox"/>	
		Internal: <input checked="" type="checkbox"/>	
Reference		Issued by:	
German change order: C000391_MIP_1 and C007684_MIP_1.		Team: BWLQ1	
		Name: M. Di Pasquale	
		Date: June, 27th 2017	
Description of Change			
# see chapter 2 #			

Distribution List	Drawings (DDA)	Change Information		Drawings (DDA)	Change Information
Issuer	<input type="checkbox"/>	<input checked="" type="checkbox"/>	BWLQ1: <i>Central Quality</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B/ELE1: <i>Product Engineering</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	BWLQ3: <i>Customer Service</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B/ELE2/3: <i>Testing</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	BWLQ2: <i>Metallurgical Laboratory</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B/WLP: <i>ME</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	B/GPS1: <i>Production line - Gears</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B/EX: <i>Program management</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	B/GPS2: <i>Production line - Shafts</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B/BLF: <i>Finance & Controlling</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	B/GPS3: <i>Housings</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B/EEL: <i>Logistics</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	B/GPS4: <i>Assembly line</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B/WLQ4: <i>SQA</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
B/WLQ4: <i>Incoming Inspection</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

Getrag Plants

DEU: <i>Untergruppenbach</i>	<input type="checkbox"/>	<input type="checkbox"/>	GEC: <i>Sterling Heights</i>	<input type="checkbox"/>	<input type="checkbox"/>
DEL: <i>Ludwigsburg</i>	<input type="checkbox"/>	<input type="checkbox"/>	GPG: <i>Charlestone</i>	<input type="checkbox"/>	<input type="checkbox"/>
DEN: <i>Neuenstein</i>	<input type="checkbox"/>	<input type="checkbox"/>	GFT: <i>Köln</i>	<input type="checkbox"/>	<input type="checkbox"/>
DER: <i>Rosenberg</i>	<input type="checkbox"/>	<input type="checkbox"/>	GFT: <i>Kechnec</i>	<input type="checkbox"/>	<input type="checkbox"/>
DEW: <i>Bad Windsheim</i>	<input type="checkbox"/>	<input type="checkbox"/>	GTC: <i>Detroit</i>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

Customers

C'HANGAN: <i>Chongqing (CN)</i>	<input type="checkbox"/>	<input type="checkbox"/>	FORD: <i>Detroit (US)</i>	<input type="checkbox"/>	<input type="checkbox"/>
CUMMINS: <i>Darlington (US)</i>	<input type="checkbox"/>	<input type="checkbox"/>	LAND ROVER: <i>Longbridge (UK)</i>	<input type="checkbox"/>	<input type="checkbox"/>
GME: <i>Rüsselsheim (DE)</i>	<input type="checkbox"/>	<input type="checkbox"/>	NAMG: <i>Longbridge (UK)</i>	<input type="checkbox"/>	<input type="checkbox"/>
GMB: <i>Saõ Paulo Brazil (BR)</i>	<input type="checkbox"/>	<input type="checkbox"/>	RENAULT: <i>Paris (FR)</i>	<input type="checkbox"/>	<input type="checkbox"/>
GM-NAO & SATURN: <i>Detroit (US)</i>	<input type="checkbox"/>	<input type="checkbox"/>	ROVER: <i>Longbridge (UK)</i>	<input type="checkbox"/>	<input type="checkbox"/>
FIAT: <i>Torino (IT)</i>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

Remarks

--

BP

1 Index

1	Index.....	2
2	Info	2
3	Material Master Modification.....	2
4	Spare parts.....	3
5	Drawing Distribution	3
6	Instructions	7
7	Breakpoint request	8

2 Info

C000391_MIP_1: During seal task force investigations showed that the seal ring surfaces of IS1&IS2 had many scratches due to manufacturing/handling/assembly processes.

With this change a clear definition of a scratch and a instruction how to measure it will be implemented.

This will help the plants to rate the shafts as OK or NOK.

C007684_MIP_1: Data clean up of BR10 drawings, parts and BOMs.

Data get the maturity level "Z".

Copy of C004032, because Bari plant was not explicitly mentioned in CO CR004032_MIP_1.

3 Material Master Modification

Material master			
Design Number	Design Name 1 / Design Name 2	Maturity	Part type
2500001700	6DCT250 Edison BR10 AP / 6DCT250 Edison BR10 AP	2	FERT
BECOMES MATURITY LEVEL Z			
2500001701	6DCT250 Edison BR10 short ratio AP / 6DCT250 Edison BR10 short ratio AP	2	FERT
BECOMES MATURITY LEVEL Z			

2500326509	CLUTCH-HOUSING PRE ASM. / Kupplungsgehaeuse vorm.	2	HALB
BECOMES MATURITY LEVEL Z			
2500845600	6DCT250 Edison BR10 short ratio ETKS AP / 6DCT250 Edison BR10 short ratio ETKS AP	2	FERT
BECOMES MATURITY LEVEL Z			
2500516409	Radsatz Zsb / GEARSET ASM	2	HALB
BECOMES MATURITY LEVEL Z			

4 Spare parts

- No impact on Spare parts -

5 Drawing Distribution

- **2506365139 INPUT SHAFT OUTER AE " n " from 25.04.2017**
(Maturity level of specification F approved)
F/8:Fit/GEOMETRIC TOLERANCES: NOTE CHANGED: WAS: NO SCRATCHES OR RUST PERMITTED WILL BE: NO RUST PERMITTED NO SCRATCHES ACCORDING 250.0.9566.00 Rev. 0 PERMITTED A/4: HARDNESS SPECIFICATION UPDATED: WAS: CASE HARDENED AND TEMPERED M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht)=0.7+0.5 M3 (BORE AFTER GRINDING). CHD (Eht)=0.2 min M4 (INSIDE BASE OF TOOTH): min 300 HV10 WILL BE: CASE HARDENED AND TEMPERED ACCORDING TO G_804002 M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5 M3 (BORE AFTER GRINDING). CHD (Eht) 550=0.2 min M4 (INSIDE BASE OF TOOTH): min 300 HV10. Getrag standard for heat treatment has to be applied. Hardness was missing for M3.
- **2506365336 INPUT SHAFT INNER AE " q " from 07.04.2017**
(Maturity level of specification F approved)
D/5:Fit/GEOMETRIC TOLERANCES: NOTE CHANGED: WAS: NO SCRATCHES OR RUST PERMITTED WILL BE: NO RUST PERMITTED NO SCRATCHES ACCORDING 250.0.9566.00 Rev. 0 PERMITTED A/6;D/5;D/8: HARDNESS SPECIFICATION UPDATED: WAS: CASE HARDENED AND TEMPERED M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5 M3 (AFTER GRINDING): CHD (Eht) 0.5 min M4 (INSIDE BASE OF TOOTH): min. 300 HV10 WILL BE: CASE HARDENED AND TEMPERED ACCORDING TO G_804002 M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5 M3/M4/M5

(AFTER GRINDING): CHD (Eht) 550 = 0.5min. M6 (INSIDE BASE OF TOOTH): min. 300 HV10.

The Getrag Standard for heat treatment has to be applied. Before M3 was used multiple times for the bearing journals.

To distinguish the measurements now every specified bearing journal gets it's own name M3/M4/M5 etc. Also hardness was missing for M3.

- **2506368235** **INPUT SHAFT INNER** **AE " f " from 07.04.2017**
(Maturity level of specification F approved)
D/5:Flt/GEOMETRIC TOLERANCES: NOTE CHANGED: WAS: NO SCRATCHES OR RUST PERMITTED WILL BE: NO RUST PERMITTED NO SCRATCHES ACCORDING 250.0.9566.00 Rev. 0 PERMITTED A/6;D/3;D/5;D/8: HARDNESS SPECIFICATION UPDATED WAS: CASE HARDENED AND TEMPERED M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 50=0.7+0.5 M3 (AFTER GRINDING): CHD (Eht) 0.5 min M4 (INSIDE BASE OF TOOTH): min. 300 HV10 WILL BE: CASE HARDENED AND TEMPERED ACCORDING TO G_804002 M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5 M3/M4/M5/M6 (AFTER GRINDING): CHD (Eht) 550 = 0.5min. M7 (INSIDE BASE OF TOOTH): min. 300 HV10. The Getrag Standard for heat treatment has to be applied. Before M3 was used multiple times for the bearing journals. To distinguish the measurements now every specified bearing journal gets it's own name M3/M4/M5/M6 etc. Also hardness was missing for M3.

- **2506388035** **INPUT SHAFT OUTER** **AE " j " from 25.04.2017**
(Maturity level of specification 3 approved)
F/8:Flt/GEOMETRIC TOLERANCES: NOTE CHANGED: WAS: NO SCRATCHES OR RUST PERMITTED WILL BE: NO RUST PERMITTED NO SCRATCHES ACCORDING 250.0.9566.00 Rev. 0 PERMITTED A/4: HARDNESS SPECIFICATION UPDATED: WAS: CASE HARDENED AND TEMPERED M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht)=0.7+0.5 M3 (BORE AFTER GRINDING). CHD (Eht)=0.2 min M4 (INSIDE BASE OF TOOTH): min 300 HV10 WILL BE: CASE HARDENED AND TEMPERED ACCORDING TO G_804002 M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5M3 (BORE AFTER GRINDING). CHD (Eht) 550=0.2 min M4 (INSIDE BASE OF TOOTH): min 300 HV10. Getrag standard for heat treatment has to be applied. Hardness was missing for M3.

- **2506428535** **INPUT SHAFT OUTER** **AE " l " from 25.04.2017**
(Maturity level of specification F approved)
F/8:Flt/GEOMETRIC TOLERANCES: NOTE CHANGED: WAS: NO SCRATCHES OR RUST PERMITTED WILL BE: NO RUST PERMITTED NO SCRATCHES ACCORDING 250.0.9566.00 Rev. 0 PERMITTED A/4: HARDNESS SPECIFICATION UPDATED: WAS: CASE HARDENED AND TEMPERED M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht)=0.7+0.5 M3 (BORE AFTER GRINDING). CHD (Eht)=0.2 min M4 (INSIDE BASE OF TOOTH): min 300 HV10 WILL BE: CASE HARDENED AND TEMPERED ACCORDING TO G_804002 M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5M3 (BORE AFTER GRINDING). CHD (Eht) 550=0.2 min M4 (INSIDE BASE OF TOOTH): min 300 HV10. Getrag standard for heat treatment has to be applied. Hardness was missing for M3.

- **2506428735** **INPUT SHAFT INNER** **AE " j " from 07.04.2017**
(Maturity level of specification F approved)
D/5:Fit/GEOMETRIC TOLERANCES: NOTE CHANGED: WAS: NO SCRATCHES OR RUST PERMITTED WILL BE: NO RUST PERMITTED NO SCRATCHES ACCORDING 250.0.9566.00 Rev. 0 PERMITTED A/6;D/3;D/5;D/8: HARDNESS SPECIFICATION UPDATED: WAS: CASE HARDENED AND TEMPERED M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 50=0.7+0.5 M3 (AFTER GRINDING): CHD (Eht) 0.5 min M4 (INSIDE BASE OF TOOTH): min. 300 HV10 WILL BE: CASE HARDENED AND TEMPERED ACCORDING TO G_804002 M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5 M3/M4/M5/M6 (AFTER GRINDING): CHD (Eht) 550 = 0.5min. M7 (INSIDE BASE OF TOOTH): min. 300 HV10. The Getrag Standard for heat treatment has to be applied. Before M3 was used multiple times for the bearing journals. To distinguish the measurements now every specified bearing journal gets it's own name M3/M4/M5/M6 etc. Also hardness was missing for M3.

- **2506428935** **INPUT SHAFT OUTER** **AE " l " from 25.04.2017**
(Maturity level of specification F approved)
F/8:Fit/GEOMETRIC TOLERANCES: NOTE CHANGED: WAS: NO SCRATCHES OR RUST PERMITTED WILL BE: NO RUST PERMITTED NO SCRATCHES ACCORDING 250.0.9566.00 Rev. 0 PERMITTED A/4: HARDNESS SPECIFICATION UPDATED: WAS: CASE HARDENED AND TEMPERED M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht)=0.7+0.5 M3 (BORE AFTER GRINDING). CHD (Eht)=0.2 min M4 (INSIDE BASE OF TOOTH): min 300 HV10 WILL BE:CASE HARDENED AND TEMPERED ACCORDING TO G_804002 M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5 M3 (BORE AFTER GRINDING). CHD (Eht) 550=0.2 min M4 (INSIDE BASE OF TOOTH): min 300 HV10. Getrag standard for heat treatment has to be applied. Hardness was missing for M3.

- **2506429135** **INPUT SHAFT INNER** **AE " j " from 07.04.2017**
(Maturity level of specification F approved)
D/5:Fit/GEOMETRIC TOLERANCES: NOTE CHANGED: WAS: NO SCRATCHES OR RUST PERMITTED WILL BE: NO RUST PERMITTED NO SCRATCHES ACCORDING 250.0.9566.00 Rev. 0 PERMITTED A/6;D/3;D/5;D/8: HARDNESS SPECIFICATION UPDATED: WAS: CASE HARDENED AND TEMPERED M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 50=0.7+0.5 M3 (AFTER GRINDING): CHD (Eht) 0.5 min M4 (INSIDE BASE OF TOOTH): min. 300 HV10 WILL BE: CASE HARDENED AND TEMPERED ACCORDING TO G_804002 M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5 M3/M4/M5/M6 (AFTER GRINDING): CHD (Eht) 550 = 0.5min. M7 (INSIDE BASE OF TOOTH): min. 300 HV10. The Getrag Standard for heat treatment has to be applied. Before M3 was used multiple times for the bearing journals. To distinguish the measurements now every specified bearing journal gets it's own name M3/M4/M5/M6 etc. Also hardness was missing for M3.

- **2506431435** **INPUT SHAFT INNER** **AE " d " from 07.04.2017**
(Maturity level of specification F approved)
D/5:Fit/GEOMETRIC TOLERANCES: NOTE CHANGED: WAS: NO SCRATCHES OR RUST PERMITTED WILL BE: NO RUST PERMITTED NO SCRATCHES ACCORDING 250.0.9566.00 Rev. 0 PERMITTED A/6;D/3;D/5;D/8: HARDNESS SPECIFICATION UPDATED: WAS: CASE HARDENED AND TEMPERED M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5 M3 (AFTER GRINDING): CHD (Eht) 0.5 min M4 (INSIDE BASE OF TOOTH): min. 300 HV10 WILL BE: CASE

HARDENED AND TEMPERED ACCORDING TO G_804002 M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5 M3/M4/M5/M6 (AFTER GRINDING): CHD (Eht) 550 = 0.5min. M7 (INSIDE BASE OF TOOTH): min. 300 HV10The Getrag Standard for heat treatment has to be applied. Before M3 was used multiple times for the bearing journals. To distinguish the measurements now every specified bearing journal gets it's own name M3/M4/M5/M6 etc. Also hardness was missing for M3.

- **2506438435** **INPUT SHAFT OUTER** **AE " b " from 07.04.2017**
(Maturity level of specification 3 approved)
F/8:Flt/GEOMETRIC TOLERANCES: NOTE CHANGED: WAS: NO SCRATCHES OR RUST PERMITTED WILL BE: NO RUST PERMITTED NO SCRATCHES ACCORDING 250.0.9566.00 Rev. 0 PERMITTED A/4: HARDNESS SPECIFICATION UPDATED: WAS: CASE HARDENED AND TEMPERED M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht)=0.7+0.5 M3 (BORE AFTER GRINDING). CHD (Eht)=0.2 min M4 (INSIDE BASE OF TOOTH): min 300 HV10 WILL BE: CASE HARDENED AND TEMPERED ACCORDING TO G_804002 M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5 M3 (BORE AFTER GRINDING). CHD (Eht) 550=0.2 min M4 (INSIDE BASE OF TOOTH): min 300 HV10. Getrag standard for heat treatment has to be applied. Hardness was missing for M3.

- **2506517835** **INPUT SHAFT INNER** **AE " d " from 07.04.2017**
(Maturity level of specification F approved)
D/5:Flt/GEOMETRIC TOLERANCES: NOTE CHANGED: WAS: NO SCRATCHES OR RUST PERMITTED WILL BE: NO RUST PERMITTED NO SCRATCHES ACCORDING 250.0.9566.00 Rev. 0 PERMITTED A/6;D/3;D/5;D/8: HARDNESS SPECIFICATION UPDATED: WAS: CASE HARDENED AND TEMPERED M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5 M3 (AFTER GRINDING): CHD (Eht) 0.5 min M4 (INSIDE BASE OF TOOTH): min. 300 HV10 WILL BE: CASE HARDENED AND TEMPERED ACCORDING TO G_804002 M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5 M3/M4/M5/M6 (AFTER GRINDING): CHD (Eht) 550 = 0.5min. M7 (INSIDE BASE OF TOOTH): min. 300 HV10The Getrag Standard for heat treatment has to be applied. Before M3 was used multiple times for the bearing journals. To distinguish the measurements now every specified bearing journal gets it's own name M3/M4/M5/M6 etc. Also hardness was missing for M3.

- **2506431235** **INPUT SHAFT OUTER** **AE " j " from 25.04.2017**
(Maturity level of specification F approved)
F/8:Flt/GEOMETRIC TOLERANCES: NOTE CHANGED: WAS: NO SCRATCHES OR RUST PERMITTED WILL BE: NO RUST PERMITTED NO SCRATCHES ACCORDING 250.0.9566.00 Rev. 0 PERMITTED A/4: HARDNESS SPECIFICATION UPDATED: WAS: CASE HARDENED AND TEMPERED M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht)=0.7+0.5 M3 (BORE AFTER GRINDING). CHD (Eht)=0.2 min M4 (INSIDE BASE OF TOOTH): min 300 HV10 WILL BE: CASE HARDENED AND TEMPERED ACCORDING TO G_804002 M1 (CASE HARDNESS): 80.5+2:5 HRA M2 (TOOTH FLANK): CHD (Eht) 550=0.7+0.5 M3 (BORE AFTER GRINDING). CHD (Eht) 550=0.2 min M4 (INSIDE BASE OF TOOTH): min 300 HV10. Getrag standard for heat treatment has to be applied. Hardness was missing for M3.

- **2506521635** **INPUT SHAFT OUTER** **AE " a " from 29.05.2017**
(Maturity level of specification F approved)
F/8:Flt/GEOMETRIC TOLERANCES: NOTE CHANGED: WAS: NO SCRATCHES OR RUST PERMITTED WILL BE: NO RUST PERMITTEDNO SCRATCHES ACCORDING 250.0.9566.00 Rev. 0 PERMITTED.
- **2500001700E** **6 speed DC Transmisson (1-7)** **AE " a " from 31.03.2017**
(Maturity level of specification Z approved)
- **2500326609** **CLUTCH-HOUSING (1-5)** **AE " a " from 31.03.2017**
(Maturity level of specification Z approved)
- **25005164XX** **Chart gearset asm. (1-3)** **AE " f " from 31.03.2017**
(Maturity level of specification 3 approved)
SHEET 1: VARIANT 250.0.5164.09 BECOMES MATURITY LEVEL Z.

6 Instructions

- The modification must be followed from all affected departments.
- The old drawing must be replaced.
- GPS2 department has to take a break point, for modification referred to:
 - 2506365139;
 - 2506365336;
 - 2506368235;
 - 2506388035;
 - 2506428535;
 - 2506428735;
 - 2506428935;
 - 2506429135;
 - 2506431435;
 - 2506438435;
 - 2506517835;
 - 2506431235;
 - 2506521635.
- Possible IMDS impact to be evaluated by B/WLQ3.
- #MTC1093#: THE CHANGE IS READY TO BE IMPLEMENTED. THE CHAMPION HAS TO MAKE SURE THAT ALL CHECK LIST ACTIVITIES ARE COMPLETE BEFORE KICKING OFF THE MODIFICATION. BREAK POINT MUST BE COMMUNICATED TO ELE1.

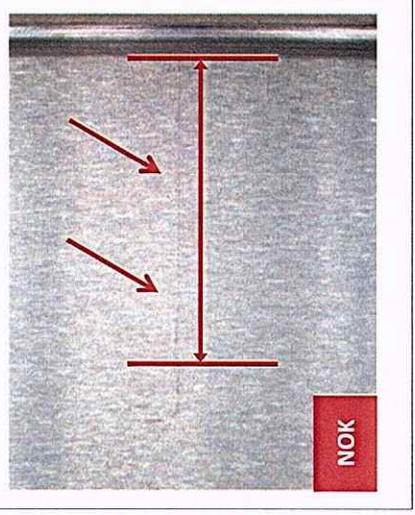
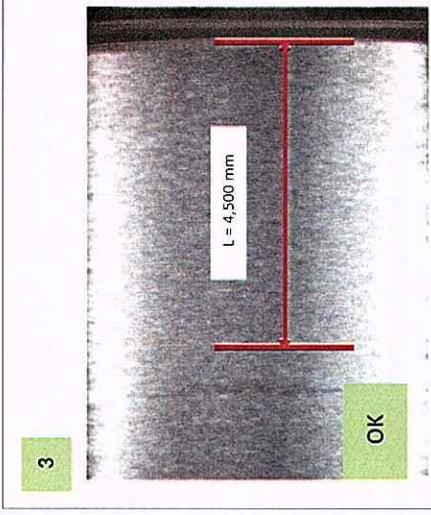
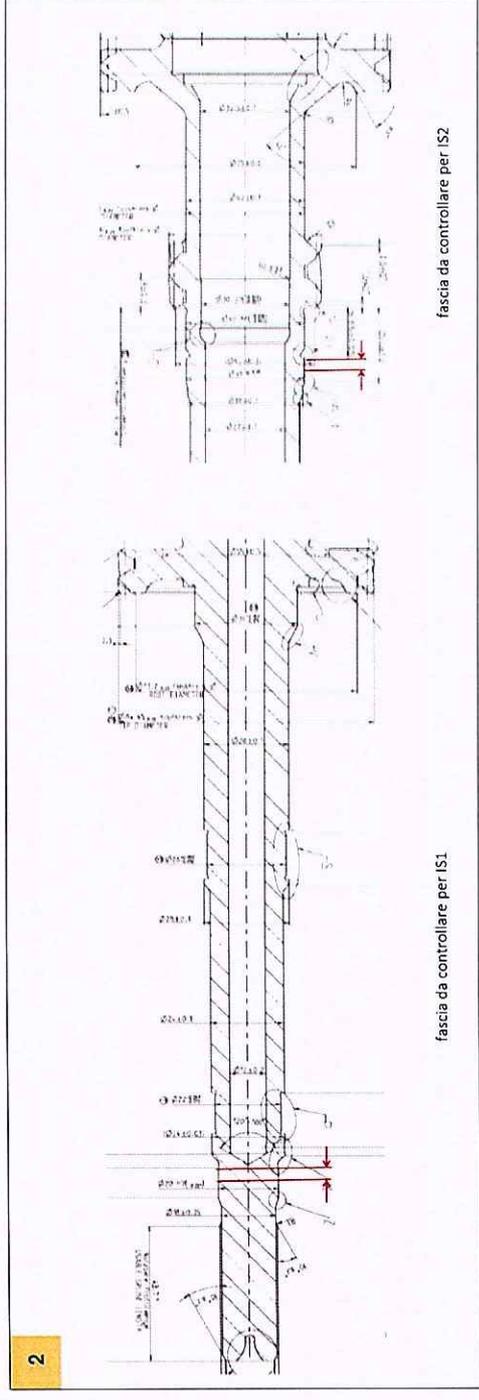
7 Breakpoint request

Data di comunicazione modifica: DATE OF THE CHANGE ORDER:		Numero di comunicazione modifica: CHANGE ORDER NUMBER:				
Codice pezzo: PART NUMBER:		Denominazione: PART NAME:				
PRODUZIONE PRODUCTION	Codice pezzo: PART NUMBER COMPONENT:					
	Data di produzione: PRODUCTION DATE:					
	Data di uscita: DELIVERY DATE:			Firma: SIGNATURE:		
MONTAGGIO ASSEMBLY	Tipo di cambio: TRANSMISSION VARIANT:					
	Data di montaggio: ASSEMBLY DATE:					
	1° numero cambio: 1ST TRANSMISSION AFFECTED BY THE CHANGE:			Firma: SIGNATURE:		
SPEDIZIONE LOGISTICS	Termine di consegna: DELIVERY DATE:					
	Data di uscita: DELIVERY DATE:			Firma: SIGNATURE:		
Osservazioni: REMARKS:						
Destinatari: DISTRIBUTION LIST:		✓			✓	
Reparto: DEPARTMENT:	GPS1	GPS2	GPS3	GPS4	ELE 1	
Data: DATE:						

Verifica profondità graffi su diametri Ø39,9 (IS2) e Ø20 (IS1)
Secondo Procedura 2500956600 Rev 0

Immagine / Spiegazione

Fase N°	Step principale	Sede man auto walk (Loghi)	Stabilimento		BARI		Data creazione	
			Reparto	Machina	GPS1 - GPS2	Stereomicroscopio	GPS-N°	Revisione-N°
	Cambio Tipo (Elementi)	00:00 min:sec	Processo (OP-N°)	Sala metrologica	Pagina	1	di	2
	Tact time (Line)	00:00 min:sec	Componente/Variante	INPUT SHAFT 1 - 2	Tipo modello	All		
	Elemento principale	(Fare riferimento a WES per fasi complesse)						
1	PULIZIA PEZZO		Pulire le superfici misurate con un panno ed evitare qualsiasi manipolazione e/o contatto con					
2	POSIZIONAMENTO		Posizionare il pezzo da controllare su apposito supporto sotto lo stereomicroscopio		Perché & Esperienza (Sicurezza - Qualità - Ambiente)			
3	RILIEVO		Il bordo esterno della linea di riferimento deve collimare con il bordo della zona rettificata (lato parte dentata). La zona da controllare è compresa tra le 2 linee, la cui distanza è pari a 4,5 mm (le linee fanno parte dell'area da controllare). Esplorare a 360° la superficie; non sono ammessi graffi o solchi di qualunque genere in questa zona. Graffi all'esterno di tale zona non si considerano.		Regolare l'illuminazione ad una intensità intermedia in modo che la luce non causi abbagliamento.			
4	VALUTAZIONE		Nel caso in cui il pezzo controllato sia esente da graffi, si può deliberare lo stesso come OK senza eseguire misure al rugosimetro.					
5	VALUTAZIONE		Nel caso in cui il pezzo presenti almeno un graffio: occorre marcare con un pennarello a punta fine il pezzo nella zona non rettificata adiacente al graffio rilevato.					



DPI necessari		Loghi		Gestione ambientale			
00:00	00:00	00:00	00:00	+	+	+	+
				Indicazioni critiche	Sicurezza	Controllo qualità	Consegne
				Costi	Inventario	Ambiente	

Foglio QPS - Approvazione, Training e storia delle modifiche

CREAZIONE / AGGIORNAMENTO (obbligatorio)		DIPENDE DALLA NORMATIVA E/O DALL'ORGANIZZAZIONE DELLO STABILIMENTO					
Responsabile del processo	Produzione *	Sicurezza	Produttività	Qualità	Ambiente	Manutenzione	Ergonomia
G. Dachille	M.Selvaggio	G. Dachille		M.Selvaggio			
Supervisore	Tecnologo di Misurazione	ASPP		tecnologo di Misurazione			
12/03/2014	12/03/2014	12/03/2014		12/03/2014			
G. Dachille	M.Selvaggio	G. Dachille		M.Selvaggio			

* Rappresentante di produzione che può essere GPS Leader o Supervisore

Attestazione di training (vedi modulo registrazione training)

Operatore	Data e firma	Operatore	Data e firma	Operatore	Data e firma	Operatore	Data e firma	Operatore	Data e firma	Operatore	Data e firma	Operatore	Data e firma
NON NECESSARIO; UTILIZZARE IL MODULO DI REGISTRAZIONE FORMAZIONE COD. G_F13_0009_07													

Storia delle modifiche

Tutte le date di attestazione del training devono essere successive alle date delle modifiche							
N°	Data	Causa della modifica	Contenuto del cambiamento	N°	Data	Causa della modifica	Contenuto del cambiamento
2	27.10.15	creato/modificato da Selvaggio M. WLO1 / Guerra F. WLQ2					
3	15.09.17	Implementazione Procedura 2500956600 Rev. 0					

Revisione annuale del foglio QPS

Verificare le seguenti fasi:

Contenuto/sequenza delle attività sono ancora validi
I valori dei tempi sono ancora validi
I tool da usare sono corretti

Data	responsabile del processo						

Inhalt

1 OBJECTIVE AND SCOPE..... 3

2 TERMS AND DEFINITIONS 3

3 MEASUREMENT ASSUMPTION AGREEMENT 3

3.1 MEASUREMENT AGREEMENT 3

3.2 SURFACE FINISH SPECIFICATION..... 3

3.3 DEFINITION OF SCRATCH WIDTH 4

3.4 DEFINITION OF MEASUREMENT METHODS AND SURFACE DEFECT (SCRATCHES) 4

3.4.1 Measuring conditions: 4

3.4.2 Measuring direction: 5

4 BACKUP INFORMATION OF MEASURING PRINCIPLE 6

4.1 DEVIATION BETWEEN DIFFERENT MEASUREMENT SPECIFICATIONS – PT VS. WT VS. PT_{FLATTENED} 6

4.1.1 Examples 7

4.1.2 Measuring examples Pt flattened vs. R 8

Document Status: approved

Release No.	Revision 0	Printed copies are uncontrolled
Author: skuenzel Department: ME. Security Classification: Confidential	Date Issued: 23.05.2014 Date Revised: 23.05.2014	Page: 2 / 10

1 OBJECTIVE AND SCOPE

This document serves a guideline for the detection of scratches on grinded sealing areas

Based on the current available measuring equipment scratches cannot be detected regarding our measurement standards (capability and repeatability)

The following instructions were developed during a leakage issue and indicates the taken actions for **dry clutch transmission input shaft sealing areas**.

2 TERMS AND DEFINITIONS

- $P_t 2xL_{scr}$ distance from peak to valley $P-V_{scr}$ (see page 4)
- R_a arithmetic mean roughness value from the amounts of all profile values
- R_{pm} average value of the five highest peaks above the median in five consecutive sample lengths taken over the assessment length of the profile
- R_{sk} skewness (positive means more peaks, negative means more valleys)
- R_{pc} peak count per 10 mm
- Lead tendency for shaft to pump oil

3 MEASUREMENT ASSUMPTION AGREEMENT

3.1 Measurement Agreement

- During measurement process for rejected parts, plants will measure according control plan

3.2 Surface Finish Specification

Specification	Lower Limit	Upper Limit
R_a	0.19	0.61
R_{pm}	0.63	2.2
R_{sk}	>-1.75	
R_{pc} (bandwidth of 0.25µm)	>150	
Lead Input shaft inner diameter	-0.05°	+0.05°
Lead Input shaft outer diameter		0.05° air to oil direction only

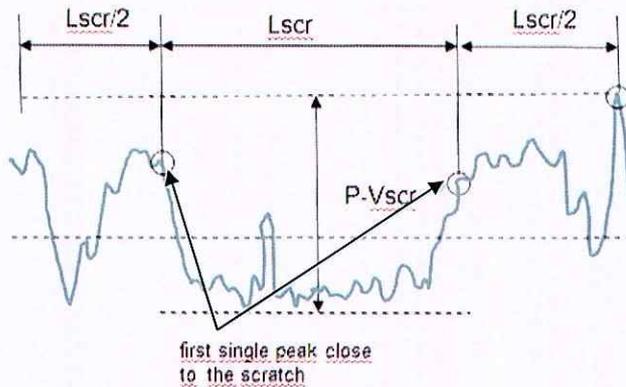
Document Status: approved

Release No.	Revision 0	Printed copies are uncontrolled
Author: skuenzel Department: ME. Security Classification: Confidential	Date Issued: 23.05.2014 Date Revised: 23.05.2014	Page: 3 / 10

3.3 Definition of scratch width

At implementation with updated quality strategy parts are required to be inspected for scratches. The depth is not measurable by the requested evaluation methods (P_t , W_t) due to the curvature effects; current equipment cannot eliminate form and waviness aspects (REFERENCE PAGE 6)

$P_{t \text{ flattened}}$ measurement (evaluation to be done manually if needed) deliver the best results with our equipment based on P_t ($2 \times L_{scr}$)



If measuring area is close to scratch for the relevant scratch section:

$$P_{t \text{ flattened}} \approx R_t \approx P-V_{scr}$$

3.4 Definition of Measurement methods and surface defect (scratches)

3.4.1 Measuring conditions:

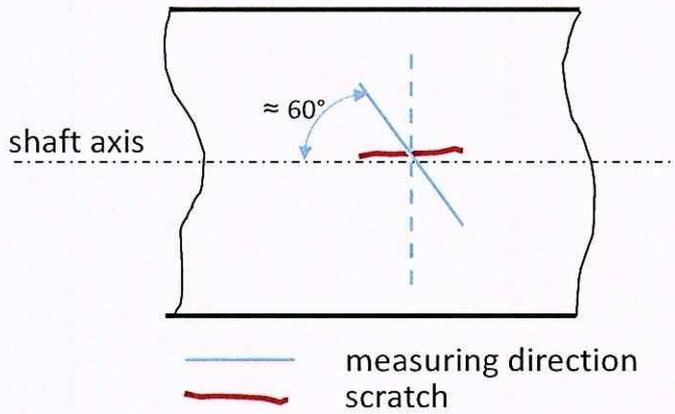
- Measuring device: Skidless roughness measuring device
- Filter, cutoff: $\lambda_c = 0,25 \text{ mm}$
- calculation length l_n : $l_n = 5 * \lambda_c = 1.25 \text{ mm}$
- measuring length l_t : $l_t = l_n + 2 * \lambda_c = 1,75 \text{ mm}$
- or $l_t = l_n + 2 * \lambda_c/2 = 1,5 \text{ mm}$

Document Status: approved

Release No.	Revision 0	Printed copies are uncontrolled
Author: skuenzel Department: ME. Security Classification: Confidential	Date Issued: 23.05.2014 Date Revised: 23.05.2014	Page: 4 / 10

3.4.2 Measuring direction:

- The main direction of scratches is close to the axis of shaft
- In the circumferential measurement, perpendicular to the scratch, the full roughness is not measurable.
- Measuring to be done in an angle of approx. 60° to the axis direction Normal to the defect.
- Not more than 60° to the axis
- In this case we detect the Roughness and the P-V scratch.

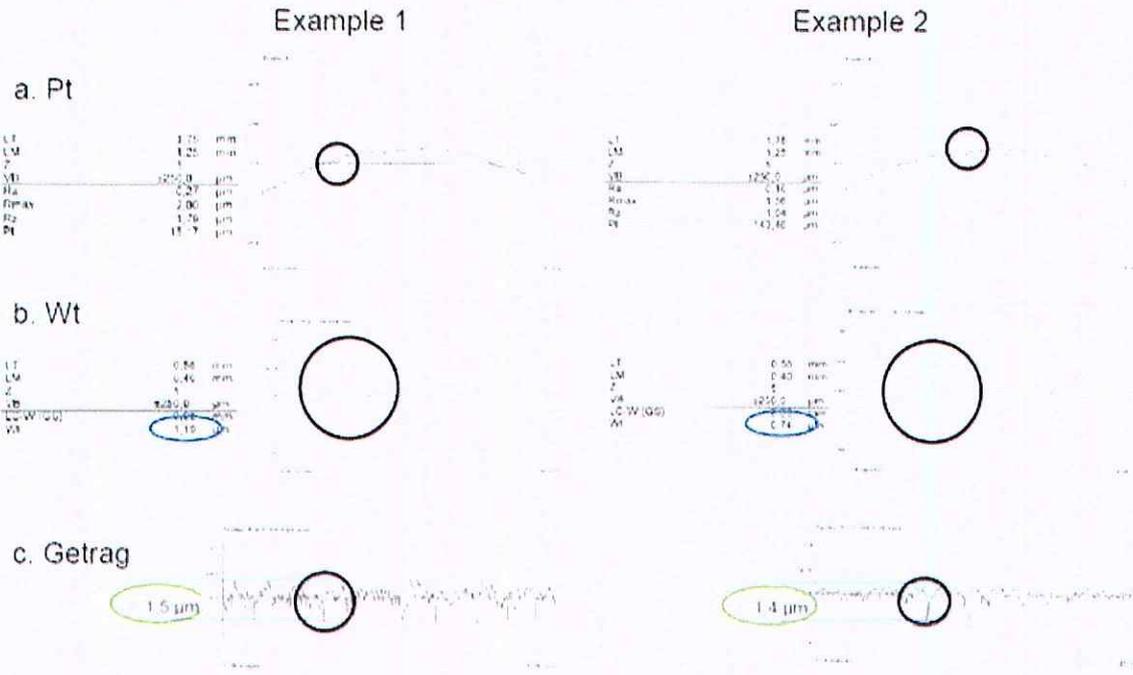


Document Status: approved

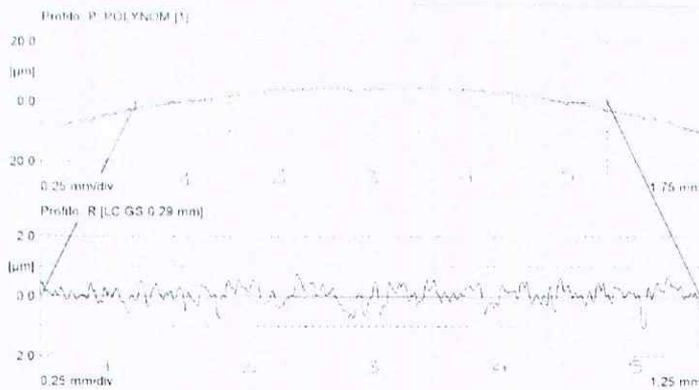
Release No.	Revision 0	Printed copies are uncontrolled
Author: skuenzel Department: ME. Security Classification: Confidential	Date Issued: 23.05.2014 Date Revised: 23.05.2014	Page: 5 / 10

4 BACKUP INFORMATION OF MEASURING PRINCIPLE

4.1 Deviation between different measurement specifications – Pt vs. Wt vs. Pt_{flattened}



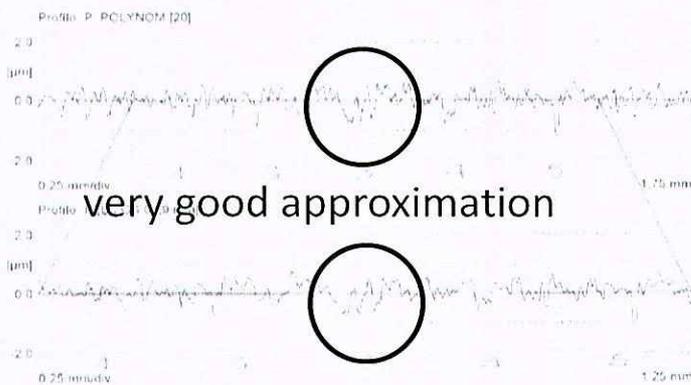
	Example 1	Example 2
Pt	na	na
Wt	1,19	0,74
Getrag	1,5	1,4



Pt flattened compared with R profile

Document Status: approved

Release No.	Revision 0	Printed copies are uncontrolled
Author: skuenzel Department: ME. Security Classification: Confidential	Date Issued: 23.05.2014 Date Revised: 23.05.2014	Page: 6 / 10

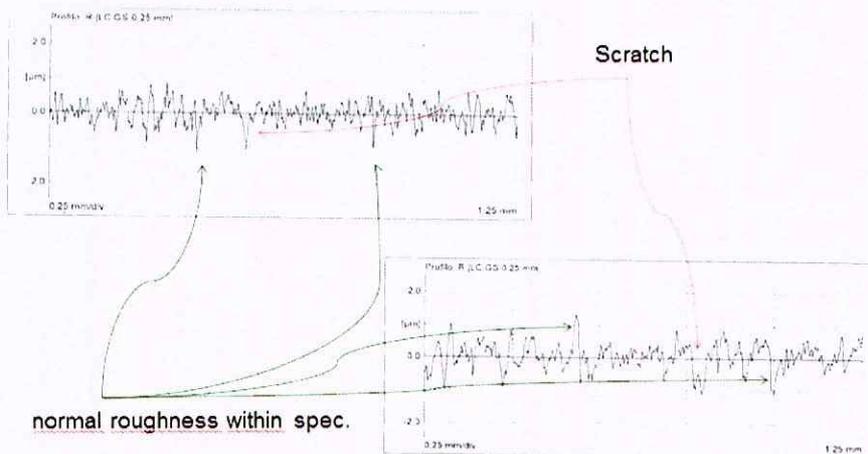
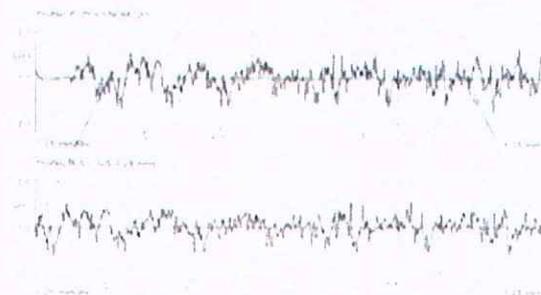
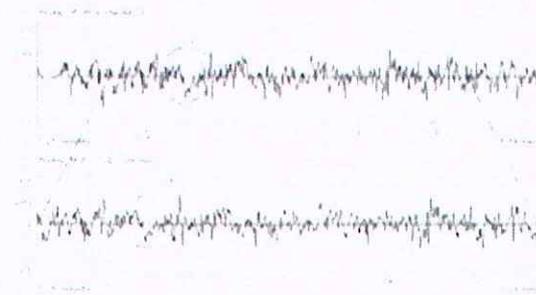


Proposed compromise to accommodate high volume process : Measure P_t in this way keeping the limit of 2μm.

4.1.1 Examples

example of a scratch whose depth is smaller than the normal defects due to just grinding operation.

example of a scratch free area whose standard ground defects are deeper than 2 μm.



Document Status: approved

Release No.	Revision 0	Printed copies are uncontrolled
Author: skuenzel Department: ME. Security Classification: Confidential	Date Issued: 23.05.2014 Date Revised: 23.05.2014	Page: 7 / 10

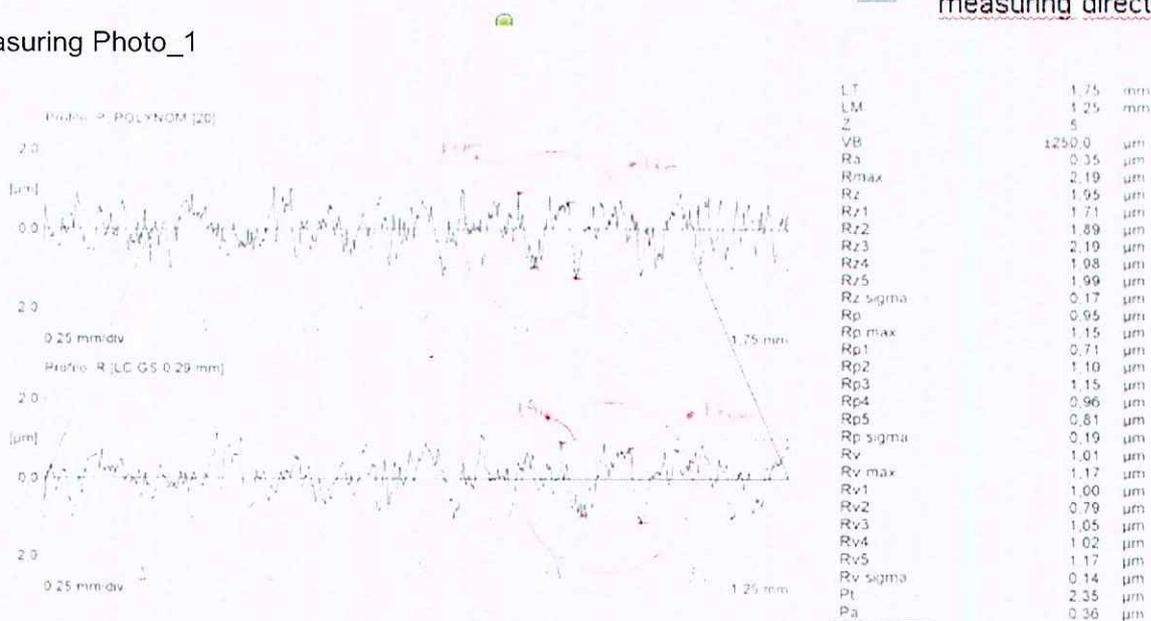
4.1.2 Measuring examples Pt flattened vs. R

Photo 1



measuring direction

Measuring Photo_1



Document Status: approved

Release No.	Revision 0	Printed copies are uncontrolled
Author: skuenzel Department: ME. Security Classification: Confidential	Date Issued: 23.05.2014 Date Revised: 23.05.2014	Page: 8 / 10

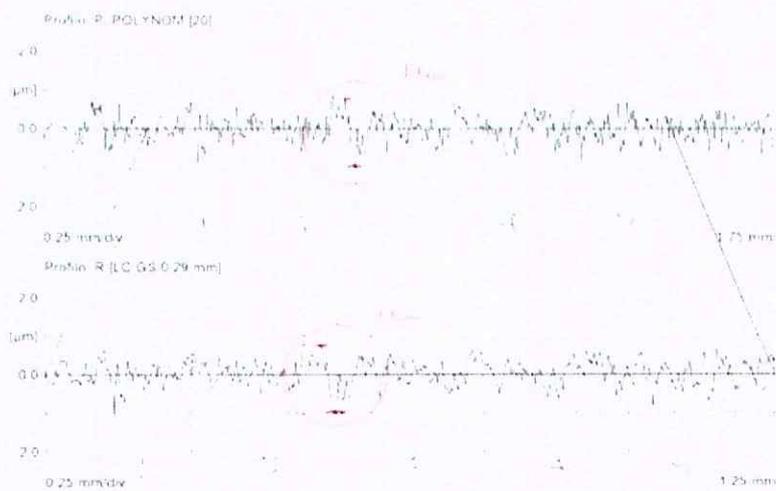
Photo 2



Document Status: approved

— measuring direction

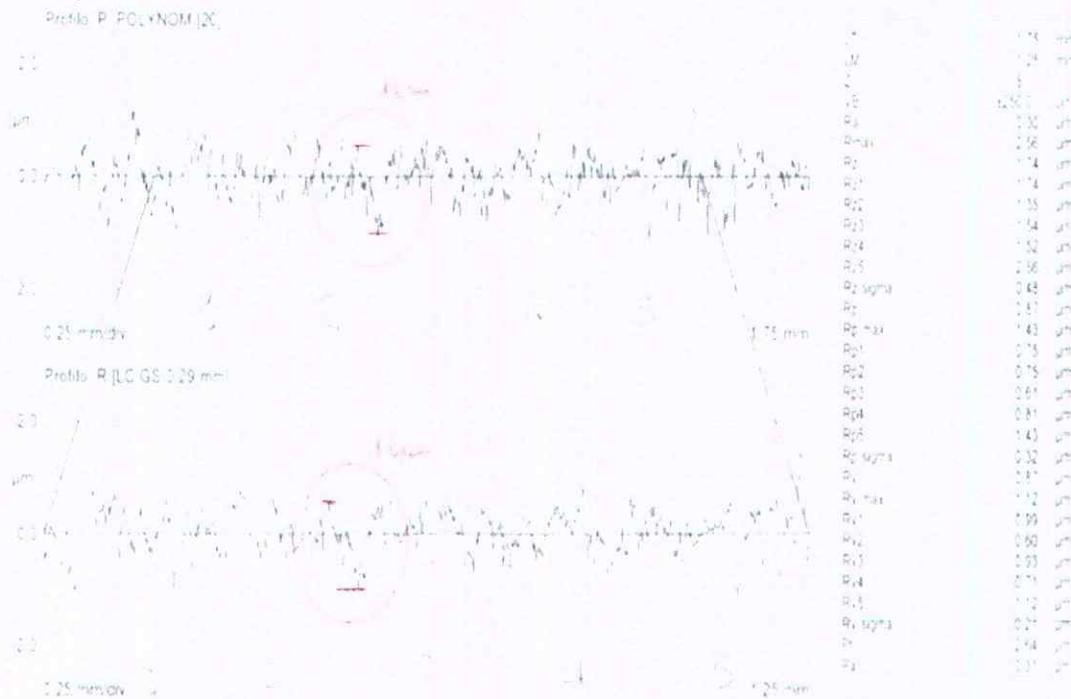
Measuring photo_2



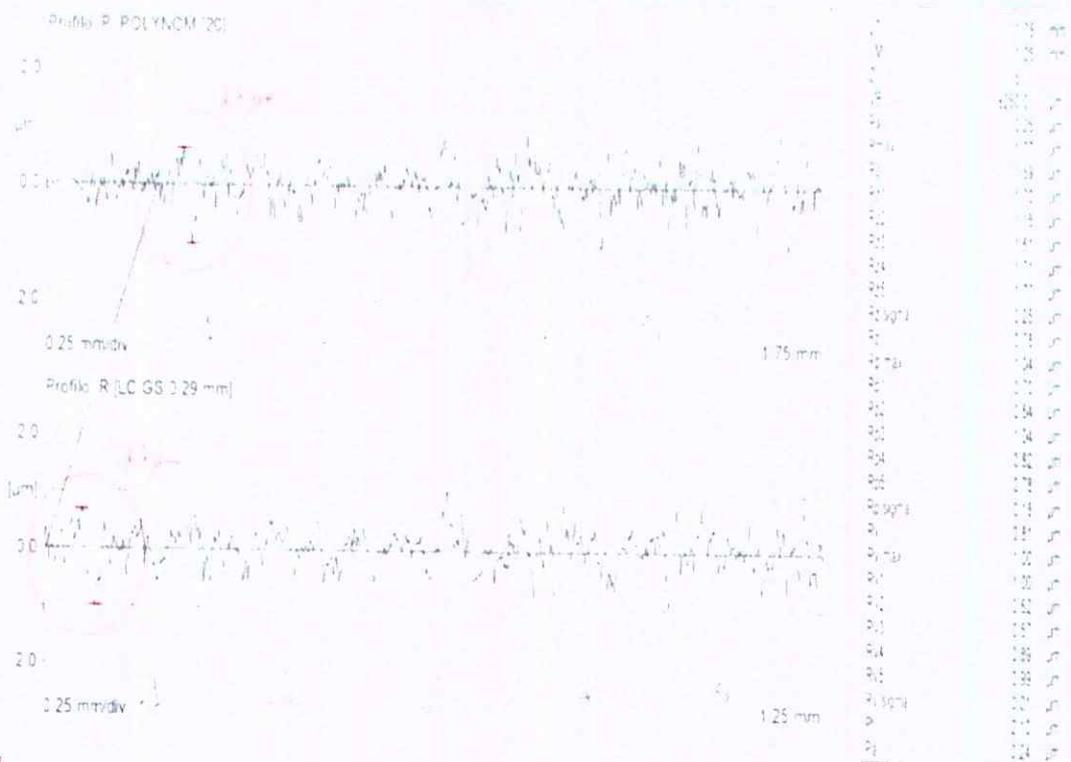
LT	1.25	mm
LM	1.25	mm
Z	5	
VB	1250.0	µm
Ra	0.25	µm
Rmax	1.75	µm
Rz	1.50	µm
Rz1	1.64	µm
Rz2	1.75	µm
Rz3	1.42	µm
Rz4	1.23	µm
Rz5	1.48	µm
Rz sigma	0.20	µm
Rp	0.65	µm
Rp max	0.80	µm
Rp1	0.64	µm
Rp2	0.80	µm
Rp3	0.60	µm
Rp4	0.58	µm
Rp5	0.64	µm
Rp sigma	0.09	µm
Rv	0.85	µm
Rv max	1.00	µm
Rv1	1.00	µm
Rv2	0.96	µm
Rv3	0.82	µm
Rv4	0.66	µm
Rv5	0.83	µm
Rv sigma	0.13	µm
Pt	1.94	µm
Pa	0.26	µm

Release No.	Revision 0	Printed copies are uncontrolled
Author: skuenzel Department: ME. Security Classification: Confidential	Date Issued: 23.05.2014 Date Revised: 23.05.2014	Page: 9 / 10

Measuring



Measuring



Document Status: approved

Release No.	Revision 0	Printed copies are uncontrolled
Author: skuenzel Department: ME. Security Classification: Confidential	Date Issued: 23.05.2014 Date Revised: 23.05.2014	Page: 10 / 10

circuiti di controllo: 1 / 2 / sala di misura

Istruzioni di controllo



PP Produzione GPS

Materiale: 2506517835
 Descrizione: Albero ingresso interno Stato: Rilasciato Produzione + Calcolo costi
 Operazione: 0250 Lavaggio finale
 Centro di lavoro: ORE12003 LAVAGGIO FINALE ALBERI
 Indice del disegno finito: 16.02.2016 / Vito Nicodemo Galassi
 Data emissione: 20.09.2017 / Vito Fiore
 Data aggiornamento:

ID interno	CLASS. CARATT	Caratteristica	Misura nomin.	LTI	LTS	Strumento di controllo	Quantità	Frequenza RK1:	Quantità	Frequenza RK2:	Quantità	Frequenza Sala di misura	Cambio ut.	Metodi di gestione / Documentazione
0002		Piano di controllo valido per tutte le varianti di alberi e/o ruote												
0010		Controllo visivo dello stato di pulizia/asciugatura secondo GN4340-1 (Pezzi privi di trucioli ed olio)					1	Cestello per turno						CR1: no documentazione
0020		Concentrazione detergente (titolazione alcalimetrica)	3,00 %	2,50	3,50	MMA 422532 Titolatore automatico					3	pz per settimana		Misu: Controllo fluidi di processo
0030		Controllo olio Totale (misura volumetrica)	0,3 %	0,0	1,0	MMA 422532 Titolatore automatico					1	pz per settimana		Misu: Controllo fluidi di processo
0040		Controllo funghi e batteri (Batteri <10e4; Funghi assenti)				MPA-450189 CAMPIONE PER LABORATORIO CHIMICO					1	pz per settimana		Misu: Controllo fluidi di processo
0050		Conducibilità	0 µS/cm	0	5000	MMA 422532 Titolatore automatico					1	pz per settimana		Misu: Controllo fluidi di processo
0060		Ph		8,9	9,4	MMA 422532 Titolatore automatico					3	pz per settimana		Misu: Controllo fluidi di processo
0064		Corrosione sec. DIN 51360-2 max 1									1	pz per settimana		Misu: Controllo fluidi di processo
0070		Verifica assenza graffi su diametro 20 IS1 secondo QPS 120026 in sala misure				MOA-450178 stereomicroscopio					1	pz. p. turno		Misu: Tabella di registrazione dati
0080		Verifica assenza graffi su diametro 39.9 IS2 secondo QPS 120026 in sala misure				MOA-450178 stereomicroscopio					1	pz. p. turno		Misu: Tabella di registrazione dati

Istruzioni di controllo

PP Produzione GPS

Materiale: 2506621635
 Descrizione: Albero ingresso esterno Stato: Rilasciato Produzione + Calcolo costi
 Indice del disegno finito:
 Data emissione: 27.06.2017 / Vitantonio Sisto
 Data aggiornamento: 15.09.2017 / Gaetano Cacciapaglia

Operazione: 0150 Rettifica completa
 Centro di lavoro: SLA15140 RETTIFICA COMPLETA IS2

n. SAP	CLASS. CARATT.	Caratteristica	Misura nomin.	LTI	LTS	Strumento di controllo	Quantità	Frequenza RK1:	Quantità	Frequenza RK2:	Quantità	Frequenza Sala di misura	Cambio ut.	Metodi di gestione / Documentazione
0012		Controllo 1° pz sec. VBZ 420_804703				MAI-414258 MACCHINA MIS. 3D ZEISS PRISMO MOA-416121 RUGOSIMETRO TIPO PRK MVZ-400249 EVOLVENTIMETRO MOA-416120 PROFILOMETRO PCV MAI-400932 APP. DI MISURAZ. LUNGHEZZA + ø. EXAMECA MAI-426110 ROTONDIMETRO						1° pz GO_V24_00 13_07 1° pz GO_V24_00 13_07 1° pz GO_V24_00 13_07 1° pz GO_V24_00 13_07 1° pz GO_V24_00 13_07 1° pz GO_V24_00 13_07	Misu: controllo primo pezzo	
0014		Controllo chimico bruciature, come indicato nel modulo di primo pezzo							1					CR2: Tabella di registrazione dati
0016		Controllo visivo bruciature, cricche, bava, gradini					1	pz. per rack / macchina						CR1: no documentazione
0018		Controllo graffi Ø 39.9 con lente 20X (Verifica secondo QPS_120026 in sala misure - tabella di registrazione dati in sala misure)				MOA-450178 stereomicroscopio			1	pz a giorno/ma ccchina				CR2: Tabella di registrazione dati
0020	M	Diametro Ø 40 k6 "D" (controllo al 100% dopo qualsiasi fermo fino a stabilizzazione processo)	40,000 mm	40,002	40,018	MAR-402481 Banco Marposs multitastatori per Øest. MAI-400932 APP. DI MISURAZ. LUNGHEZZA + ø. EXAMECA	3	pz. per rack / macchina						CR1: SPC: calcolatore di misura Misu: protocollo di misura
0022	M	Diametro Ø 35 "H" (controllo al 100% dopo qualsiasi fermo fino a stabilizzazione processo)	35,000 mm	35,011	35,022	MAR-402481 Banco Marposs multitastatori per Øest.	3	pz. per rack / macchina						CR1: SPC: calcolatore di misura Misu: protocollo di misura

Istruzioni di controllo



PP Produzione GPS

Materiale: 2506521635

Descrizione: Albero ingresso esterno

Operazione: 0150 Rettifica completa

Centro di lavoro: SLA15140 RETTIFICA COMPLETA IS2

Indice del disegno finito:

Data emissione:

Data aggiornamento:

27.06.2017 / Vitantonio Sisto

15.09.2017 / Gaetano Cacciapaglia

Stato: Rilasciato Produzione + Calcolo costi

n. S/P	CLASS. CARATT	Caratteristica	Misura nomin.	LTI	LTS	Strumento di controllo	Quantità	Frequenza RK1:	Quantità	Frequenza RK2:	Quantità	Frequenza Sala di misura	Cambio ut.	Metodi di gestione / Documentazione
0024	M	Diametro Ø 39 "E" (controllo al 100% dopo qualsiasi fermo fino a stabilizzazione processo)	39,900 mm	39,900	39,950	MAI-400932 APP. DI MISURAZ. LUNGHEZZA + ø. EXAMECA MAR-402481 Banco Marposs multitastatori per Øest.	3	pz. per rack / macchina				pz a turno/mac.		CR1: SPC: calcolatore di misura Misu: protocollo di misura
0026	M	Diametro Ø 49 G6 "A"	49,000 mm	49,009	49,025	MAI-400932 APP. DI MISURAZ. LUNGHEZZA + ø. EXAMECA MZA-450311 Calcolatore di misura E9066 Marposs new	1	100% di pezzi				pz a turno/mac.		CR1: calcolatore di misura Misu: protocollo di misura
0028	M	Diametro Ø 30 G7 "K"	30,000 mm	30,007	30,028	MAI-414258 MACCHINA MIS. 3D ZEISS PRISMO MZA-450311 Calcolatore di misura E9066 Marposs new	1	100% di pezzi				pz a turno/mac.		CR1: calcolatore di misura Misu: protocollo di misura
0030	M	Diametro Ø 26 G7 "F"	26,000 mm	26,007	26,028	MAI-414258 MACCHINA MIS. 3D ZEISS PRISMO MZA-450311 Calcolatore di misura E9066 Marposs new	1	100% di pezzi				pz a turno/mac.		CR1: calcolatore di misura Misu: protocollo di misura
0044	M	Lunghezza 86,63 sul ø44	86,630 mm	86,605	86,655	MAI-414258 MACCHINA MIS. 3D ZEISS PRISMO MZA-450311 Calcolatore di misura E9066 Marposs new	1	100% di pezzi				pz a turno/mac.		CR1: calcolatore di misura Misu: protocollo di misura
0046		Lunghezza 98,6 +/-0.2	98,600 mm	98,400	98,800	MAI-416129 ALTIMETRO MILLESIMALE MAHR	1	pz a cambio utensile						CR1: no documentazione

Istruzioni di controllo

PP Produzione GPS

Materiale: 2506521635

Descrizione: Albero ingresso esterno

Operazione: 0150 Rettifica completa

Centro di lavoro: SLA15140 RETTIFICA COMPLETA IS2

Indice del disegno finito:

Data emissione:

Data aggiornamento:

Stato: Rilasciato Produzione + Calcolo costi

27.06.2017 / Vitantonio Sisto

15.09.2017 / Gaetano Cacciapaglia

n. SAP	CLASS. CARATT	Caratteristica	Misura nomin.	LTI	LTS	Strumento di controllo	Quantità	Frequenza RK1:	Quantità	Frequenza RK2:	Quantità	Frequenza Sala di misura	Cambio ut.	Metodi di gestione / Documentazione
0120		Lunghezza 80,95	80,950 mm	80,850	81,050	MAI-416129 ALTIMETRO MILLESIMALE MAHR	1	pz ogni 2 Racks						CR1: no documentazione
0130		Oscillazione radiale A-B Ø 40	0,000 mm		0,020	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.		Misu: protocollo di misura
0140		Parallelismo Ø 40 "D"	0,000 mm		0,006	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.		Misu: protocollo di misura
0150		Circolarità Ø 40	0,000 mm		0,004	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.		Misu: protocollo di misura
0160		Oscillazione radiale A-B Ø 39,9	0,000 mm		0,020	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.		Misu: protocollo di misura
0170		Parallelismo Ø 39,9 "E"	0,000 mm		0,006	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.		Misu: protocollo di misura
0180		Circolarità Ø 39,9	0,000 mm		0,004	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.		Misu: protocollo di misura
0190		Parallelismo Ø 35 "H"	0,000 mm		0,006	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.		Misu: protocollo di misura
0200		Circolarità Ø 35	0,000 mm		0,004	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.		Misu: protocollo di misura
0210		Rettilinearità Ø 35	0,000 mm		0,006	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.		Misu: protocollo di misura
0220		Parallelismo Ø 49 "A"	0,000 mm		0,006	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.	X	Misu: protocollo di misura
0230		Circolarità Ø 49	0,000 mm		0,004	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.	X	Misu: protocollo di misura

Istruzioni di controllo

PP Produzione GPS

Materiale: 2506521635
 Descrizione: Albero ingresso esterno Stato: Rilasciato Produzione + Calcolo costi
 Indice del disegno finito:
 Data emissione: 27.06.2017 / Vitantonio Sisto
 Data aggiornamento: 15.09.2017 / Gaetano Cacciapaglia

Operazione: 0150 Rettifica completa
 Centro di lavoro: SLA15140 RETTIFICA COMPLETA IS2

n. SAP ID interno	CLASS.CARATT	Caratteristica	Misura nomin.	LTI	LTS	Strumento di controllo	Quantità	Frequenza RK1:	Quantità	Frequenza RK2:	Quantità	Frequenza Sala di misura	Cambio ut.	Metodi di gestione / Documentazione
0240		Rettilinearità Ø 49	0,000 mm		0,004	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.	X	Misu: protocollo di misura
0250		Oscillazione radiale A-B Ø 30	0,000 mm		0,020	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.		Misu: protocollo di misura
0260		Parallelismo Ø 30 "K"	0,000 mm		0,006	MVZ-471048 P26 KLINGELBERG (EV+3D)					1	pz a turno/mac.	X	Misu: protocollo di misura
0270		Circolarità Ø 30	0,000 mm		0,005	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.	X	Misu: protocollo di misura
0280		Rettilinearità Ø 30	0,000 mm		0,004	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.	X	Misu: protocollo di misura
0290		Oscillazione rad. A-B Ø 26	0,000 mm		0,020	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.	X	Misu: protocollo di misura
0300		Parallelismo Ø 26 "F"	0,000 mm		0,006	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.	X	Misu: protocollo di misura
0310		Circolarità Ø 26	0,000 mm		0,005	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.	X	Misu: protocollo di misura
0320		Rettilinearità Ø 26	0,000 mm		0,004	MAI-426110 ROTONDIMETRO					1	pz a turno/mac.	X	Misu: protocollo di misura
0330		Rugosità Rz Ø 49	0,0 µm		2,0	MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a turno/mac.	X	Misu: protocollo di misura
0340		Rugosità Rmax Ø 49	0,0 µm		3,2	MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a turno/mac.	X	Misu: protocollo di misura
0350		Rugosità Rz Ø 26	0,0 µm		3,0	MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a turno/mac.	X	Misu: protocollo di misura

Istruzioni di controllo

PP Produzione GPS

Materiale: 2506521635
 Descrizione: Albero ingresso esterno Stato: Rilasciato Produzione + Calcolo costi
 Indice del disegno finito:
 Data emissione: 27.06.2017 / Vitantonio Sisto
 Data aggiornamento: 15.09.2017 / Gaetano Cacciapaglia

Operazione: 0150 Rettifica completa
 Centro di lavoro: SLA15140 RETTIFICA COMPLETA IS2

n. SAP ID Item	CLASS.CARATT	Caratteristica	Misura nomin.	LTI	LTS	Strumento di controllo	Quantità	Frequenza RK1:	Quantità	Frequenza RK2:	Quantità	Frequenza Sala di misura	Cambio ut.	Metodi di gestione / Documentazione
0360		Rugosità Rmax Ø 26	0,0 µm		4,0	MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a turno/mac.	X	Misu: protocollo di misura
0370		Rugosità Rz Ø 30	0,0 µm		3,0	MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a turno/mac.	X	Misu: protocollo di misura
0380		Rugosità Rmax Ø 30	0,0 µm		4,0	MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a turno/mac.	X	Misu: protocollo di misura
0390		Rugosità Rz Ø 40	0,0 µm		6,3	MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a turno/mac.	X	Misu: protocollo di misura
0400		Rugosità Rz Ø 35	0,0 µm		6,3	MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a turno/mac.	X	Misu: protocollo di misura
0410		Oscillazione assiale A-B part. "T"	0,000 mm		0,010	MAI-414258 MACCHINA MIS. 3D ZEISS PRISMO					1	pz a turno/mac.		Misu: protocollo di misura
0420		Rugosità Rz part. "T"	0,0 µm		4,0	MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a turno/mac.	X	Misu: protocollo di misura
0430		Rugosità Rmax part. "T"	0,0 µm		6,3	MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a turno/mac.		Misu: protocollo di misura
0440		Angolo part. "T"	90,50 deg	90,35	90,65	MAI-414258 MACCHINA MIS. 3D ZEISS PRISMO					1	pz a turno/mac.		Misu: protocollo di misura
0450		Oscillazione radiale Fr ruota 0.045	0,000 mm		0,045	MVZ-400249 EVOLVENTIMETRO					1	pz a turno/mac.		Misu: protocollo di misura
0460		Oscillazione radiale spline 0.05	0,000 mm		0,050	MVZ-400249 EVOLVENTIMETRO					1	pz a turno/mac.		Misu: protocollo di misura
0470		Oscillazione assiale A-B part. "U"	0,020 mm		0,020	MAI-414258 MACCHINA MIS. 3D ZEISS PRISMO					1	pz a turno/mac.		Misu: protocollo di misura

Istruzioni di controllo

PP Produzione GPS

Materiale: 2506521635
 Descrizione: Albero ingresso esterno
 Stato: Rilasciato Produzione + Calcolo costi
 Indice del disegno finito:
 Data emissione: 27.06.2017 / Vitantonio Sisto
 Centro di lavoro: SLA15140 RETTIFICA COMPLETA IS2
 Data aggiornamento: 15.09.2017 / Gaetano Cacciapaglia

n. Sg. interno	CLASS. CARATT	Caratteristica	Misura nomin.	LTI	LTS	Strumento di controllo	Quantità	Frequenza RK1:	Quantità	Frequenza RK2:	Quantità	Frequenza Sala di misura	Cambio ut.	Metodi di gestione / Documentazione
0480		Rugosità Rz della spalla part. "U"	µm		25,0	MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a cambio utensile	X	Misu: protocollo di misura
0490		Prova di tenuta "Drill" su Ø39.9 Secondo ES-YC3W-4851-AC (N.B.cambio utensile significa mola e/o diamante diametri esterni)	0,00 deg	0,00	0,05	MOA-450172 Elicometro per prova "Drill" IS1 e IS2	1	pz a giorno/maccchina	1	pz a cambio utensile				CR1: carta x valori singoli CR2: carta x valori singoli
0500		Rugosità Ra Ø 39.9 ES-YC3W-4851-AC	0,40	0,19	0,61	MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a turno/mac.	X	Misu: protocollo di misura
0510		Rugosità Rpm Ø 39.9 ES-YC3W-4851-AC	1,415	0,630	2,200	MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a turno/mac.	X	Misu: protocollo di misura
0520		Rugosità Rsk > -1,75 Ø 39.9 ES-YC3W-4851-AC	-1,750			MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a turno/mac.	X	Misu: protocollo di misura
0530		Rugosità Rpc > 150 pks/cm a 90° Ø 39.9 ES-YC3W-4851-AC	150			MOA-416121 RUGOSIMETRO TIPO PRK					1	pz a turno/mac.	X	Misu: protocollo di misura
0540		Analisi di fourier Ø 49 R=6 K=0.6 n0=0.7				MAI-426110 ROTONDIMETRO					1	pz a turno/mac.		Misu: protocollo di misura



Componente: INPUT SHAFT 1
Tecnologia: SEAL LEAK
Sequenza Diametri: Ø 20_Pos_60°

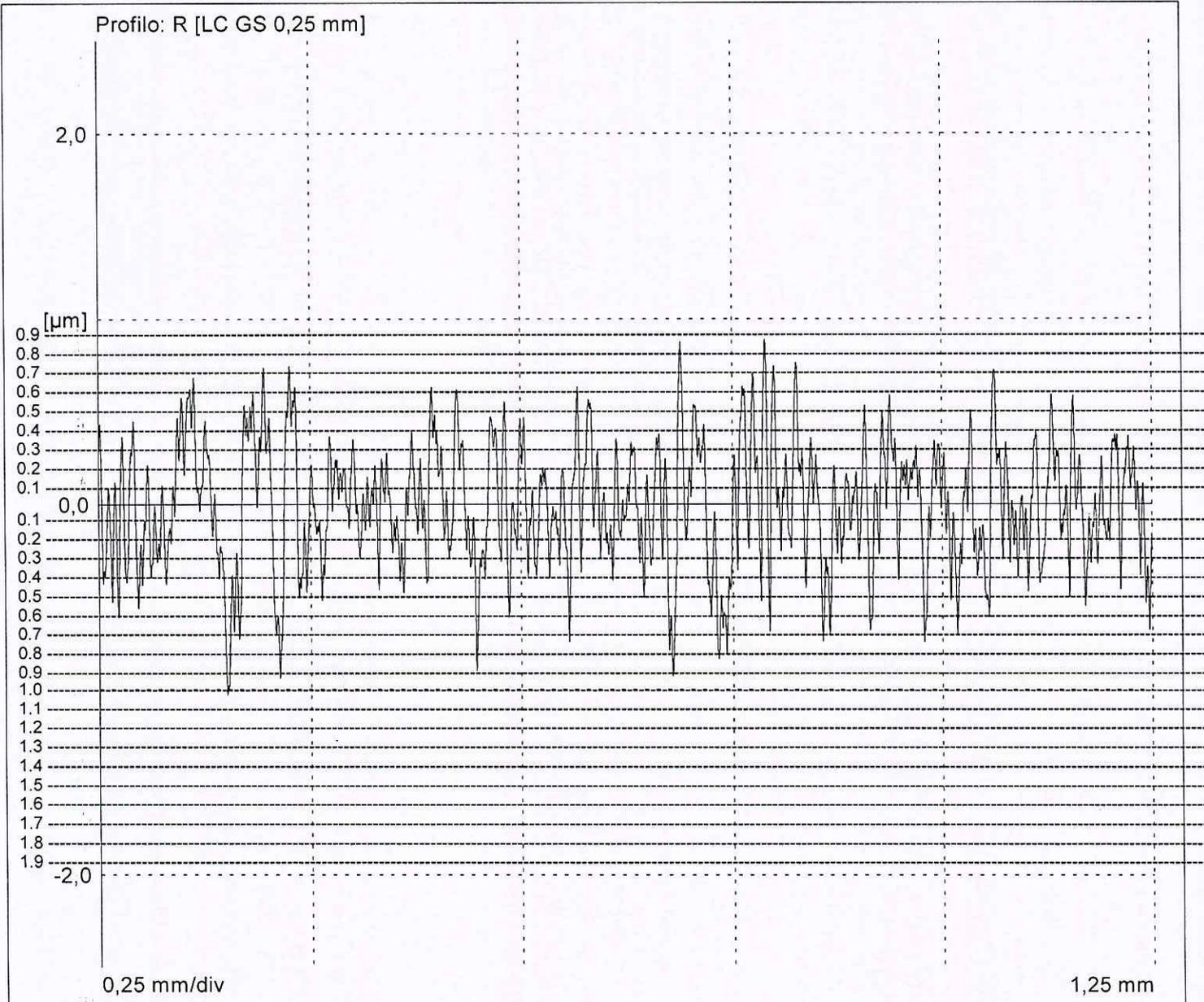
Via dei Ciclamini, 4 Modugno (BA)

Numero: 5178 PZ N.1
Operatore: TURNO C
Data, ora: 21/09/2017, 08:23
Nota: Ø 20
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210460.PCD

Sala Metrologica GPS1-2

PARAMETRI GENERALI

LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



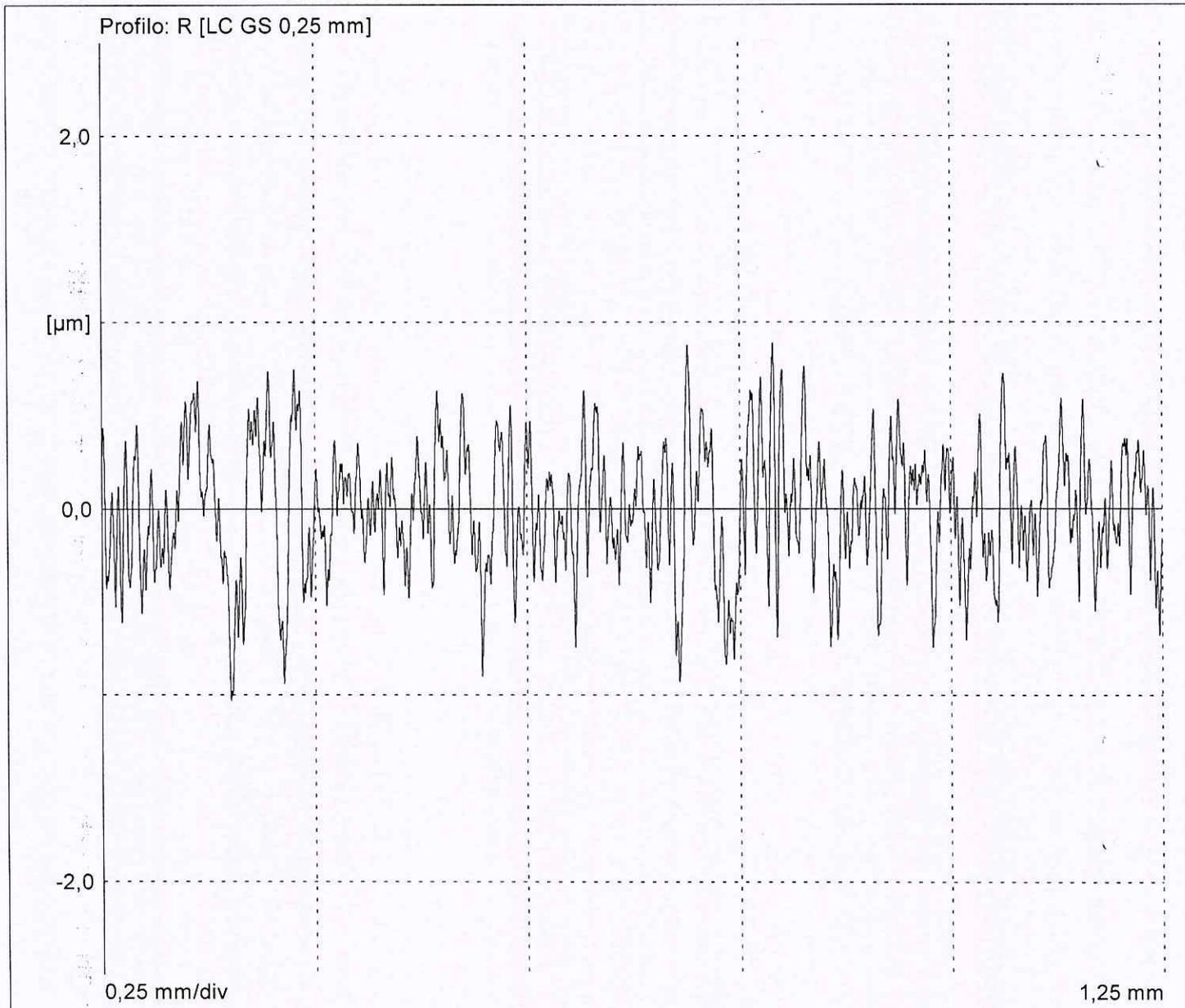
Ø 20mm 60°	
Rmax	1,81 µm 0,00 2,00
Ø 20mm Rz_Rmax Singolo Step	
Rz1	1,78 µm
Rz2	1,53 µm
Rz3	1,81 µm
Rz4	1,63 µm
Rz5	1,43 µm
Rz sigma	0,16 µm

Via dei Ciclamini, 4 Modugno (BA)

Numero: 5178 PZ N.1
Operatore: TURNO C
Data, ora: 21/09/2017, 08:23
Nota: Ø 20
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210460.PCD

Sala Metrologica GPS1-2

PARAMETRI GENERALI		
LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 20mm 60°		
Rmax	1,81 µm	0,00 [REDACTED] 2,00

Ø 20mm Rz_Rmax Singolo Step	
Rz1	1,78 µm
Rz2	1,53 µm
Rz3	1,81 µm
Rz4	1,63 µm
Rz5	1,43 µm
Rz sigma	0,16 µm



Componente: INPUT SHAFT 1
Tecnologia: SEAL LEAK
Sequenza Diametri: Ø 20_Pos_60°

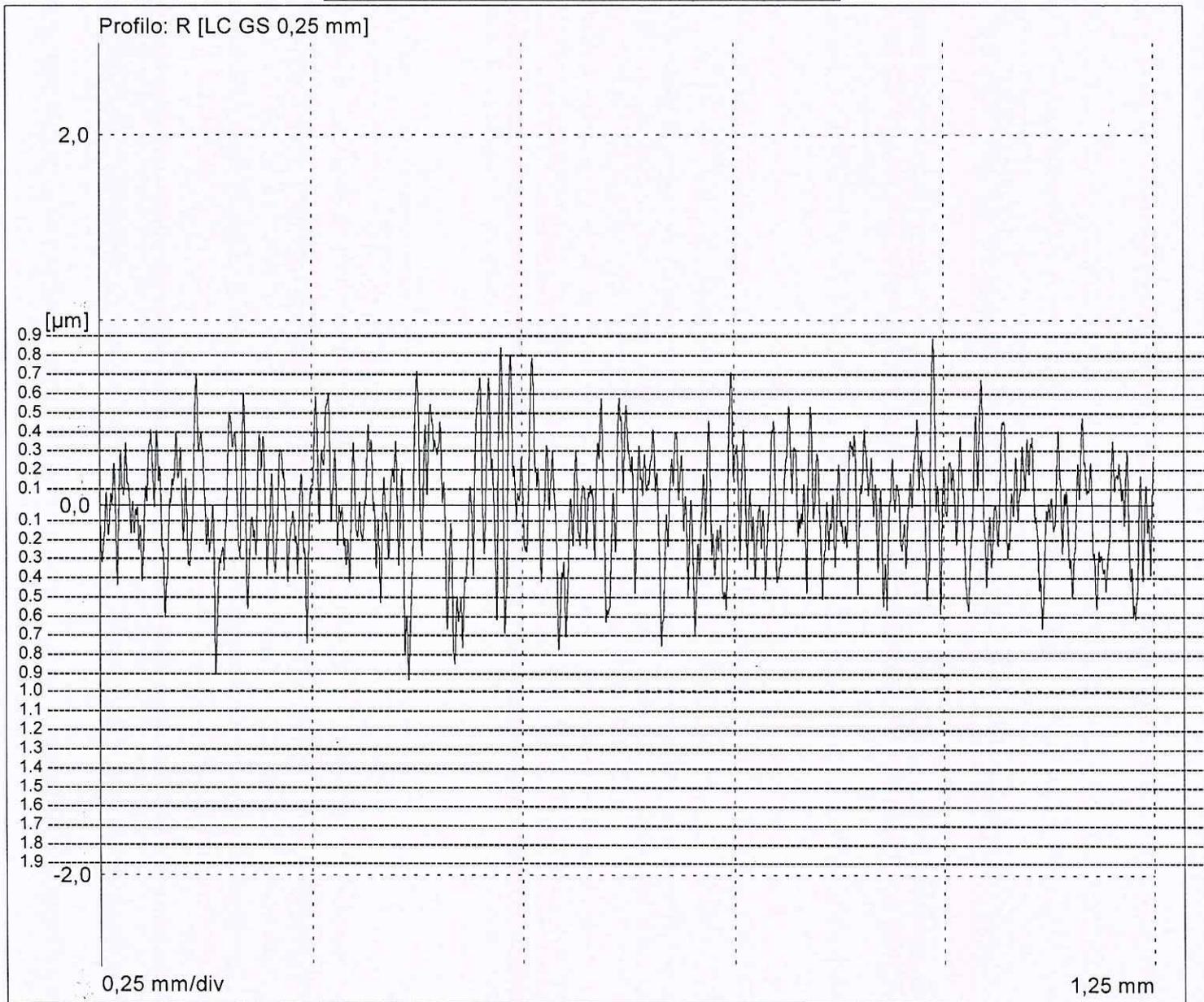
Via dei Ciclamini, 4 Modugno (BA)

Sala Metrologica GPS1-2

Numero: 5178 PZ N.2
Operatore: TURNO C
Data, ora: 21/09/2017, 08:25
Nota: Ø 20
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210462.PCD

PARAMETRI GENERALI

LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



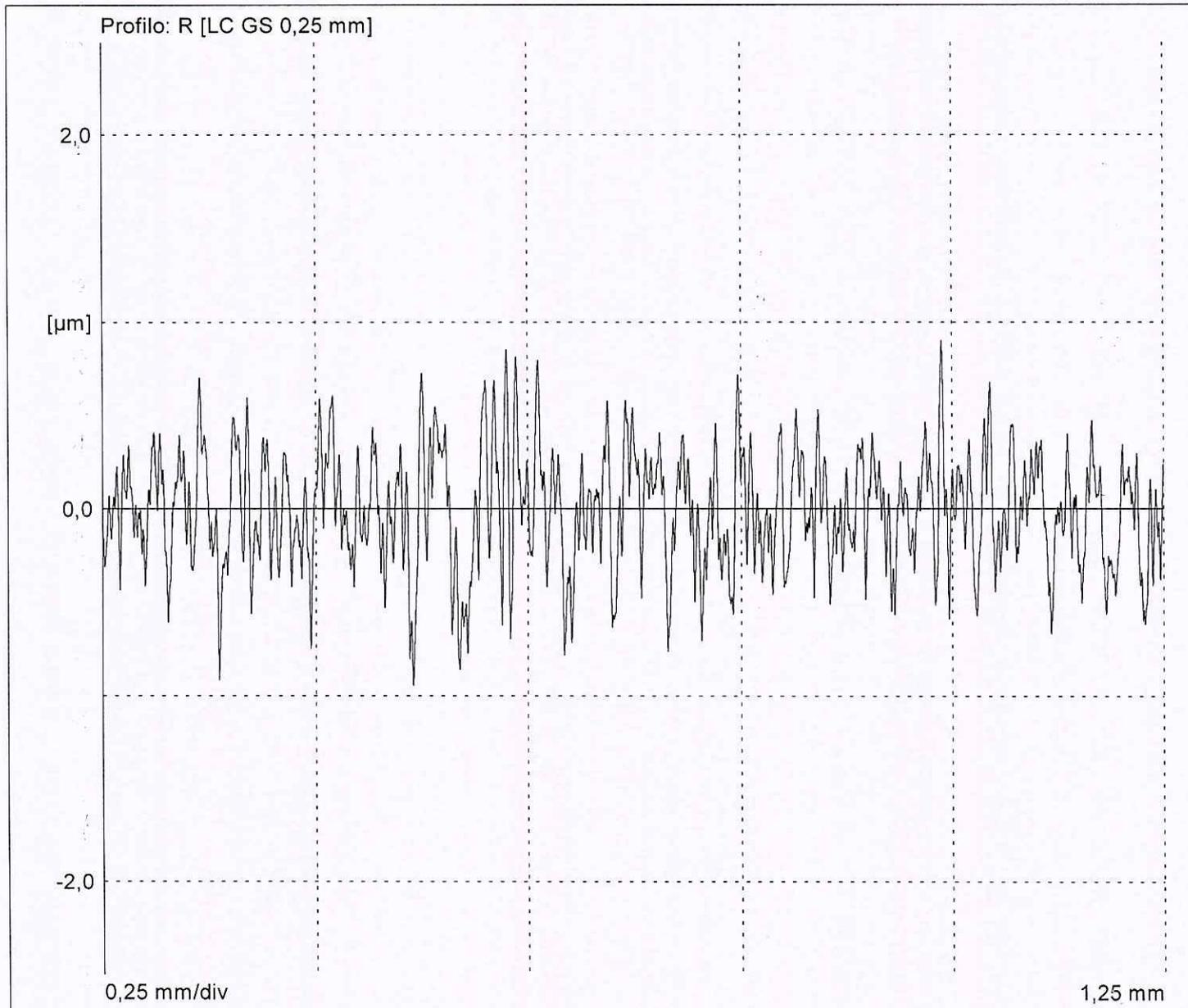
Ø 20mm 60°	
Rmax	1,80 µm 0,00  2,00
Ø 20mm Rz_Rmax Singolo Step	
Rz1	1,62 µm
Rz2	1,80 µm
Rz3	1,58 µm
Rz4	1,49 µm
Rz5	1,35 µm
Rz sigma	0,17 µm

Via dei Ciclamini, 4 Modugno (BA)

Numero: 5178 PZ N.2
Operatore: TURNO C
Data, ora: 21/09/2017, 08:25
Nota: Ø 20
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210462.PCD

Sala Metrologica GPS1-2

PARAMETRI GENERALI		
LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 20mm 60°		
Rmax	1,80 µm	0,00 ██████████ 2,00

Ø 20mm Rz_Rmax Singolo Step	
Rz1	1,62 µm
Rz2	1,80 µm
Rz3	1,58 µm
Rz4	1,49 µm
Rz5	1,35 µm
Rz sigma	0,17 µm

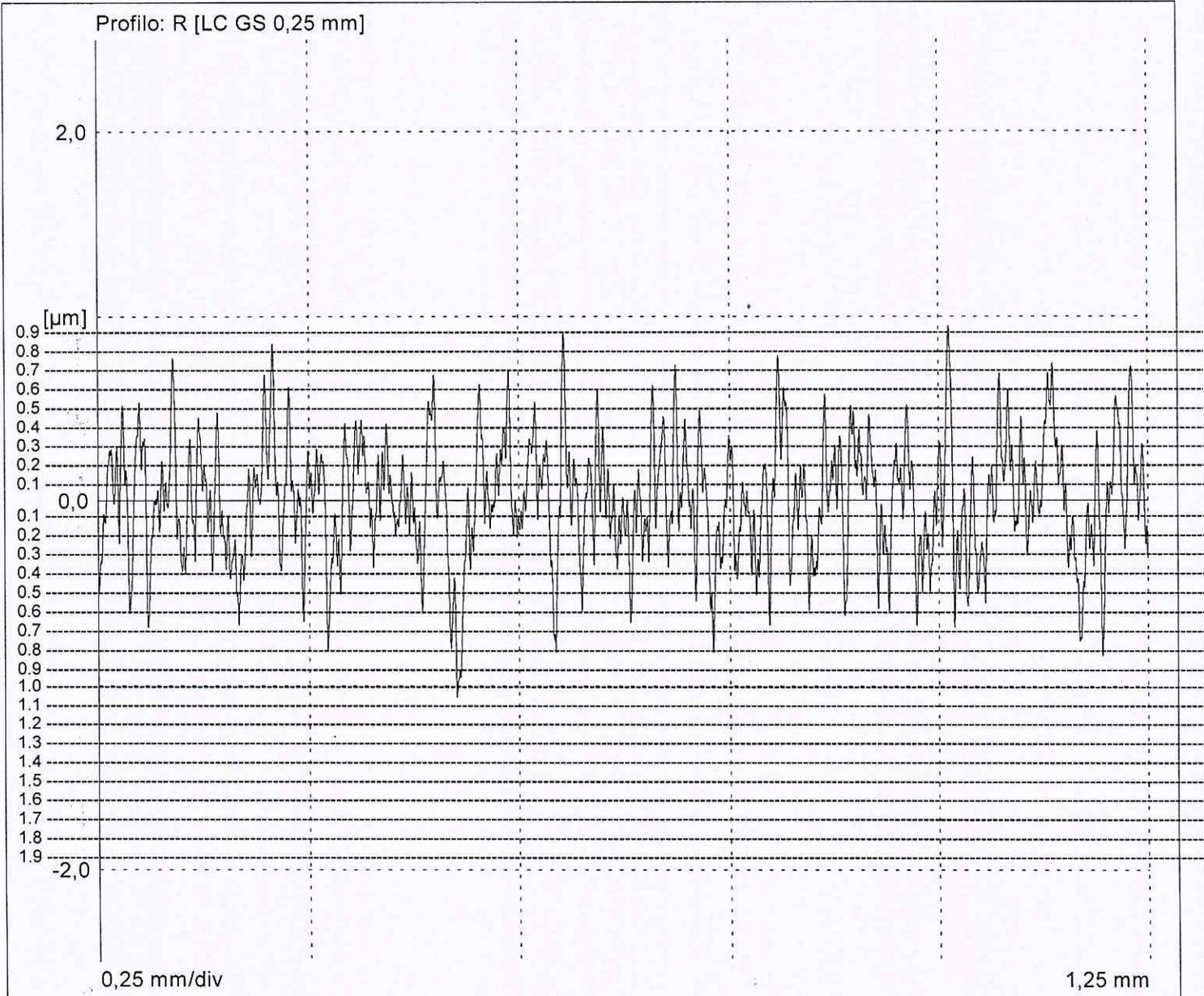


Via dei Ciclamini, 4 Modugno (BA)

Sala Metrologica GPS1-2

Componente:	INPUT SHAFT 1
Tecnologia:	SEAL LEAK
Sequenza Diametri:	Ø 20_Pos_60°
Numero:	5178 PZ N.3
Operatore:	TURNO C
Data, ora:	21/09/2017, 08:28
Nota:	Ø 20
Tastatore:	MFW-250 -30
Nome file:	C:\PROGRA~1\MAHR\PERTHO~1\4210467.PCD

PARAMETRI GENERALI		
LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250,0	µm



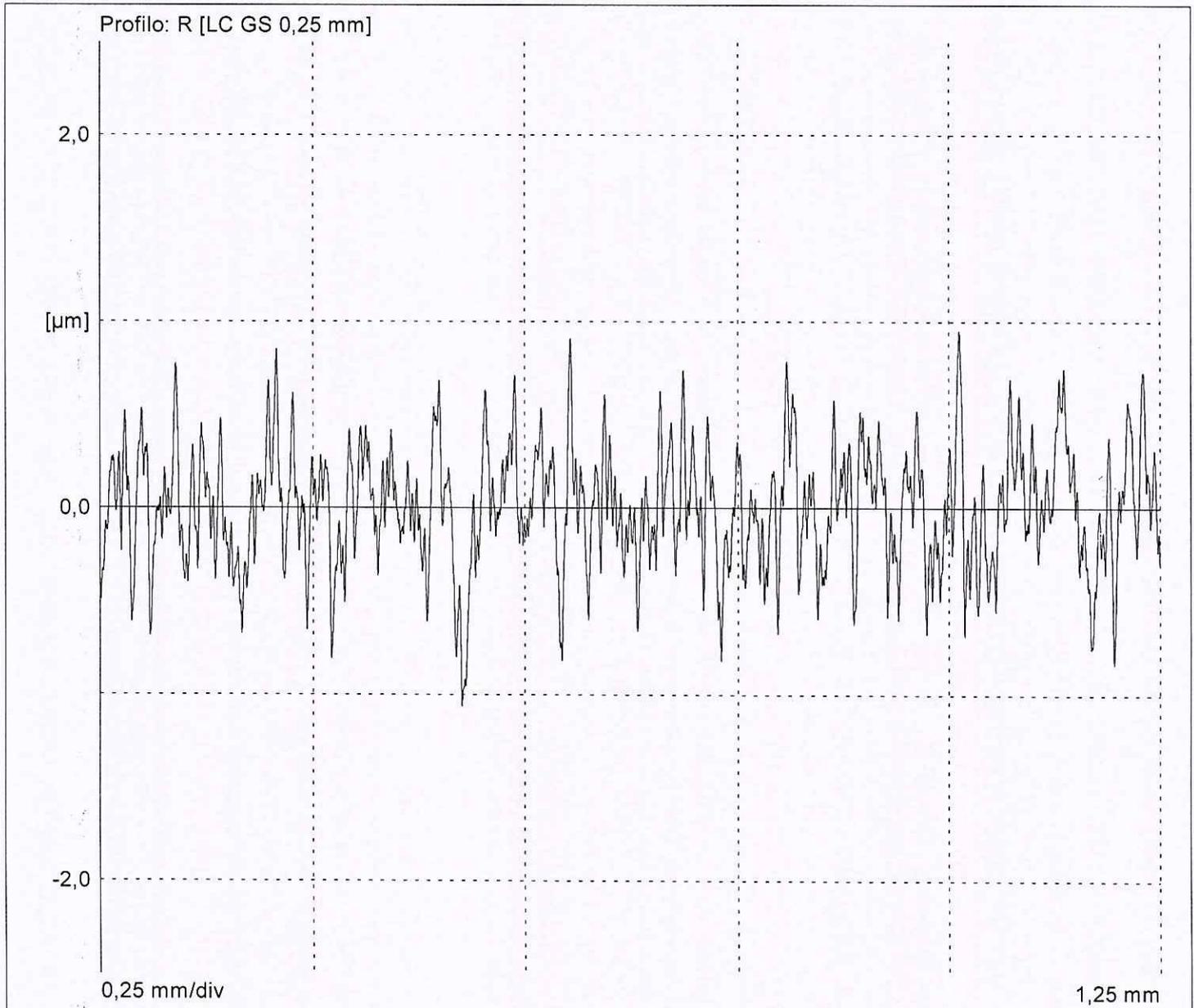
Ø 20mm 60°		
Rmax	1,79 µm	0,00 [REDACTED] 2,00
Ø 20mm Rz_Rmax Singolo Step		
Rz1	1,54 µm	
Rz2	1,78 µm	
Rz3	1,73 µm	
Rz4	1,46 µm	
Rz5	1,79 µm	
Rz sigma	0,15 µm	

Via dei Ciclamini, 4 Modugno (BA)

Numero: 5178 PZ N.3
Operatore: TURNO C
Data, ora: 21/09/2017, 08:28
Nota: Ø 20
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210467.PCD

Sala Metrologica GPS1-2

PARAMETRI GENERALI		
LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 20mm 60°		
Rmax	1,79 µm	0,00  2,00

Ø 20mm Rz_Rmax Singolo Step	
Rz1	1,54 µm
Rz2	1,78 µm
Rz3	1,73 µm
Rz4	1,46 µm
Rz5	1,79 µm
Rz sigma	0,15 µm



Componente: INPUT SHAFT 1
Tecnologia: SEAL LEAK
Sequenza Diametri: Ø 20_Pos_60°

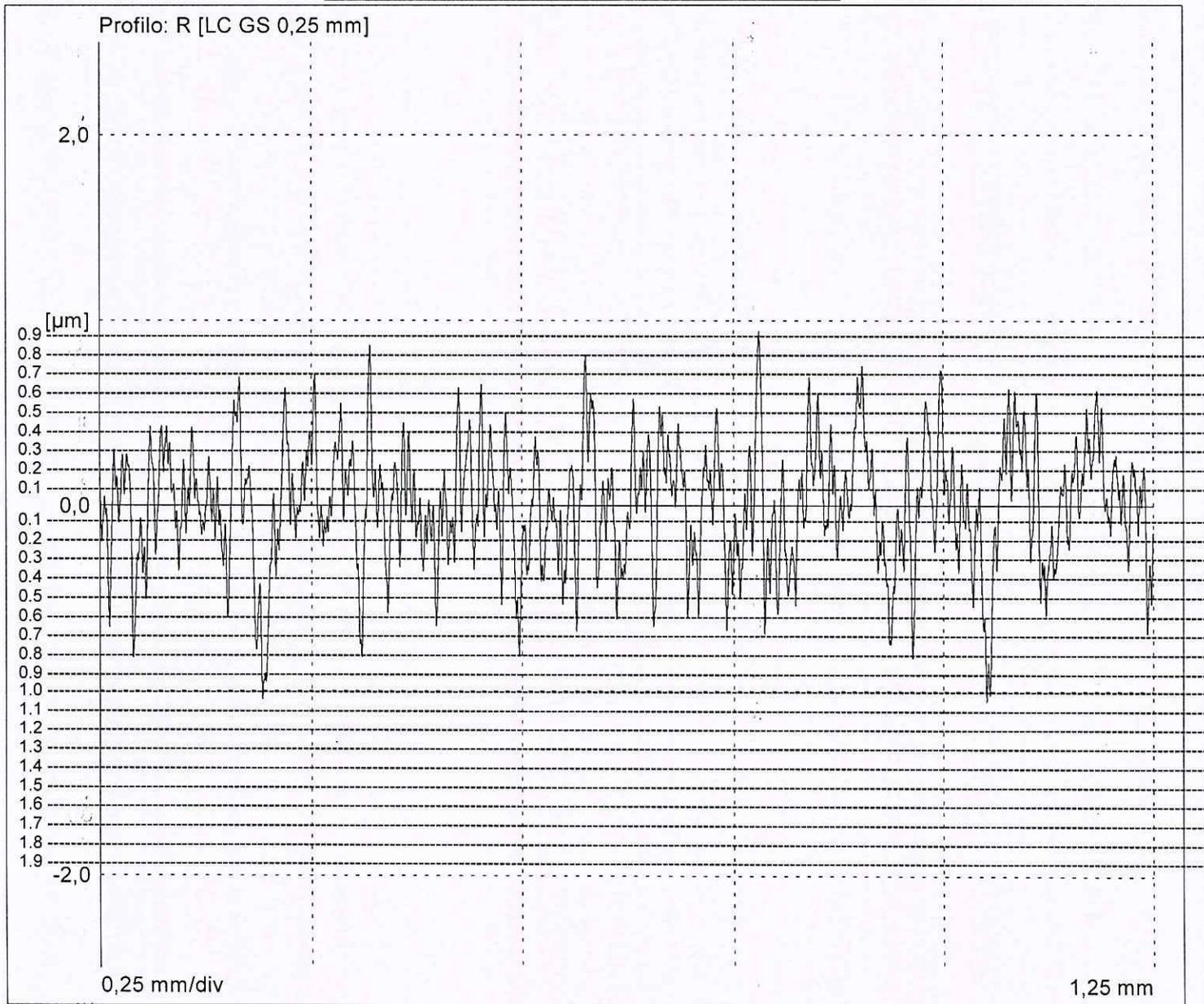
Via dei Ciclamini, 4 Modugno (BA)

Sala Metrologica GPS1-2

Numero: 5178 PZ N.4
Operatore: TURNO C
Data, ora: 21/09/2017, 08:28
Nota: Ø 20
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210468.PCD

PARAMETRI GENERALI

LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250,0	µm



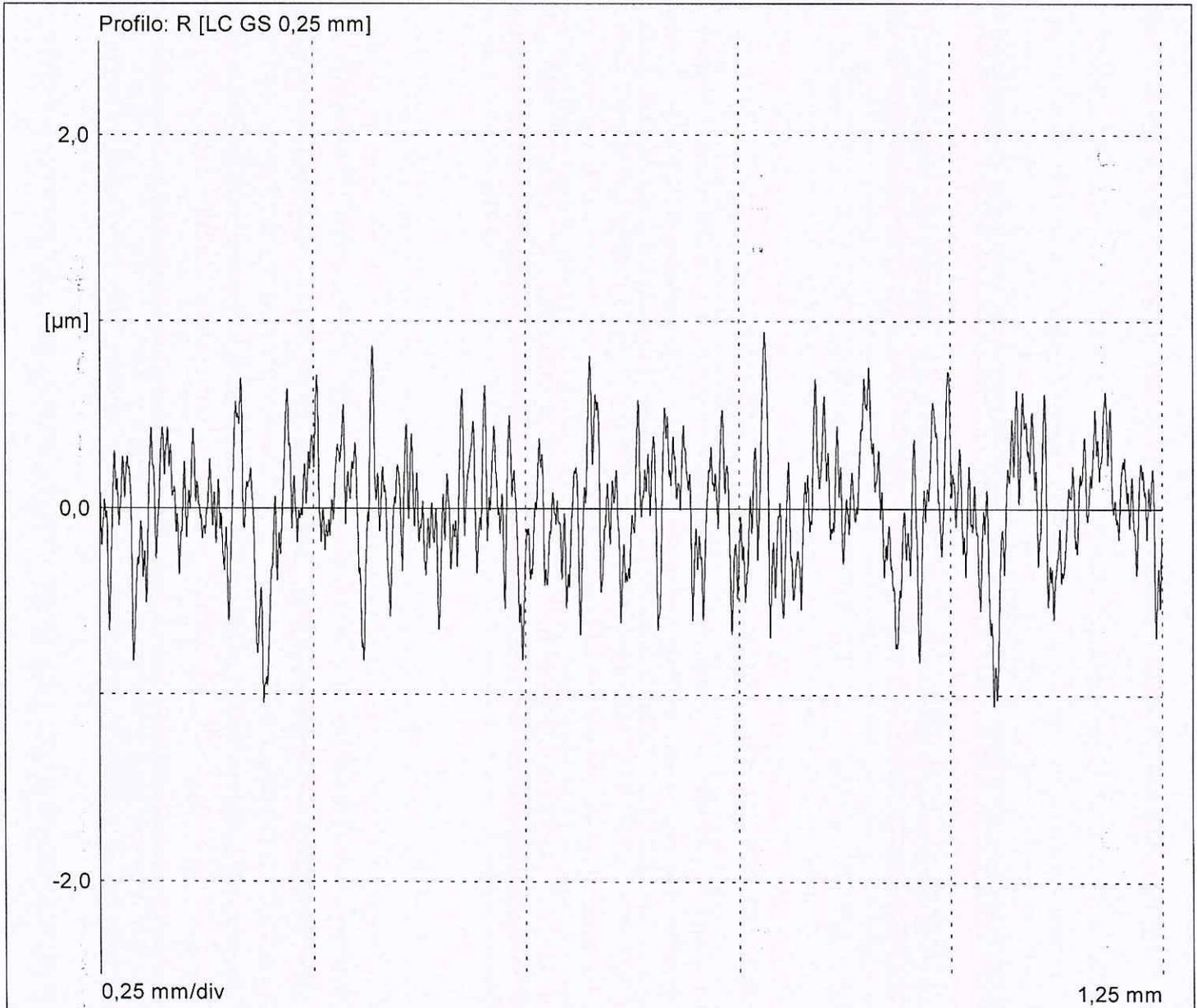
Ø 20mm 60°		
Rmax	1,77 µm 0,00	2,00
Ø 20mm Rz_Rmax Singolo Step		
Rz1	1,74 µm	
Rz2	1,69 µm	
Rz3	1,49 µm	
Rz4	1,77 µm	
Rz5	1,69 µm	
Rz sigma	0,11 µm	

Via dei Ciclamini, 4 Modugno (BA)

Numero: 5178 PZ N.4
Operatore: TURNO C
Data, ora: 21/09/2017, 08:28
Nota: Ø 20
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210468.PCD

Sala Metrologica GPS1-2

PARAMETRI GENERALI		
LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 20mm 60°		
Rmax	1,77 µm	0,00 ██████████ 2,00

Ø 20mm Rz_Rmax Singolo Step	
Rz1	1,74 µm
Rz2	1,69 µm
Rz3	1,49 µm
Rz4	1,77 µm
Rz5	1,69 µm
Rz sigma	0,11 µm



Via dei Ciclamini, 4 Modugno (BA)

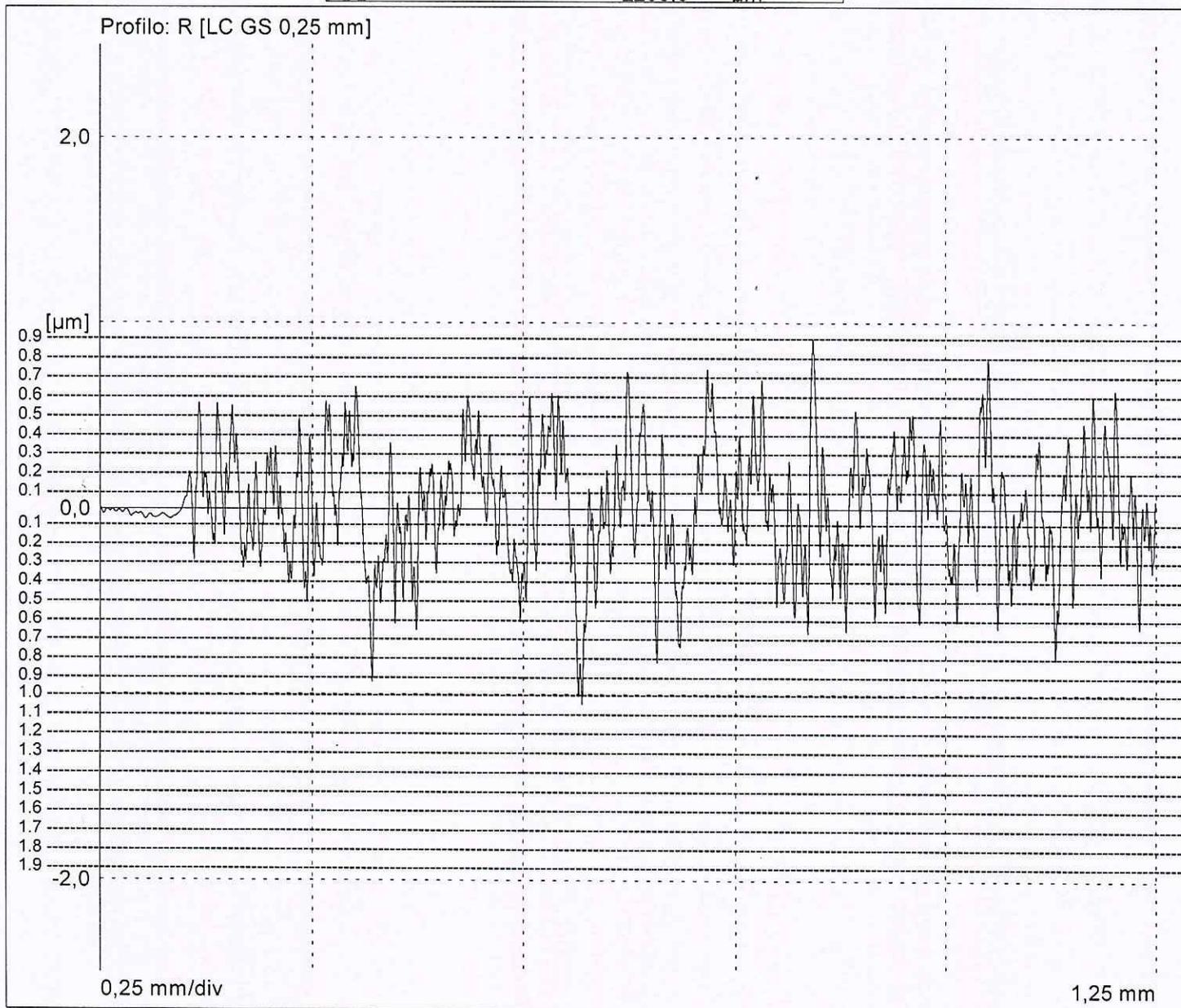
Sala Metrologica GPS1-2

Componente: INPUT SHAFT 1
Tecnologia: SEAL LEAK
Sequenza Diametri: Ø 20_Pos_60°

Numero: 5178 PZ N.5
Operatore: TURNO C
Data, ora: 21/09/2017, 08:29
Nota: Ø 20
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210469.PCD

PARAMETRI GENERALI

LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



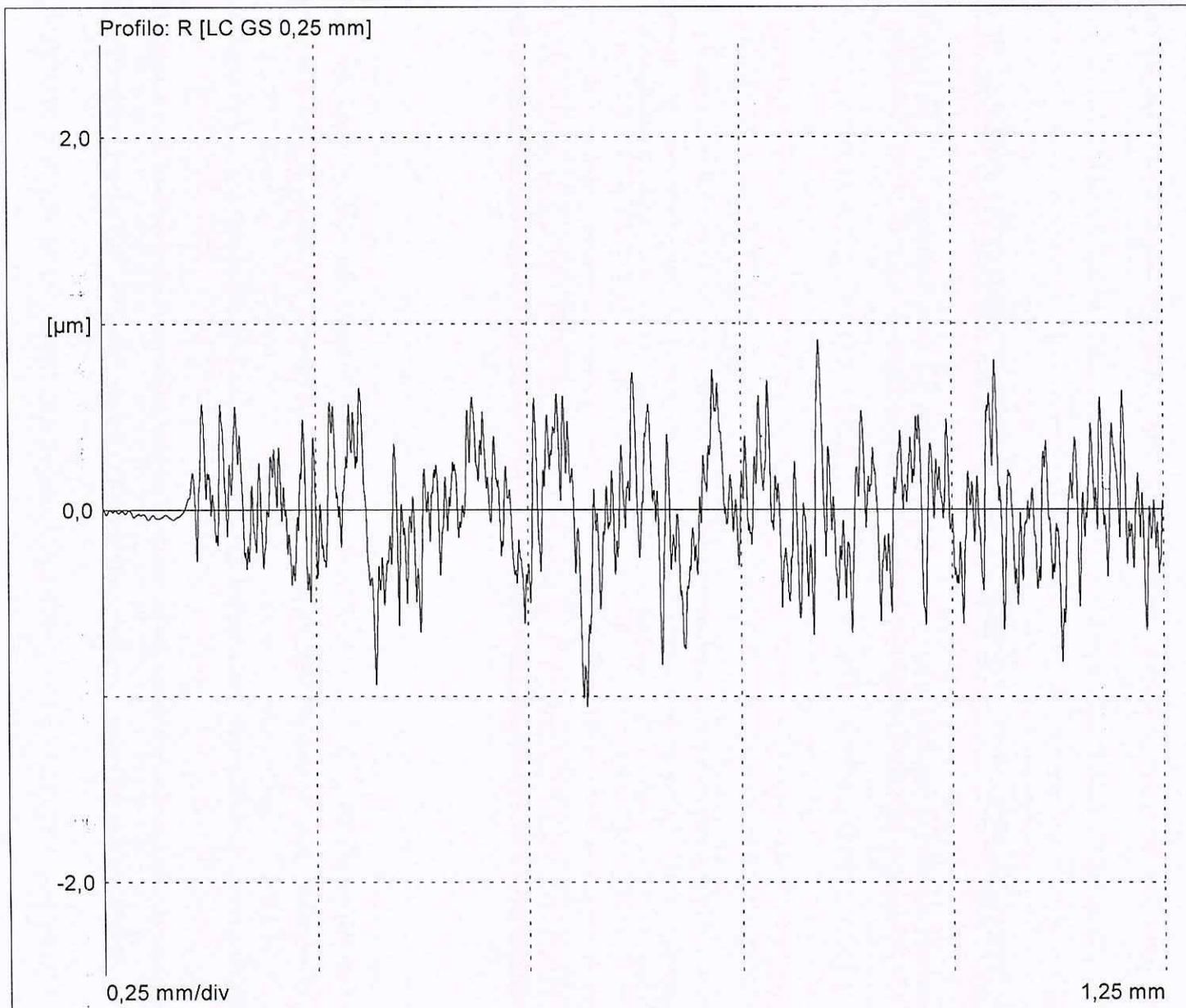
Ø 20mm 60°	
Rmax	1,81 µm 0,00  2,00
Ø 20mm Rz_Rmax Singolo Step	
Rz1	1,07 µm
Rz2	1,60 µm
Rz3	1,81 µm
Rz4	1,59 µm
Rz5	1,62 µm
Rz sigma	0,28 µm

Via dei Ciclamini, 4 Modugno (BA)

Numero: 5178 PZ N.5
Operatore: TURNO C
Data, ora: 21/09/2017, 08:29
Nota: Ø 20
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210469.PCD

Sala Metrologica GPS1-2

PARAMETRI GENERALI		
LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 20mm 60°	
Rmax	1,81 µm 0,00 2,00

Ø 20mm Rz_Rmax Singolo Step	
Rz1	1,07 µm
Rz2	1,60 µm
Rz3	1,81 µm
Rz4	1,59 µm
Rz5	1,62 µm
Rz sigma	0,28 µm



Via dei Ciclamini, 4 Modugno (BA)

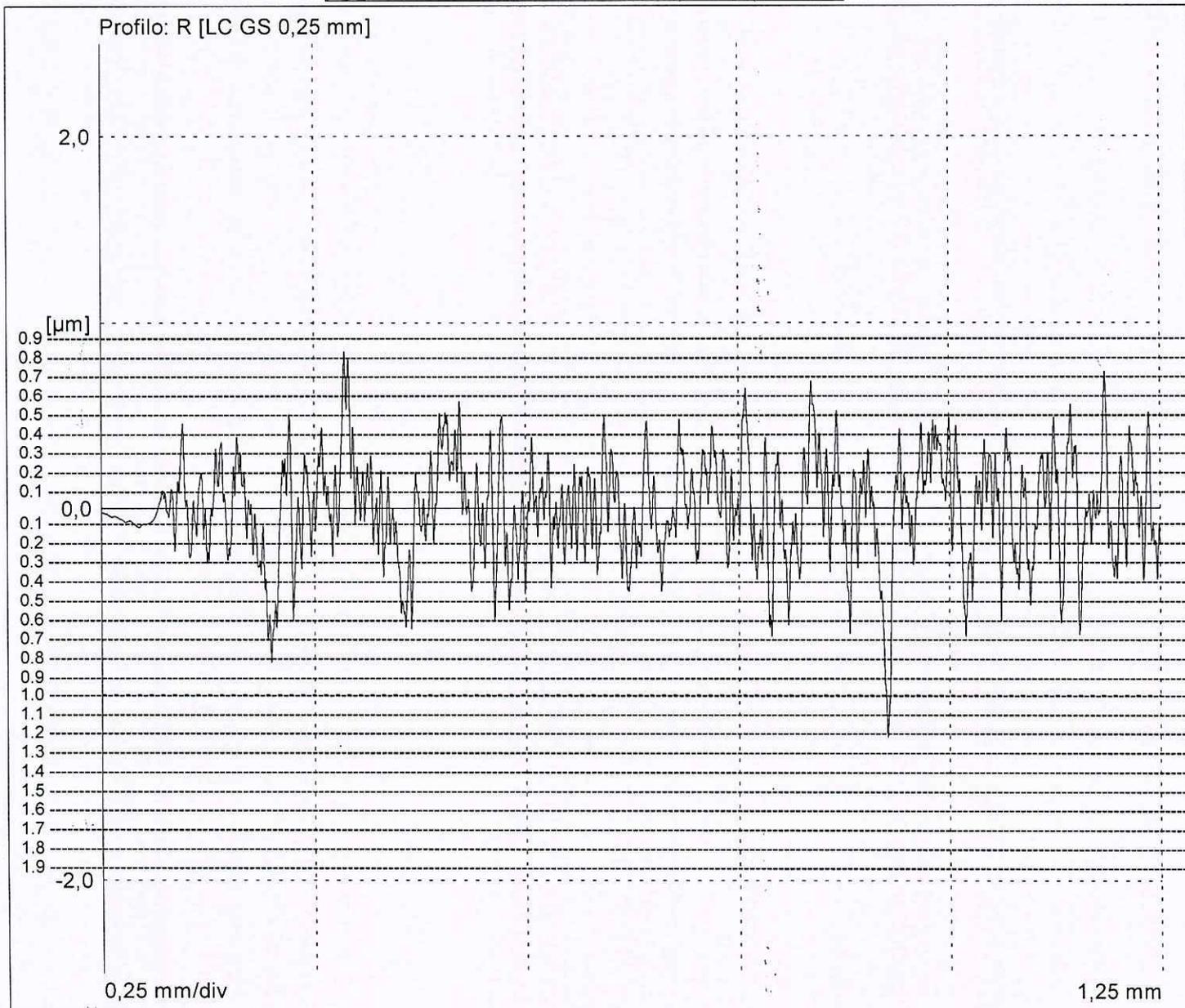
Sala Metrologica GPS1-2

Componente: INPUT SHAFT 2
Tecnologia: SEAL LEAK
Sequenza Diametri: Ø 39.9_Pos_60°

Numero: 3651 PZ N.1
Operatore: TURNO C
Data, ora: 21/09/2017, 08:34
Nota: Ø 39.9
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210476.PCD

PARAMETRI GENERALI

LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 39.9mm 60°	
Rmax	1,92 µm 0,00 ██████████ 2,00
Ø 39.9mm Rz_Rmax Singolo Step	
Rz1	1,34 µm
Rz2	1,50 µm
Rz3	0,94 µm
Rz4	1,92 µm
Rz5	1,43 µm
Rz sigma	0,35 µm



Via dei Ciclamini, 4 Modugno (BA)

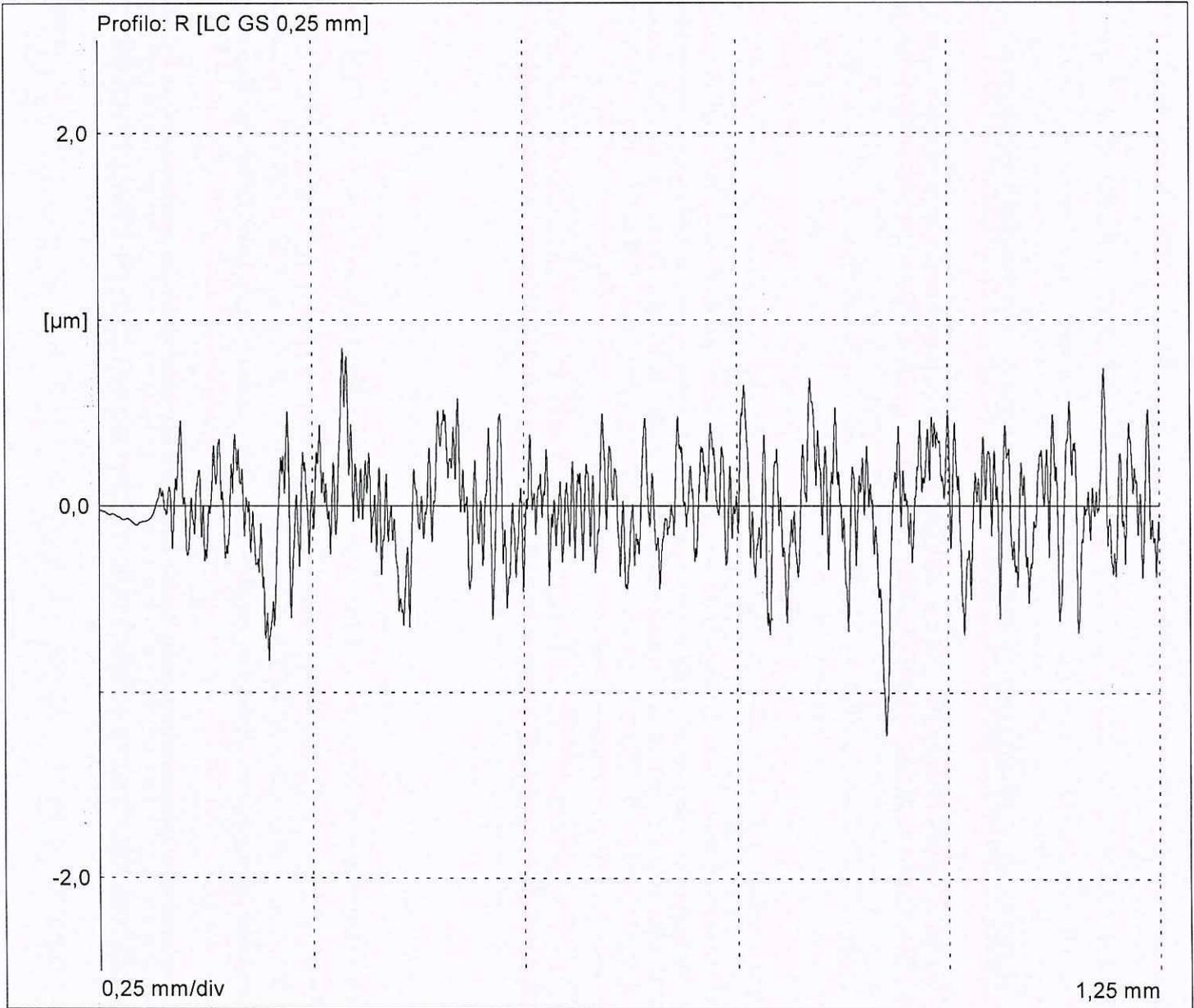
Sala Metrologica GPS1-2

Componente: INPUT SHAFT 2
Tecnologia: SEAL LEAK
Sequenza Diametri: Ø 39.9_Pos_60°

Numero: 3651 PZ N.1
Operatore: TURNO C
Data, ora: 21/09/2017, 08:34
Nota: Ø 39.9
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210476.PCD

PARAMETRI GENERALI

LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 39.9mm 60°	
Rmax	1,92 µm 0,00 ██████████ 2,00
Ø 39.9mm Rz_Rmax Singolo Step	
Rz1	1,34 µm
Rz2	1,50 µm
Rz3	0,94 µm
Rz4	1,92 µm
Rz5	1,43 µm
Rz sigma	0,35 µm



Via dei Ciclamini, 4 Modugno (BA)

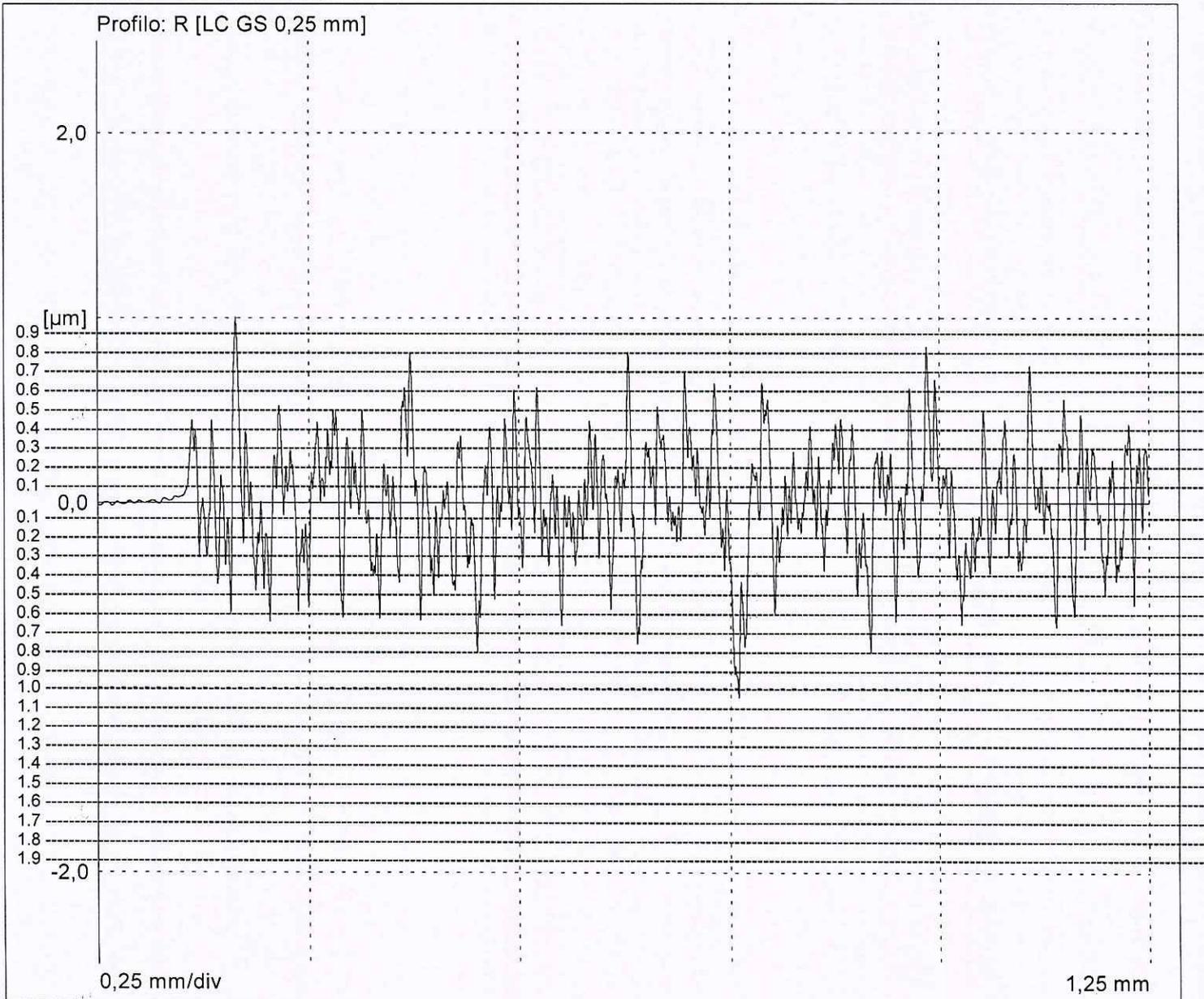
Sala Metrologica GPS1-2

Componente: INPUT SHAFT 2
Tecnologia: SEAL LEAK
Sequenza Diametri: Ø 39.9_Pos_60°

Numero: 3651 PZ N.2
Operatore: TURNO C
Data, ora: 21/09/2017, 08:34
Nota: Ø 39.9
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210475.PCD

PARAMETRI GENERALI

LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 39.9mm 60°	
Rmax	1,90 µm 0,00  2,00
Ø 39.9mm Rz_Rmax Singolo Step	
Rz1	1,65 µm
Rz2	1,62 µm
Rz3	1,58 µm
Rz4	1,90 µm
Rz5	1,41 µm
Rz sigma	0,18 µm



Via dei Ciclamini, 4 Modugno (BA)

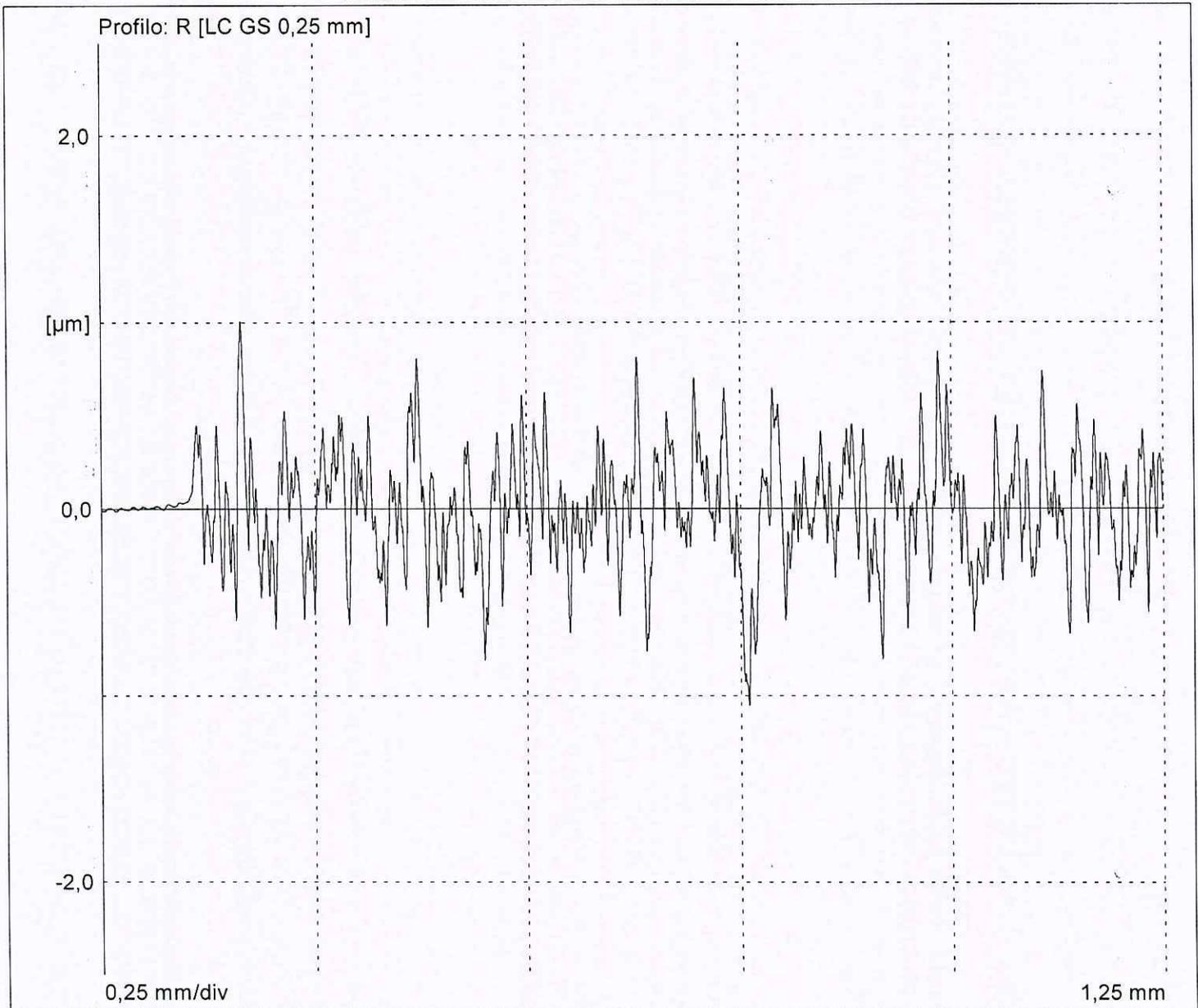
Sala Metrologica GPS1-2

Componente: INPUT SHAFT 2
Tecnologia: SEAL LEAK
Sequenza Diametri: Ø 39.9_Pos_60°

Numero: 3651 PZ N.2
Operatore: TURNO C
Data, ora: 21/09/2017, 08:34
Nota: Ø 39.9
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210475.PCD

PARAMETRI GENERALI

LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 39.9mm 60°	
Rmax	1,90 µm 0,00 ████████████████████ 2,00
Ø 39.9mm Rz_Rmax Singolo Step	
Rz1	1,65 µm
Rz2	1,62 µm
Rz3	1,58 µm
Rz4	1,90 µm
Rz5	1,41 µm
Rz sigma	0,18 µm

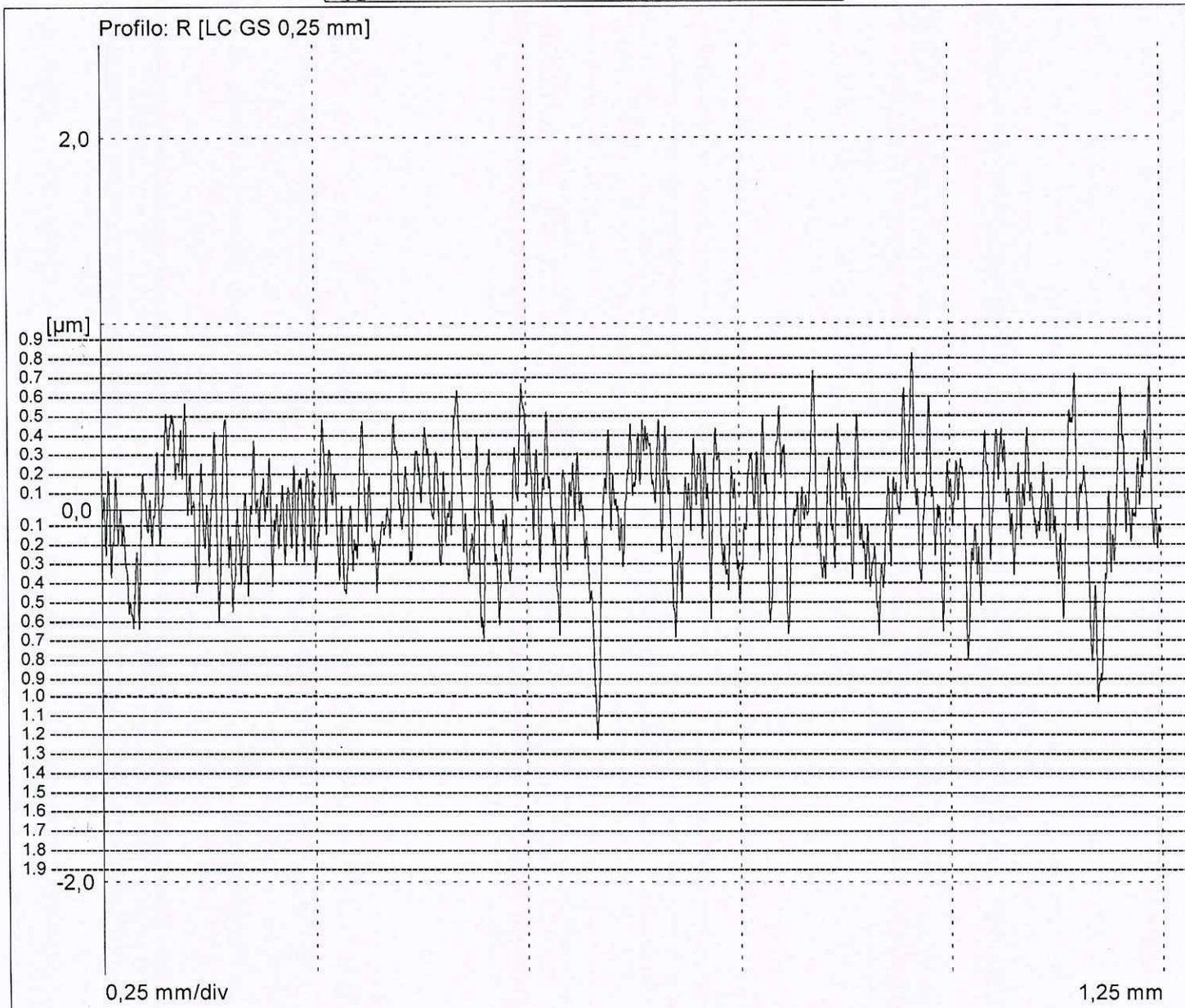


Via dei Ciclamini, 4 Modugno (BA)

Sala Metrologica GPS1-2

Componente:	INPUT SHAFT 2
Tecnologia:	SEAL LEAK
Sequenza Diametri:	Ø 39.9_Pos_60°
Numero:	3651 PZ N.3
Operatore:	TURNO C
Data, ora:	21/09/2017, 08:33
Nota:	Ø 39.9
Tastatore:	MFW-250 -30
Nome file:	C:\PROGRA~1\MAHR\PERTHO~1\4210474.PCD

PARAMETRI GENERALI		
LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 39.9mm 60°	
Rmax	1,77 µm 0,00 ██████████ 2,00
Ø 39.9mm Rz_Rmax Singolo Step	
Rz1	1,22 µm
Rz2	1,37 µm
Rz3	1,76 µm
Rz4	1,52 µm
Rz5	1,77 µm
Rz sigma	0,24 µm



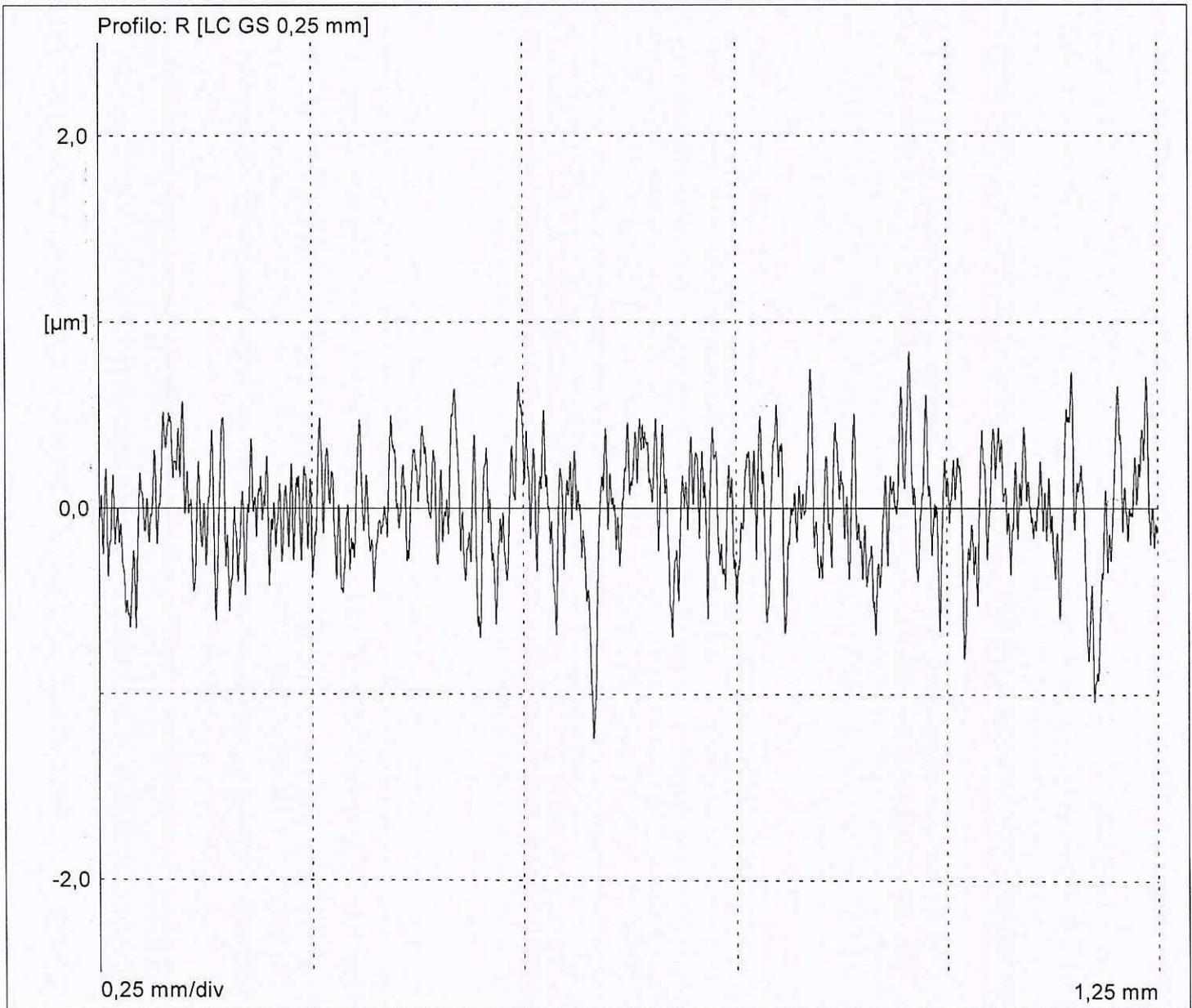
Via dei Ciclamini, 4 Modugno (BA)

Sala Metrologica GPS1-2

Componente: INPUT SHAFT 2
Tecnologia: SEAL LEAK
Sequenza Diametri: Ø 39.9_Pos_60°

Numero: 3651 PZ N.3
Operatore: TURNO C
Data, ora: 21/09/2017, 08:33
Nota: Ø 39.9
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210474.PCD

PARAMETRI GENERALI		
LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 39.9mm 60°		
Rmax	1,77 µm	0,00
Ø 39.9mm Rz_Rmax Singolo Step		
Rz1	1,22 µm	
Rz2	1,37 µm	
Rz3	1,76 µm	
Rz4	1,52 µm	
Rz5	1,77 µm	
Rz sigma	0,24 µm	



Via dei Ciclamini, 4 Modugno (BA)

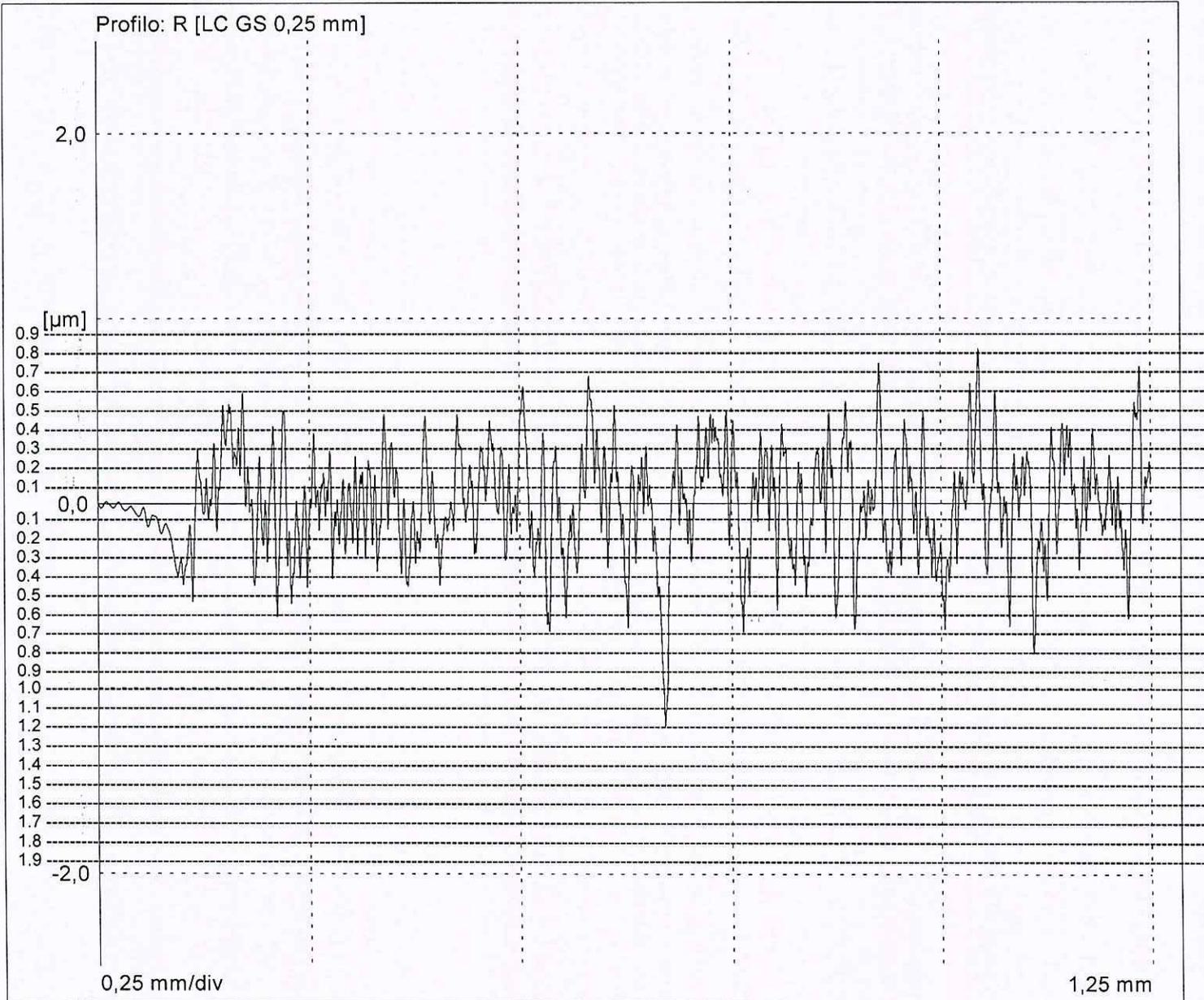
Sala Metrologica GPS1-2

Componente: INPUT SHAFT 2
Tecnologia: SEAL LEAK
Sequenza Diametri: Ø 39.9_Pos_60°

Numero: 3651 PZ N.4
Operatore: TURNO C
Data, ora: 21/09/2017, 08:32
Nota: Ø 39.9
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210472.PCD

PARAMETRI GENERALI

LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 39.9mm 60°		
Rmax	1,89 µm	0,00  2,00
Ø 39.9mm Rz_Rmax Singolo Step		
Rz1	1,21 µm	
Rz2	0,93 µm	
Rz3	1,89 µm	
Rz4	1,45 µm	
Rz5	1,65 µm	
Rz sigma	0,37 µm	



Via dei Ciclamini, 4 Modugno (BA)

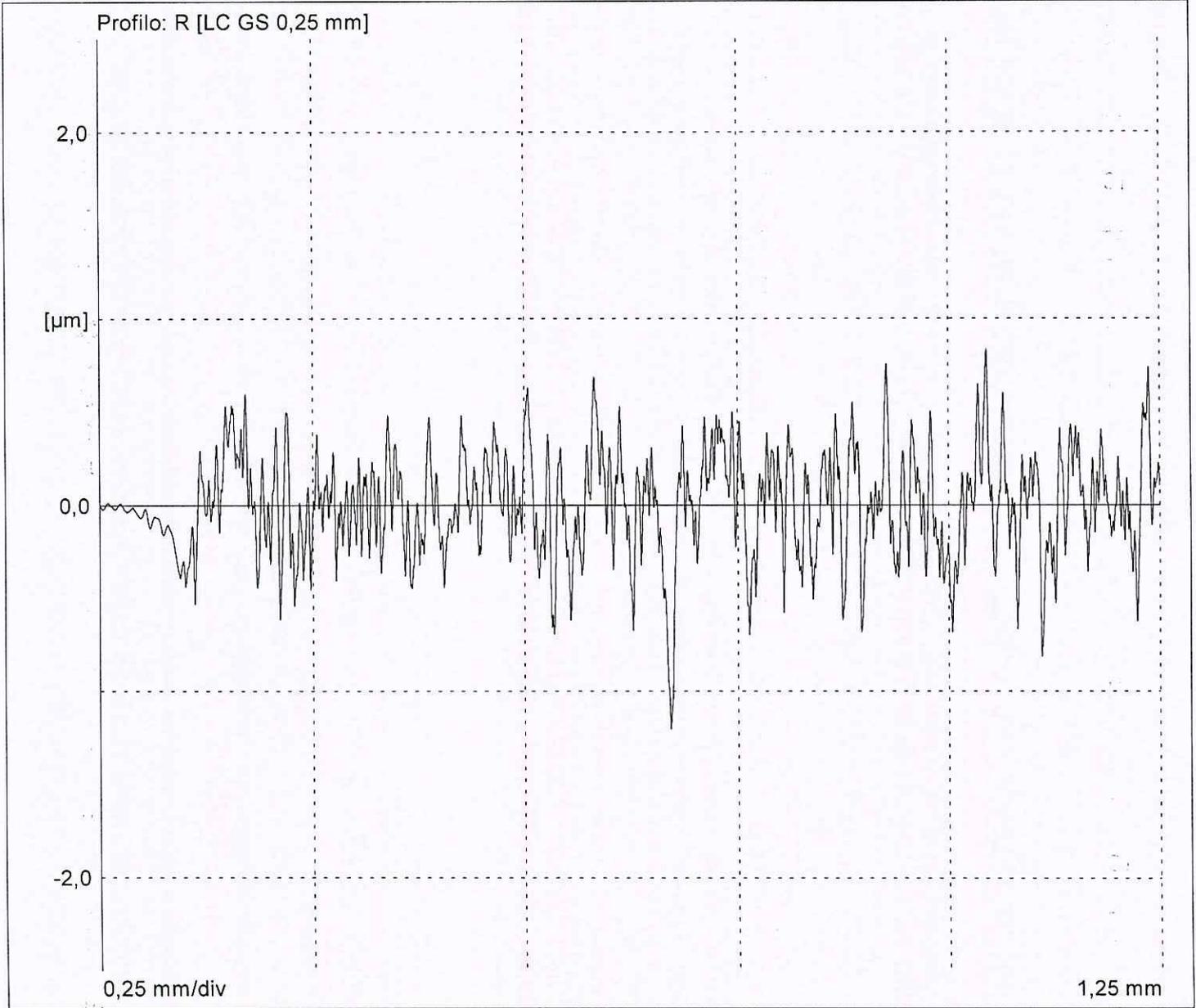
Sala Metrologica GPS1-2

Componente: INPUT SHAFT 2
Tecnologia: SEAL LEAK
Sequenza Diametri: Ø 39.9_Pos_60°

Numero: 3651 PZ N.4
Operatore: TURNO C
Data, ora: 21/09/2017, 08:32
Nota: Ø 39.9
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210472.PCD

PARAMETRI GENERALI

LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 39.9mm 60°	
Rmax	1,89 µm 0,00 ██████████ 2,00
Ø 39.9mm Rz_Rmax Singolo Step	
Rz1	1,21 µm
Rz2	0,93 µm
Rz3	1,89 µm
Rz4	1,45 µm
Rz5	1,65 µm
Rz sigma	0,37 µm



Via dei Ciclamini, 4 Modugno (BA)

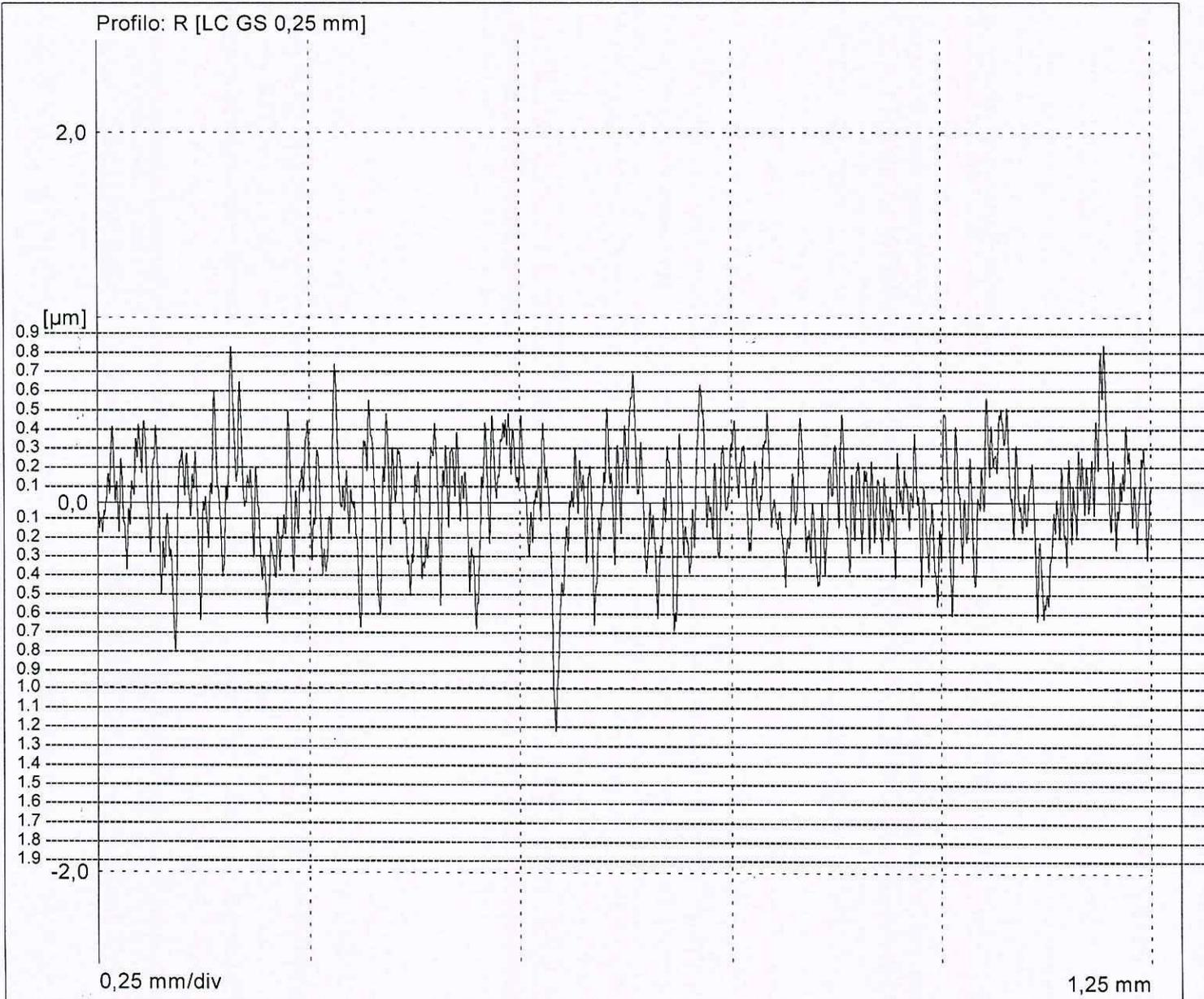
Sala Metrologica GPS1-2

Componente: INPUT SHAFT 2
Tecnologia: SEAL LEAK
Sequenza Diametri: Ø 39.9_Pos_60°

Numero: 3651 PZ N.5
Operatore: TURNO C
Data, ora: 21/09/2017, 08:32
Nota: Ø 39.9
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210473.PCD

PARAMETRI GENERALI

LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 39.9mm 60°		
Rmax	1,94 µm 0,00	2,00
Ø 39.9mm Rz_Rmax Singolo Step		
Rz1	1,65 µm	
Rz2	1,44 µm	
Rz3	1,94 µm	
Rz4	1,06 µm	
Rz5	1,50 µm	
Rz sigma	0,32 µm	



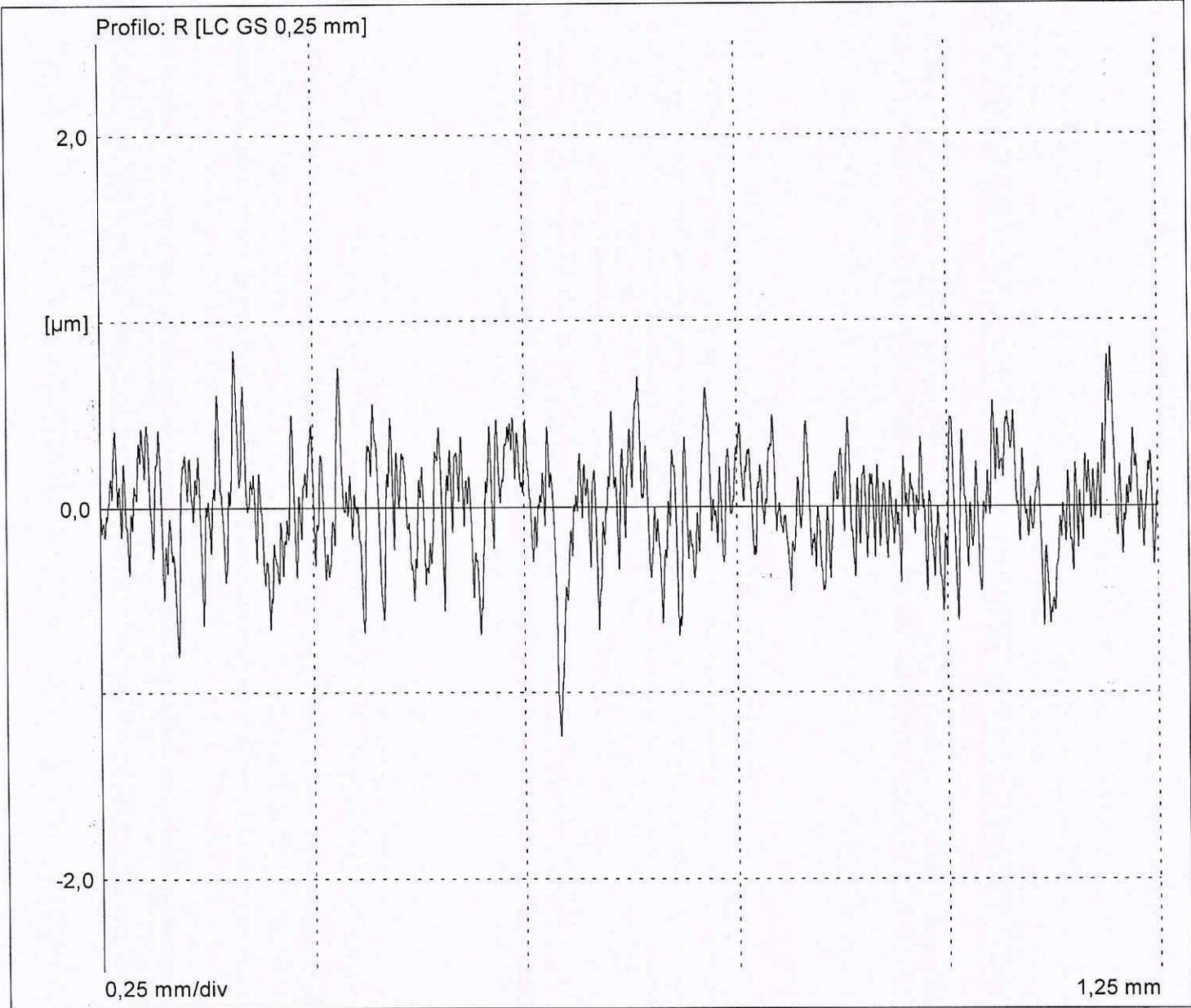
Via dei Ciclamini, 4 Modugno (BA)

Sala Metrologica GPS1-2

Componente: INPUT SHAFT 2
Tecnologia: SEAL LEAK
Sequenza Diametri: Ø 39.9_Pos_60°

Numero: 3651 PZ N.5
Operatore: TURNO C
Data, ora: 21/09/2017, 08:32
Nota: Ø 39.9
Tastatore: MFW-250 -30
Nome file: C:\PROGRA~1\MAHR\PERTHO~1\4210473.PCD

PARAMETRI GENERALI		
LS	2,5	µm
LT	1,75	mm
LM	1,25	mm
Z	5	
VB	±250.0	µm



Ø 39.9mm 60°	
Rmax	1,94 µm 0,00 ██████████ 2,00
Ø 39.9mm Rz_Rmax Singolo Step	
Rz1	1,65 µm
Rz2	1,44 µm
Rz3	1,94 µm
Rz4	1,06 µm
Rz5	1,50 µm
Rz sigma	0,32 µm

