



Part Name	<b>Ring Gear</b>	Customer Part Number	<b>250.1.6463.00</b>
Shown on Drawing No.	<b>250.1.6463.00</b>	Organization Part #	
Engineering Change Level	<b>a 35624</b>	Dated	<b>11 Dec 2013</b>
Additional Engineering Changes		Dated	
Safety and/or Government Regulation	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Purchase Order No.	
Weight (kg)			<b>2,898</b>
Checking Aid No.		Checking Aid Engineering Change Level	
Dated			

**ORGANIZATION MANUFACTURING INFORMATION**

**CUSTOMER SUBMITTAL INFORMATION**

**GETRAG MODUGNO**

**RENAULT**

Organization Name & Supplier/Vendor Code

**VIA DEI CICLAMINI N°4**

Street Address

<b>MODUGNO BARI</b>	<b>70026</b>	<b>ITALY</b>
City	Region	Postal Code
		Country

Customer Name/Division

Buyer/Buyer Code

**TYP 250**

Application

**MATERIALS REPORTING**

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

Submitted by IMDS or other customer format:

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

**REASON FOR SUBMISSION (Check at least one)**

- |   |  |
|---|--|
| <input type="checkbox"/> Initial Submission   | <input type="checkbox"/> Change to Optional Construction or Material |
| <input checked="" type="checkbox"/> Engineering Change(s)                             | <input type="checkbox"/> Supplier or Material Source Change          |
| <input type="checkbox"/> Tooling: Transfer, Replacement, Refurbishment, or additional | <input type="checkbox"/> Change in Part Processing                   |
| <input type="checkbox"/> Correction of Discrepancy                                    | <input type="checkbox"/> Parts Produced at Additional Location       |
| <input type="checkbox"/> Tooling Inactive > than 1 year                               | <input checked="" type="checkbox"/> Other - please specify below     |

**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

**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 \_\_\_\_\_ / \_\_\_\_\_ hours.

I also certify that documented evidence of such compliance is on file and available for review. I have noted any deviations from this declaration below.

EXPLANATION / COMMENTS: **New documentation for first PPAP lost**

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

Organization Authorized Signature		Date	<b>12 Jan 2015</b>
Print Name	<b>Pennacchia Vincenzo</b>	Phone No.	<b>tel 390805858580</b>
Title	<b>GPS 1 Leader</b>	E-mail	<b>vincenzo.pennacchia@getrag.com</b>

**FOR CUSTOMER USE ONLY (IF APPLICABLE)**

Part Warrant Disposition:  Approved  Rejected  Other

Customer Signature Date **12.01.15**

Print Name \_\_\_\_\_ Customer Tracking Number (optional) \_\_\_\_\_

**GETRAG**

Production Part Approval

**DIMENSIONAL TEST RESULTS**

Organization: <b>GETRAG</b>	Part Number: <b>250.1.6463.00</b>
Supplier/Vendor Code: <b>GETRAG Modugno</b>	Part Name: <b>Ring gear</b>

INSPECTION FACILITY:  
  
**NA**

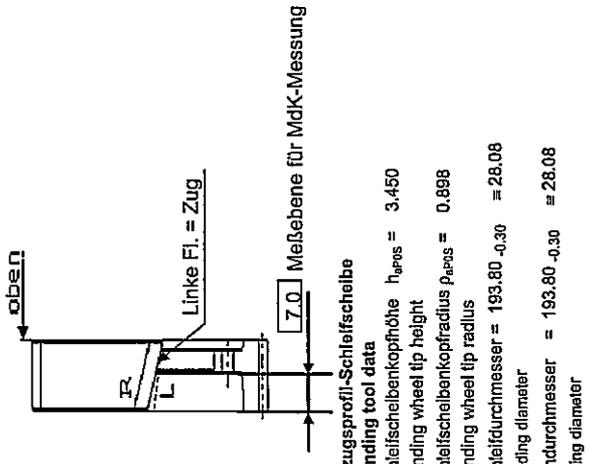
Design Record Change Level: **a 35624**  
Engineering Change Documents:  
  
Organization Measurement Results (Data)

Item	Dimension/Specification	Specification / Limits		Test Date	Qty. Tested	Organization Measurement Results (Data)					test distruttivo	Ok	Not Ok
						1	2	3	4	5			
1	Profile Teeth	-	-		5	ok	ok	ok	ok	ok		ok	
2	Root diameter	191,850	191,400		5	191,692	191,701	191,6990	191,7040	191,6920		ok	
3	Outside diameter	206,4	206,1		5	206,217	206,225	206,226	206,229	206,222		ok	
4	MDK	204,098	204,030		5	204,072	204,068	204,077	204,070	204,066		ok	
5													
6													
7													
8													
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March 2006 CFG-1003

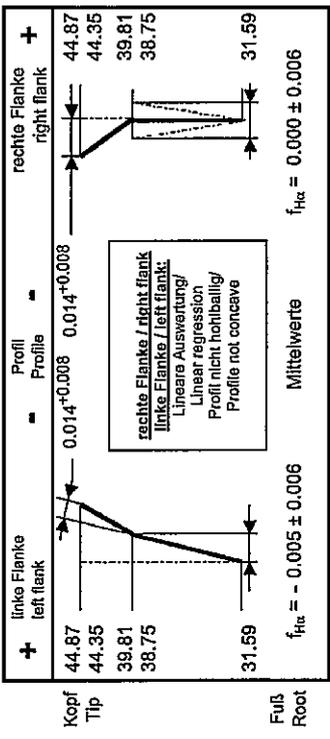
SIGNATURE	TITLE	DATE
G. Russo	QPE	12 Jan 2015

STIRNRAD GEAR		Toleranzen der Verzahnung (DIN 3961 vom Aug. 1978) gültig für Werte am Einzelzahn Tolerances of gearing (DIN 3961 of Aug. 1978) valid for values at individual tooth		Toleranzen der Verzahnung (DIN 3961 vom Aug. 1978) gültig für Werte am Einzelzahn Tolerances of gearing (DIN 3961 of Aug. 1978) valid for values at individual tooth	
Zähnezahl Number of teeth	z	76			
Modul Normal module	$m_n$	2.40000			
Eingriffswinkel Normal pressure angle	$\alpha_n$	20° 0' 0"			
Schrägungswinkel Helix angle	$\beta$	24° 0' 0"			
Steigungsrichtung Hand of helix		RECHTS			
Profilverschleißfaktor Addendum modification coeff.	x	-0.142			
Teilkreisdurchmesser Pitch diameter	d	199.662			
Kopfkreisdurchmesser Outside diameter	$d_a$	206.40 -0.30			
Kopfnutkreis, theo. max. $d_{ha}$ Tip diam. usable theo.	$d_{fa}$	206.05			
Kopfnutkreis, theo. min. $d_{ha}$ Tip diam. usable theo.	$d_{fb}$	205.60			
Fußkreisdurchmesser Root diameter	$d_f$	191.85 -0.45			
Fußnutkreisdurchmesser Root diameter usable	$d_{fr}$	195.95			
Grundkreisradius Base circle radius	$r_b$	92.741			
Grundkreisdurchmesser Base diameter	$d_b$	185.482			
Normalzahnstärke Normal tooth thickness	max. $s_n$	3.443			
Normalzahnstärke Normal tooth thickness	min. $s_n$	3.418			
Meßzähnezahl Number of teeth spanned	k				
Zahnweite max. $W_k$					
Zahnweite min. $W_k$					
Zahnweite max. $W_k$					
Zahnweite min. $W_k$					
Meßkreisdurchmesser Ball diameter	$D_M$	4.000			
Diam. Zweikugelmäß max. $M_{sk}$ Measurement o. balls		204.098			
Diam. Zweikugelmäß min. $M_{sk}$ Measurement o. balls		204.030			
Vordrehflankenspiel theor.		0.065			
Vordrehflankenspiel Circumferential backlash		0.168			

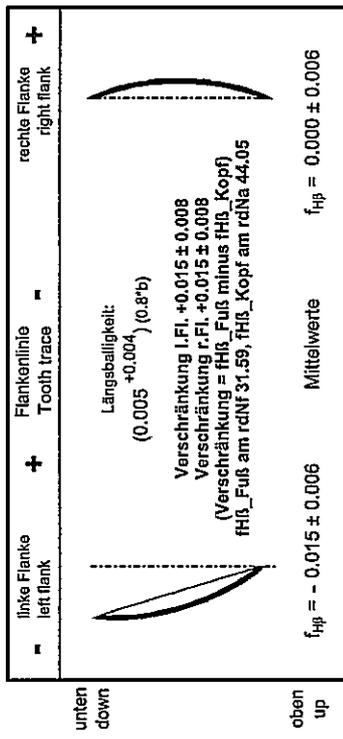


Vorbereitungsdaten siehe Verzahnungsblatt Vorbearbeitung gleicher Nr.  
For pre-machining dimensions, see gear data sheet same number

Wkz-Profil siehe Werkzeugdatenblatt Nr. 250.1.4240.77  
For Tooth profile, see tool data sheet number



\* Schreibbeginn  $\varnothing = 194.25 -0.30 \approx 28.85$   
\* Start of checking



\* Plusabweichung des bis zum Schreibbeginn verdingerten vermittelnden Ist-Profiles max.  $f_{H\beta} / 2$   
\* Plus deviation of the average profile, extended to the start of checking, max  $f_{H\beta} / 2$

Profil- und Flankenlinienprüfung nach VDI/VDE 2812  
Teilwertwerte für  $F_p$  und  $f_{HP}$  sind auf die gesamte Radbreite im Maßkreis  $d_M$  bezogen  
Flankenlinienprüfbereich  $L_p = 0.8 \cdot b$  hochgerechnet auf  $1.0 \cdot b$   
Begriffe für Stirnräder nach DIN 868, 3960, 3998

Profile and helix checking according to VDI/VDE 2812  
Listed tolerance data for  $F_p$  and  $f_{HP}$  refers to the total face width in the meas. dia.  $d_M$   
Tooth trace testing area  $L_p = 0.8 \cdot b$  calculated to  $1.0 \cdot b$   
Terms of the tooth system according to DIN (German Industrial Standards) No. 868, 3960, 3998

Verteiler:		Schutzvermerk nach DIN 34 beschriften	
Buch.	Antz.	Änd.Nr.	Name
Abbildungen sind unmaßstäblich. Diagrams not to scale.			
Datum		Name	
gez. 26.06.2013		Verzahnungsblatt Endkontrolle	
gepr.		Fabrizi / Final Check-Gear Data	
Erreicht für		Erstverwendung	
bei Getriebeart:		bei Getriebeart: 250.0.0004.16	
Remark:			
Zahnkranz			
Zeichnungsnummer: Drawing number: 250.1.4240.77			







## Istruzioni di controllo



PP Produzione GPS

Materiale: 2501646300  
 Descrizione: Chart Corona  
 Stato: Rilascio in generale (ciclo alternativo)  
 Indice del disegno finito: 25.11.2014 / Vito Fiore  
 Operazione: 0230 Rettifica dentatura con RZ303C  
 Data emissione: 13.03.2014 / Vito Fiore  
 Centro di lavoro: SLW14850 RETTIFICA DENTI RG  
 Data aggiornamento:

GN 3010	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	Controllo 1° pz secondo Gear data 250.1.4240.51				MVZ-400249 EVOLVENTIMETRO						1° pz 2.3.1.1-R 2		CR1: controllo primo pezzo Misu: controllo primo pezzo
0010	Diametro Mdk (RZ303C e RZF)	204,064 mm	204,030	204,098	MOA-416121 RUGOSIMETRO TIPO PRK MZA-450311 Calcolatore di misura E9066 Marposs						1° pz 2.3.1.1-R 2		
0020	Evolverte ed elica sec.G.D. con svergolamento (RZ303C)				MZA-450311 Calcolatore di misura E9066 Marposs	3	pz ogni 100 per macchina						CR1: calcolatore di misura
0022	Evolverte ed elica sec.G.D. con svergolamento (RZF)				MVZ-400249 EVOLVENTIMETRO						pz ogni 100 per macchina		Misu: diagramma di dentatura
0030	SOMMA DI PASSO Fp (RZ303C)	mm		0,045	MVZ-400249 EVOLVENTIMETRO						ogni 50 pz prodotti /macchina		Misu: diagramma di dentatura
0032	SOMMA DI PASSO Fp (RZF)	mm		0,045	MVZ-400249 EVOLVENTIMETRO						pz a turno/mac.		Misu: diagramma di dentatura
0040	OSCILLAZIONE RADIALE Fr (RZ303C)	mm		0,032	MVZ-400249 EVOLVENTIMETRO						ogni 50 pz prodotti /macchina		Misu: diagramma di dentatura
0042	OSCILLAZIONE RADIALE Fr (RZF)	mm		0,032	MVZ-400249 EVOLVENTIMETRO						pz a turno/mac.		Misu: diagramma di dentatura
0044	Controllo ammassature del materiale da rettificare con Ingranometro automatico (RZ303C)	mm		0,300	MRA-450155 Ingranometro automatico Reishauer RZ303C	1	100% di pezzi				ogni 50 pz prodotti /macchina		CR1: calcolatore di misura
0050	RUGOSITA' Rz	0,0 µm	0,0	4,0	MOA-416121 RUGOSIMETRO TIPO PRK						1° pz 2.3.1.1-R 2		Misu: controllo primo pezzo

# Istruzioni di controllo



PP Produzione GPS

Materiale: 2501646300 Stato: Rilascio in generale (ciclo alternativo) Indice del disegno finito: -  
 Descrizione: Chart Corona Data emissione: 25.11.2014 / Vito Fiore  
 Operazione: 0230 Rettifica dentatura con RZ303C Data aggiornamento: 13.03.2014 / Vito Fiore  
 Centro di lavoro: SLW14850 RETTIFICA DENTI RG

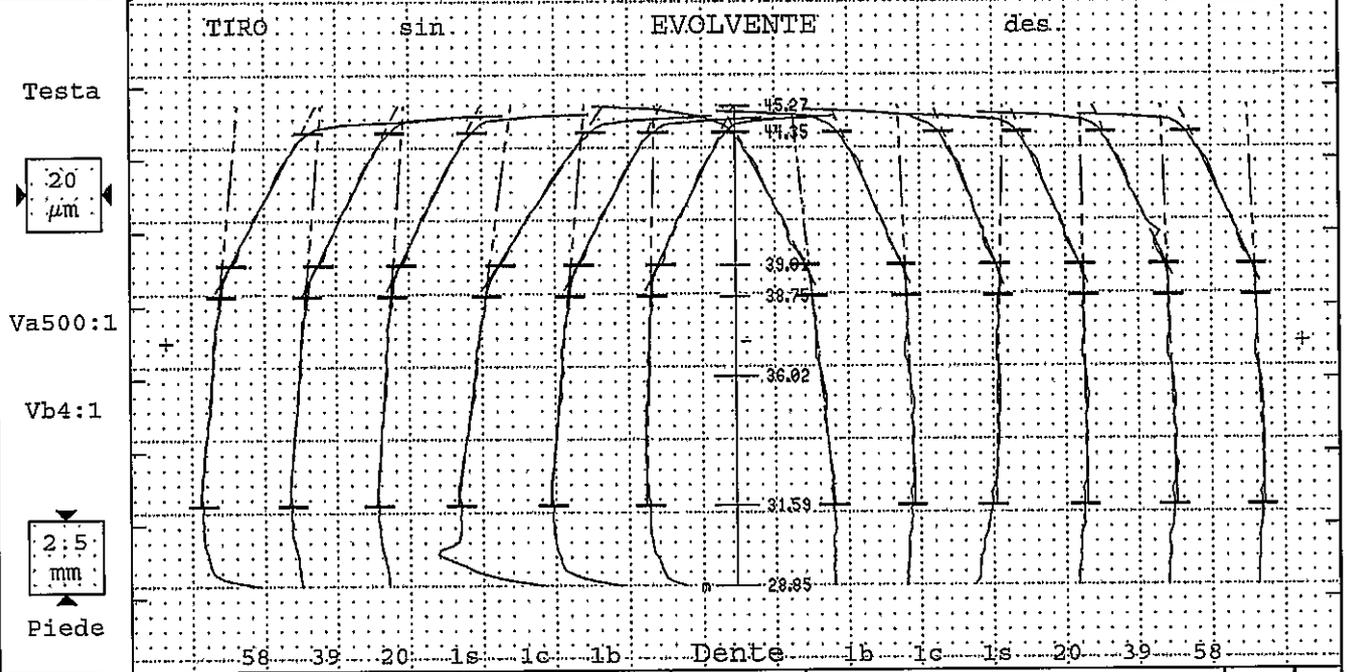
GN 30-10	Caratteristica	Misura nomin.	LTI	LTS	Strumento di controllo	Quantità	Frequenza RK1:	Quantità	Frequenza RK2:	Quantità	Frequenza Sala di misura	Gambio ut	Metodi di gestione / Documentazione
0060	RUGOSITA' Rmax	0,0 µm	0,0	6,3	MOA-416121 RUGOSIMETRO TIPO PRK						1° pz 2.3.1.1-R 2		Misu: controllo primo pezzo
0070	Controllo chimico bruciature secondo procedura WTL 3.4.10.01					1	pz cambio mola rettifica						CR1: controllo primo pezzo
0080	PRESENZA RETTIFICA INCOMPLETEA					3	pz ogni 100 per macchina						CR1: no documentazione

**GETRAG**

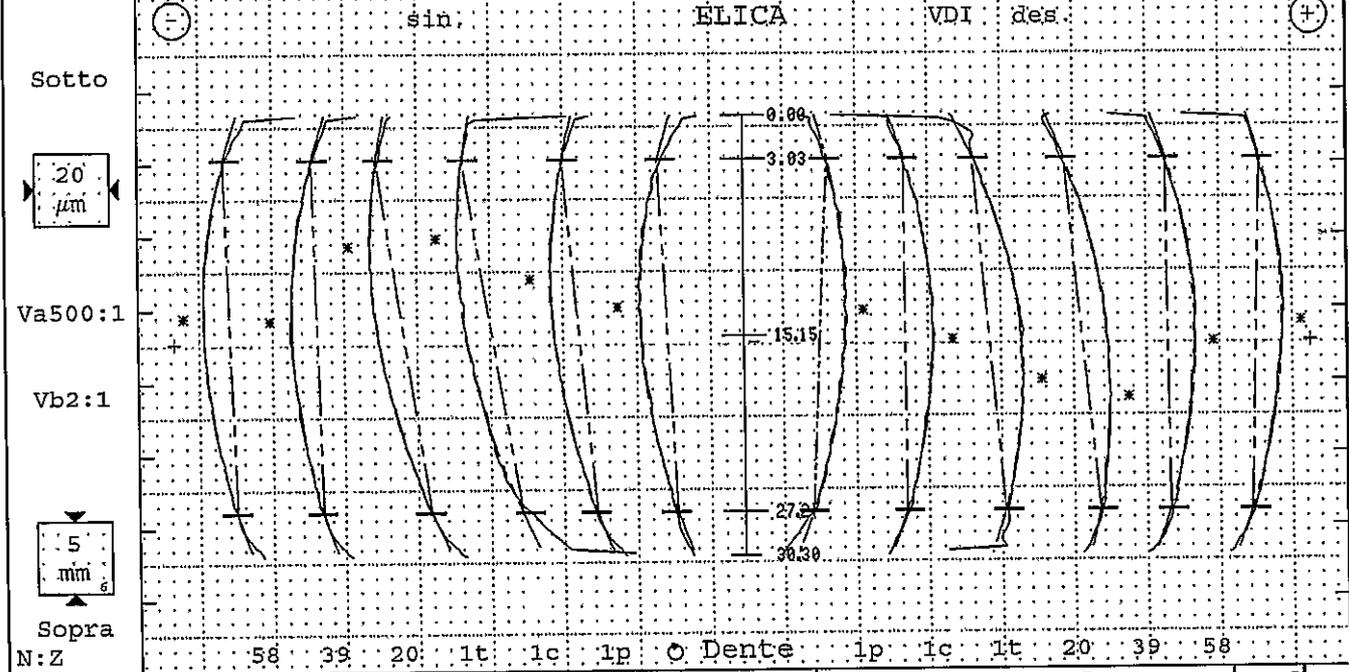
Ruota cilindrica Evolvente/Elica



Nr. prog.:	STI0410005 0	PNC35 B4784	Controllore:	TURNO C	Data:	07.01.2015 16:50
Denominazione:	ring gear		Numero denti z	76	Largh.fasc.dent. b	30.3mm
Numero disegno:	250.1.4240.52-IF		Modulo m	2.4mm	Tratto evolv. La	7.16mm
Commessa/serie nr.:	PPAP 1		Angolo pressione	20°	Tratto elica Ls	24.24mm
Masch.Nr.:	M001	spindel: Form	Angolo elica	24°	Inizio elab. M1	31.59mm
Untersuchungszweck:	Laufende Messung		Ø Base db	185.4824mm	Palpatore β	(#1)1mm
Werkzeug:	Charge:		Ang. Base	22.47°	Fat.scor.pr. x	- .142



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
		Var 1									Var 1								
fHm	-5±6	-5							±6								-2		
fHa	-5±5	-5	-5	-5	-4	-8	-5	-1	±5	-6	-2	1	-1	-2	-2	-2	-2		
Fα		2	1	2	2	3	1	5		6	3	3	2	3	3	3	3		
ffα	6	1	1	1	1	1	1	2	6	2	2	2	2	2	2	2	2		
fKα	-22/-14	-18	-18	-18	-18	-21	-18	-18	-22/-14	-16	-16	-16	-16	-16	-16	-16	-16		
P/T-φ[mm]	191.692	[191.4/191.85]								206.217	[206.1/206.4]								



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
		Var 16									Var 15								
fHm	-15±6	-11							±6								-2		
fHs	-15±8	-11	-7	-7	-19	-20	-11	-6	±8	5	0	-11	-8	-1	3	-2	-2		
Fβ	11	7	10	10	4	7	4	9	11	5	4	11	11	4	4	6	6		
ffβ	7	1	1	1	1	3	1	2	7	1	1	1	2	1	1	1	1		
Cβ	5/9	7	7	7	7	7	7	7	5/9	7	8	9	7	7	7	7	7		
Bd	15±8	14							15±8								16		

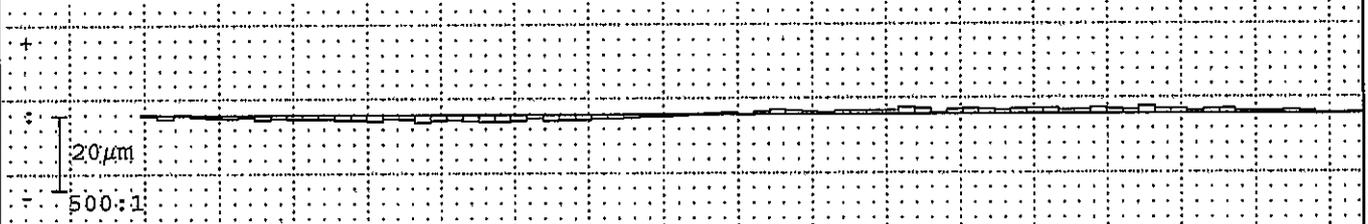
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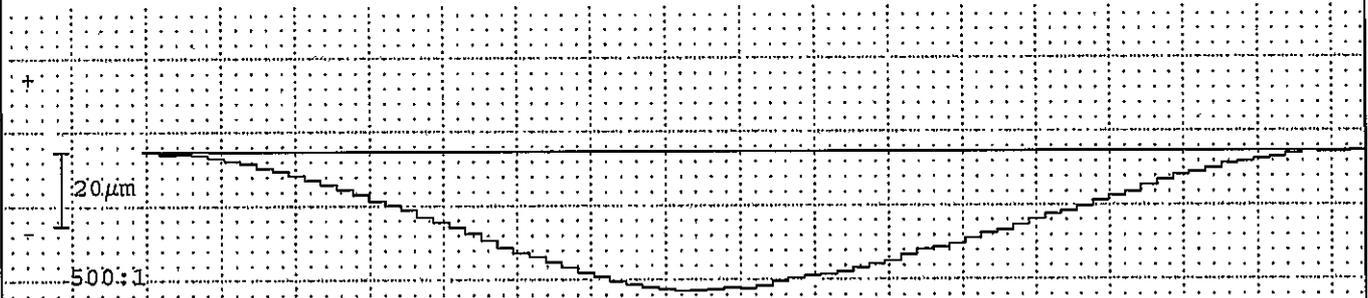


Nr. prog.: STI0410005 0 PNC35 B4784	Controllore: TURNO C	Data: 07.01.2015 16:50
Denominazione: ring gear	Numero denti z 76	Angolo pressione 20°
Numero disegno: 250.1.4240.52-IF	Modulo m 2.4mm	Angolo elica 24°
Comessa/serie nr.: PPAP 1	Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: FORMULAZIONE	Charge:

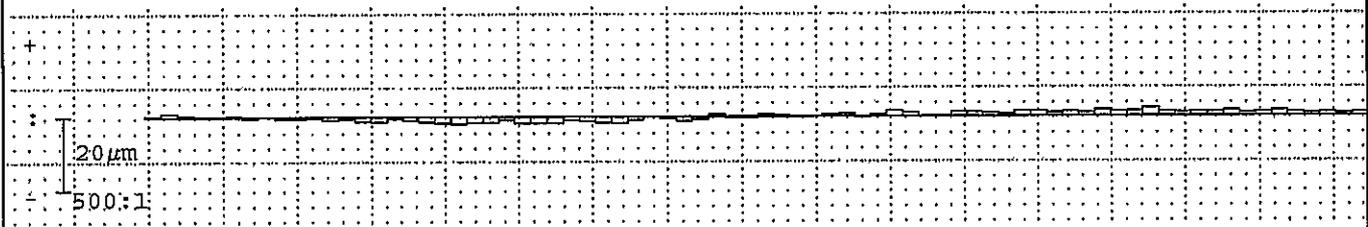
Errori singoli di divisione fp fianco sinistro



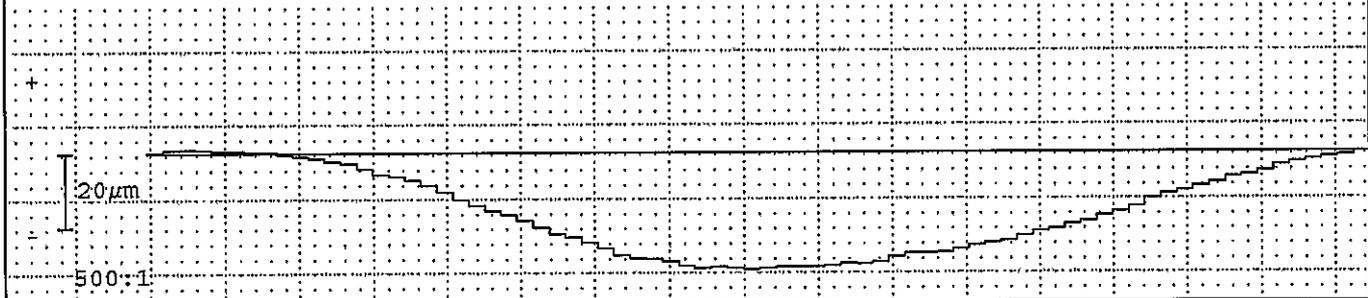
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



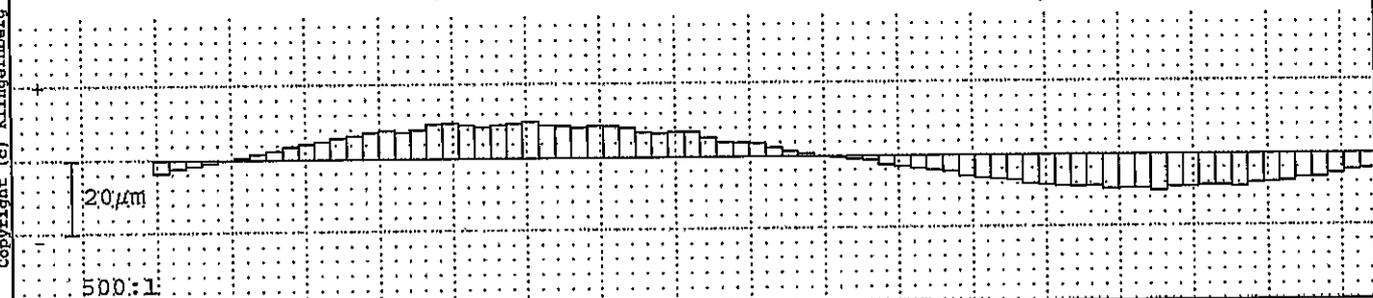
Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 198.98 z=15.2mm	fianco sinistro / TIRO				fianco destro			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	2		11		2		11	
Gr. salto di passo fu max	1		14		1		14	
Scarto di divisione Rp	4				4			
Err. globale di divisione Fp	38		45		33		45	
Err. cordale di divisione Fpz/8	16				16			

Centricità Fr (Ø-sfera = 4.25mm)

⊙ : 19µm



Err. di concentricità Fr	20	32	
Variab. spessore dente Rs			

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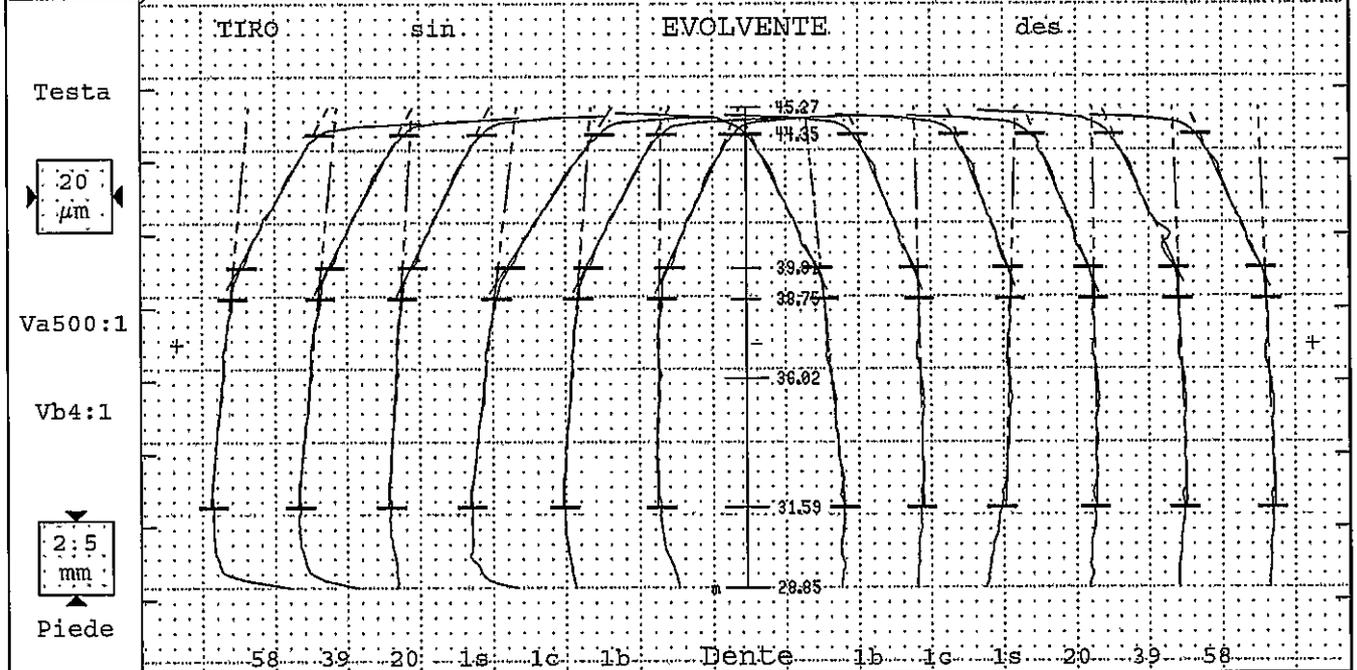


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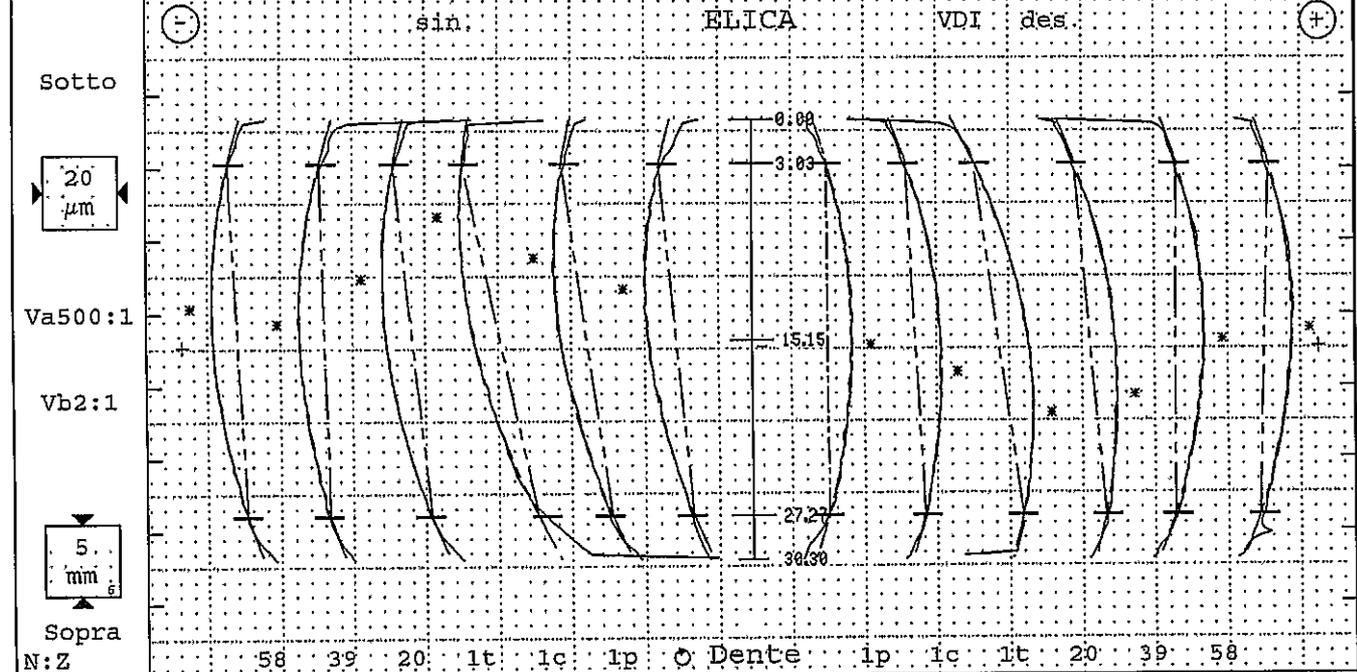
Ruota cilindrica Evolvente/Elica



Nr. prog.:	STI0410o05 0	PNC35 B4784	Controllore:	TURNO C	Data:	07.01.2015 16:43
Denominazione:	ring gear		Numero denti z	76	Largh.fasc.dent. b	30.3mm
Numero disegno.:	250.1.4240.52-IF		Modulo m	2.4mm	Tratto evolv. La	7.16mm
Commessa/serie nr.:	PPAP 2		Angolo pressione	20°	Tratto elica Ls	24.24mm
Masch.Nr.:	M001	Spindel: Forme	Angolo elica	24°	Inizio elab. M1	31.59mm
Untersuchungszweck:	Laufende Messung		Ø Base db	185.4824mm	Palpatore Ø	(#1)1mm
Werkzeug:	Charge:		Ang. Base	22.47°	Fat.scor.pr. x	-.142



Tolerance	Medio	Val. misur [ $\mu$ m]							Qual	Tolerance	Val. misur [ $\mu$ m]							Medio	Qual
fHm -5±6	-5	Var 2								±6	Var 1							-2	
fHv -5±5	-5	-6	-6	-4	-7	-4	-1		±5	-6	-1	2	-1	-2	-2	-2			
F $\alpha$	2	1	2	2	3	2	5			5	2	3	2	2	3	2			
ff $\alpha$	6	1	1	1	1	1	2		6	2	2	2	2	2	2	2			
fKo -22/-14	-18	-18	-18	-18	-22	-18	-18		-22/-14	-15	-16	-16	-16	-16	-16	-16			
P/T- $\phi$ [mm]	191.701	[191.4/191.85]								206.225	[206.1/206.4]								



fHm	Medio	Var 13							Qual	fHv	Var 13							Medio	Qual	
fHm -15±6	-11	Var 13								±6	Var 13							-3		
fHv -15±8	-11	-7	-7	-13	-26	-17	-12		±8	0	-6	-16	-8	1	3	-3				
FB	11	6	7	10	4	11	3	5		11	3	6	14	10	3	4	6			
ffB	7	1	1	1	1	3	2	2		7	1	1	1	2	1	2	2			
CB	5/9	7	7	7	7	7	7	8		5/9	7	7	8	7	8	8	8			
Bd	15±8	14									15±8									16

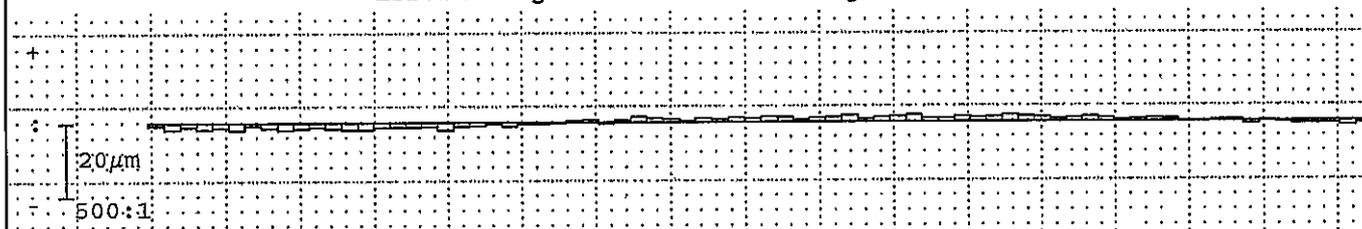
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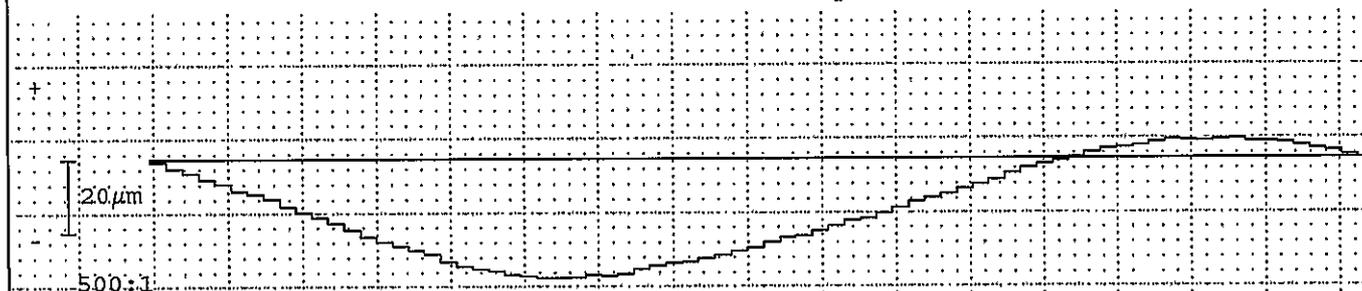


Nr. prog.: STI041005 0 PNC35 B4784	Controllore: TURNO C	Data: 07.01.2015 16:43
Denominazione: ring gear	Numero denti z 76	Angolo pressione 20°
Numero disegno.: 250.1.4240.52-IF	Modulo m 2.4mm	Angolo elica 24°
Commessa/serie nr.: PPAP 2	Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: FORMULAZIONE	Charge:

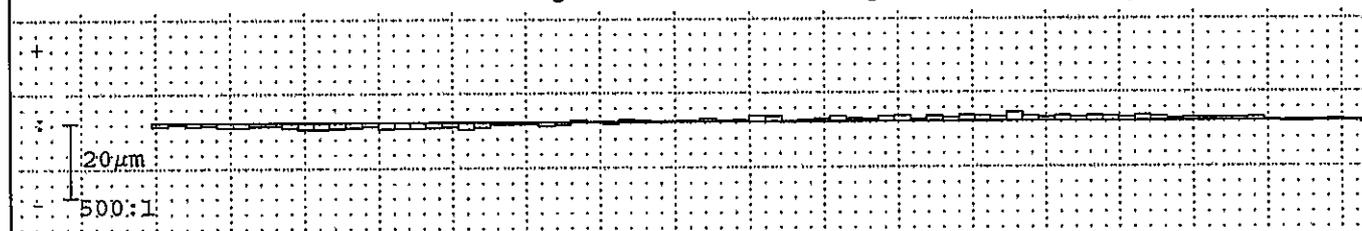
Errori singoli di divisione fp fianco sinistro



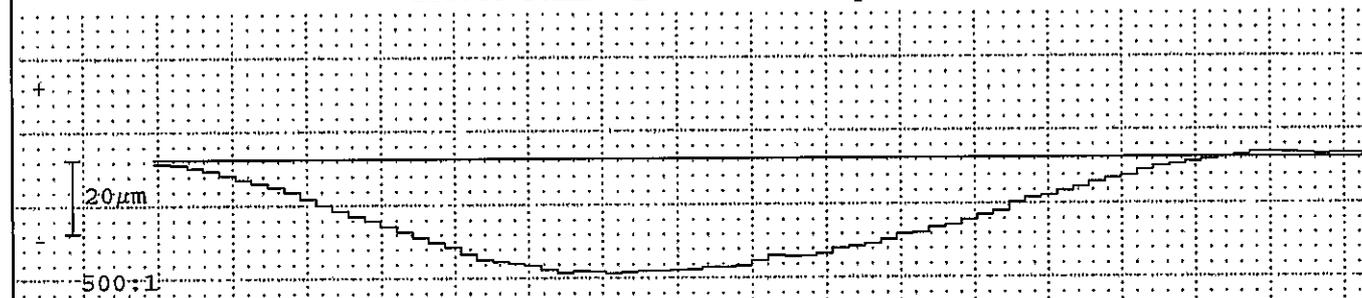
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



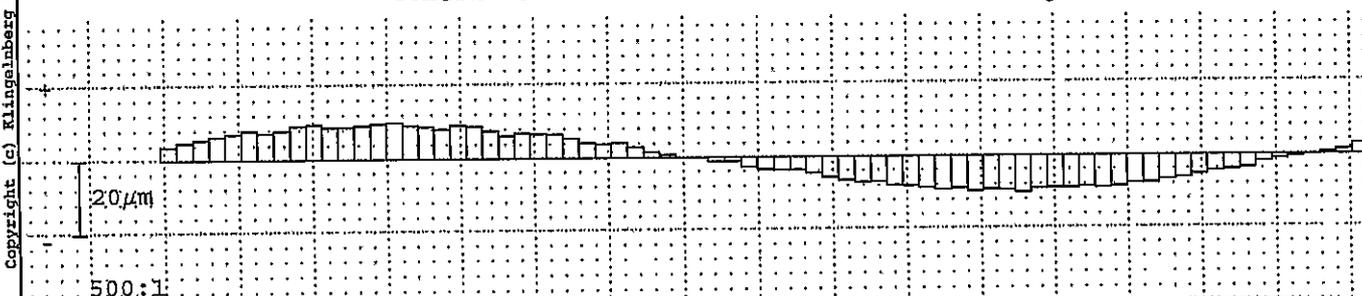
Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 198.98 z=15.2mm	fianco sinistro / TIRO				fianco destro			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	2		11		2		11	
Gr. salto di passo fu max	1		14		2		14	
Scarto di divisione Rp	4				4			
Err. globale di divisione Fp	38		45		33		45	
Err. cordale di divisione Fpz/8	16				15			

Centricità Fr (Ø-sfera = 4.25mm)

⊙ : 19µm



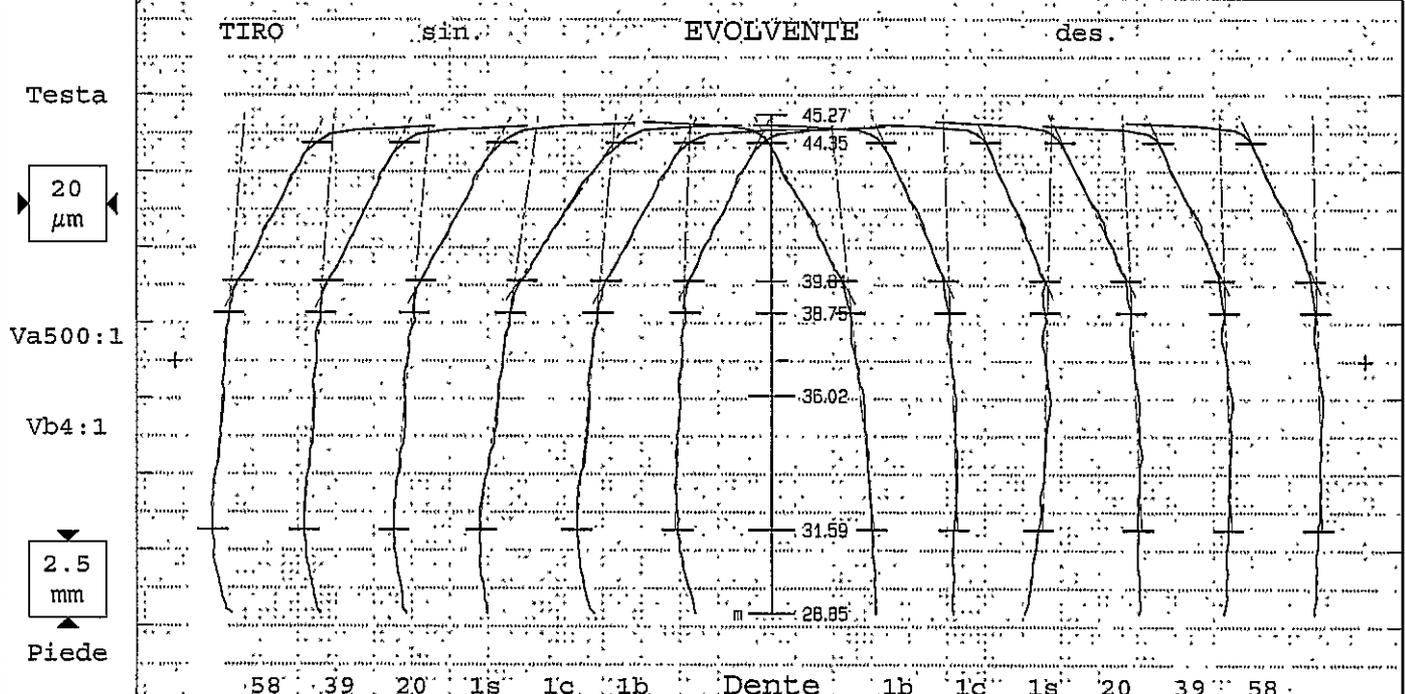
Err. di concentricità Fr	20	32	
Variab. spessore dente Rs			

**GETRAG**

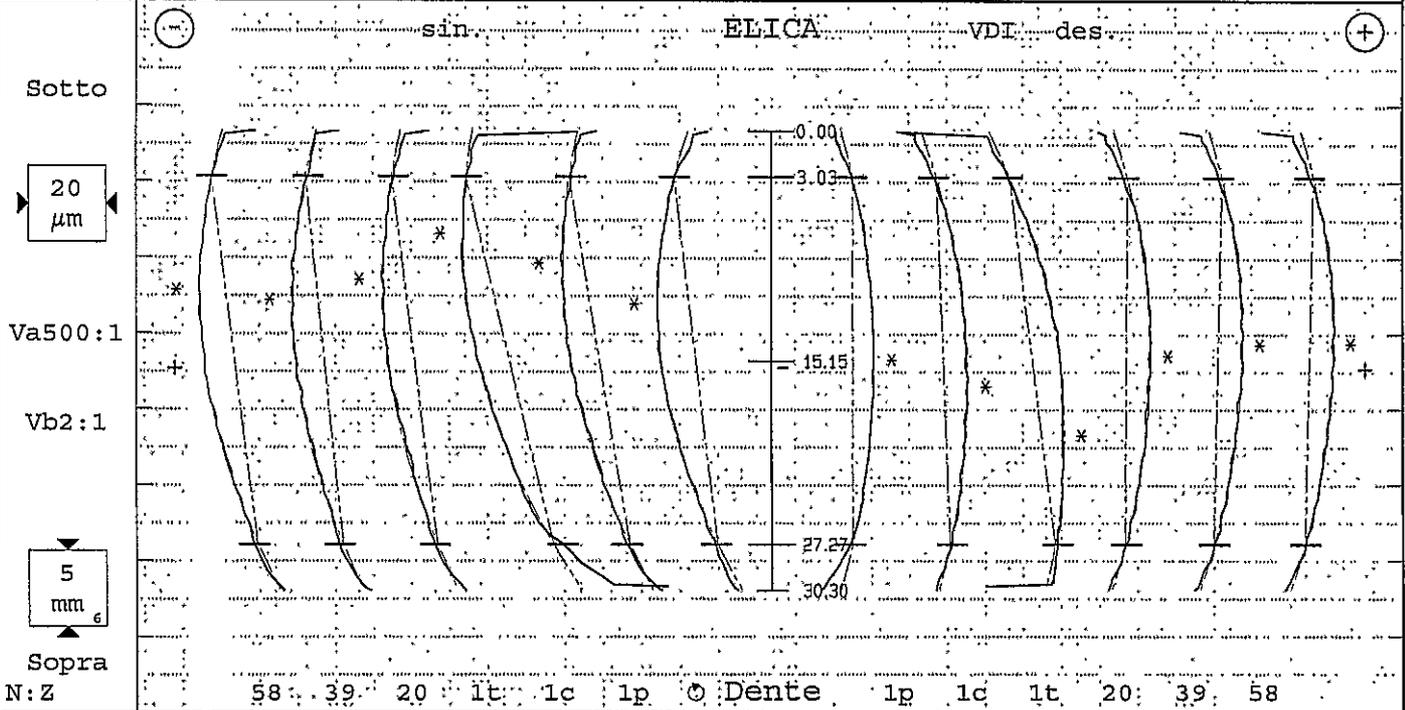
**Ruota cilindrica Evolvente/Elica**



Nr. prog.:	STI0410005 0	PNC35 B4784	Controllore:	TURNO C	Data:	07.01.2015 16:58
Denominazione:	ring gear		Numero denti z	76	Largh.fasc.dent. b	30.3mm
Numero disegno.:	250.1.4240.52-IF		Modulo m	2.4mm	Tratto evolv. La	7.16mm
Commessa/serie nr.:	PPAP 3		Angolo pressione	20°	Tratto elica Ls	24.24mm
Masch.Nr.:	M001	Spindel: Forme	Angolo elica	24°	Inizio elab. M1	31.59mm
Untersuchungszweck:	Laufende Messung		Ø Base db	185.4824mm	Palpatore Ø	(#1) 1mm
Werkzeug:	Charge:		Ang. Base	22.47°	Fat.scor.pr. x	- .142



Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual	
fHm	-5±6	-5	Var 1								±6	Var 2							-2	
fHa	-5±5	-5	-5	-4	-5	-8	-5	-2		±5	-6	-2	1	-3	-2	-1	-2			
Fa	2	2	1	2	2	4	2	4		6	3	3	3	3	2	3				
ffa	6	1	1	1	2	1	1	2		6	2	2	3	2	3	2	2			
fKo	-22/-14	-18	-18	-18	-18	-21	-18	-18		-22/-14	-17	-16	-17	-16	-16	-16	-16			
P/T-φ [mm]	191.699	[191.4/191.85]								206.226	[206.1/206.4]									



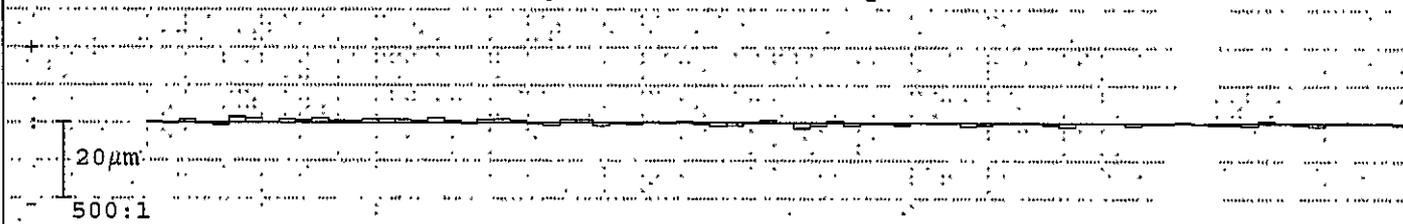
fHsm	-15±6	-15	Var 7							Qual	±6	Var 7							Qual
fHs	-15±8	-15	-15	-12	-15	-28	-19	-14		±8	0	-4	-15	1	3	3	1		
Fß	11	4	3	5	3	14	4	5		11	1	5	14	2	3	3	3		
ffß	7	2	1	2	2	3	2	1		7	1	1	1	2	2	2	2		
CS	5/9	7	8	7	7	8	7	9		5/9	6	6	7	6	6	6	6		
Bd	15±8	14									15±8								15



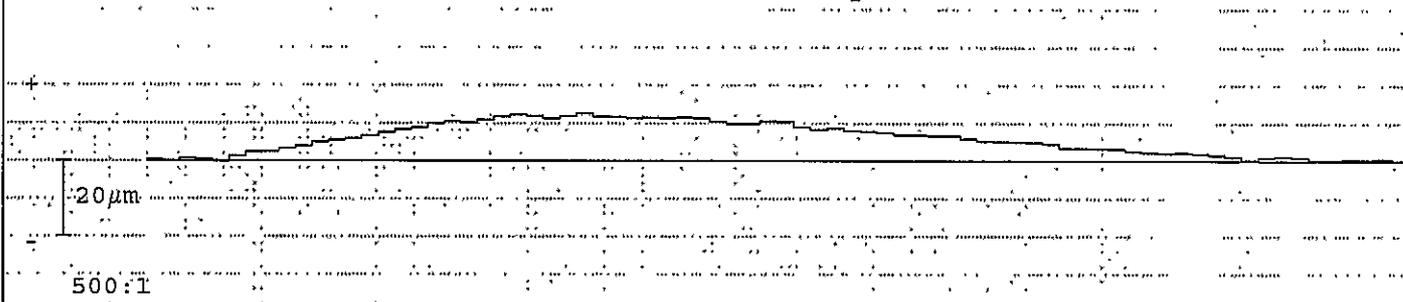


Nr. prog.:	STI0410005 0 PNC35 B4784	Controllora:	TURNO C	Data:	07.01.2015 16:58
Denominazione:	ring gear	Numero denti z	76	Angolo pressione	20°
Numero disegno.:	250.1.4240.52-IF	Modulo m	2.4mm	Angolo elica	24°
Comessa/serie nr.:	PPAP 3	Untersuchungszweck:	Laufende Messung		
Masch.Nr.:	M001	Spindel:	FORMA	Charge:	

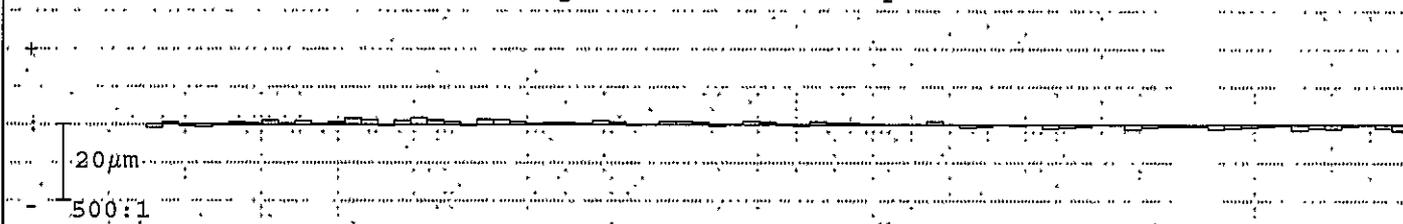
**Errori singoli di divisione fp fianco sinistro**



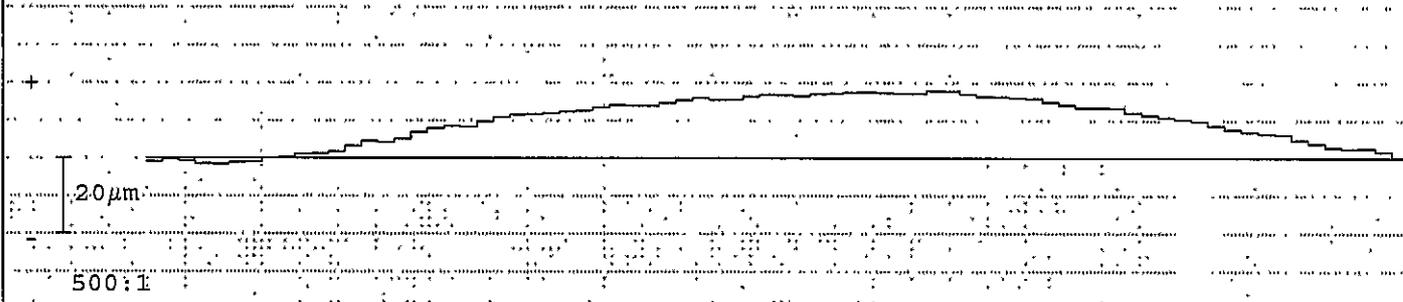
**Errore somma di divisione Fp fianco sinistro**



**Errori singoli di divisione fp fianco destro**

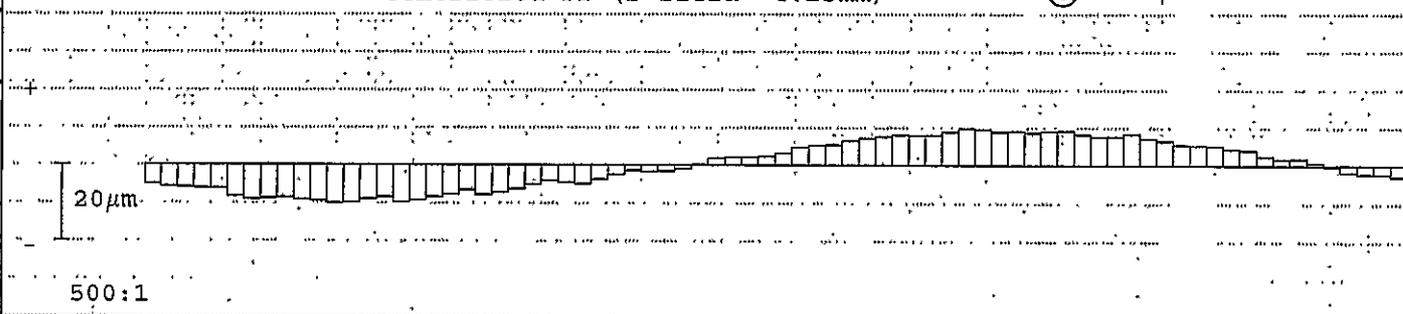


**Errore somma di divisione Fp fianco destro**



Corsa per misura divis.:198.98 z=15.2mm	fianco sinistro / TIRO				fianco destro			
	Val.misur	Qual.	Val. amm	Qual.	Val.misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	1		11		2		11	
Gr. salto di passo fu max	2		14		2		14	
Scarto di divisione Rp	2				4			
Err. globale di divisione Fp	13		45		19		45	
Err. cordale di divisione Fpz/8	8				9			

**Centricità Fr (Ø-sfera =4.25mm) Ⓞ : 18µm**



Err. di concentricità Fr	20	32		
Variatz. spessore dente Rs				

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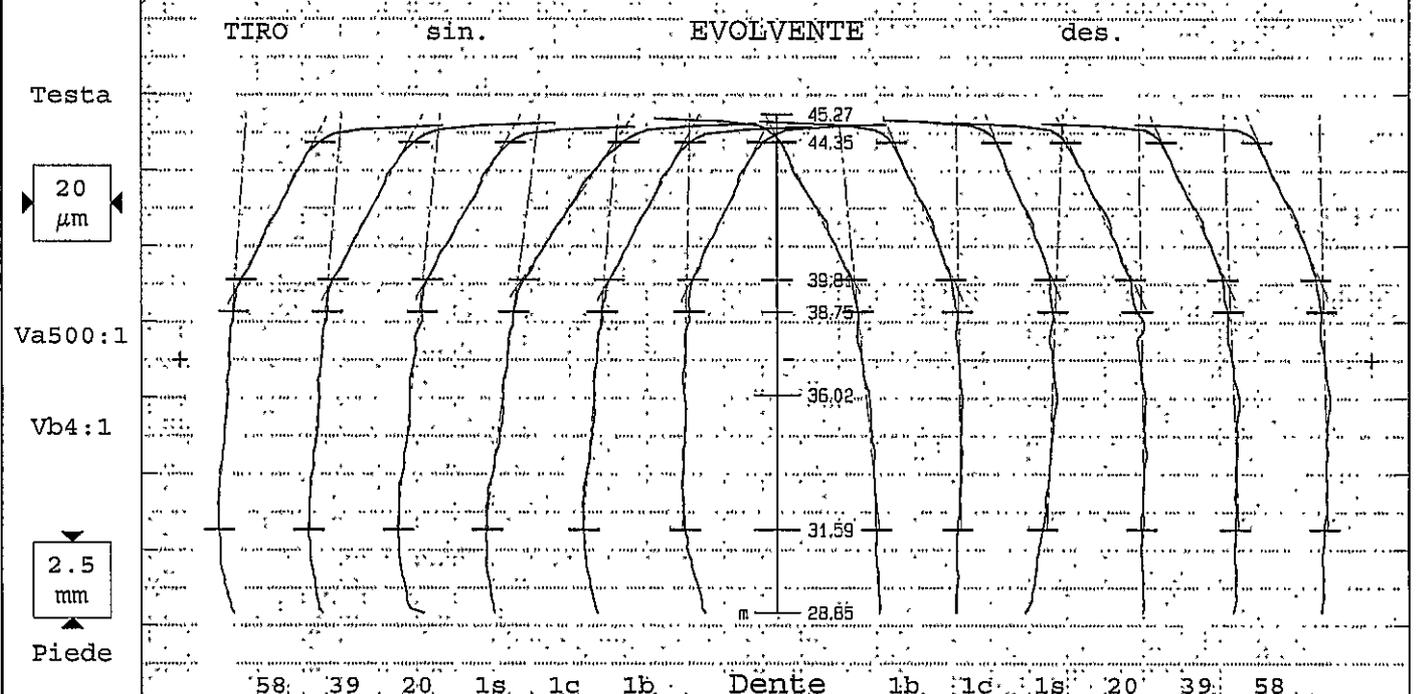


**GETRAG**

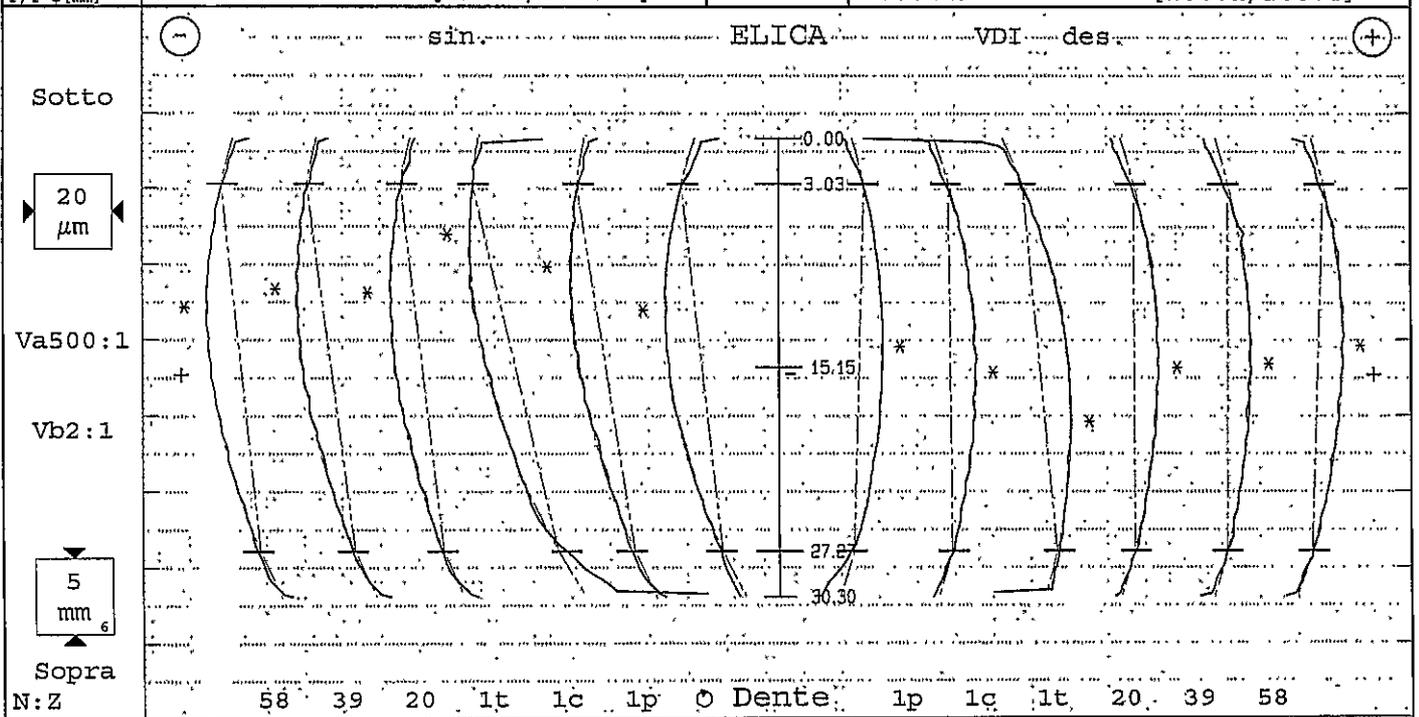
**Ruota cilindrica Evolvente/Elica**



Nr. prog.:	STI041005 0	PNC35 B4784	Controllore:	TURNO C	Data:	07.01.2015 17:06
Denominazione:	ring gear		Numero denti z	76	Largh.fasc.dent. b	30.3mm
Numero disegno.:	250.1.4240.52-IF		Modulo m	2.4mm	Tratto evolv. La	7.16mm
Commessa/serie nr.:	PPAP 4		Angolo pressione	20°	Tratto elica L&S	24.24mm
Masch.Nr.:	M001	Spindel: Formm	Angolo elica	24°	Inizio elab. M1	31.59mm
Untersuchungszweck:	Laufende Messung		Ø Base db	185.4824mm	Palpatore Ø	(#1) 1mm
Werkzeug:	Charge:		Ang. Base	22.47°	Fat.scor.pr. x	- .142



Tolerance	Medio	Val. misur [µm]						Qual	Tolerance	Val. misur [µm]						Medio	Qual	
fHcm	-5±6	-5	Var 2							±6	Var 1						-1	
fHa	-5±5	-5	-4	-5	-6	-7	-5	-1		±5	-6	-1	2	-1	-2	-1	-1	
Fa	2	2	2	1	2	3	1	5			5	2	4	2	3	3	3	
ffa	6	1	1	1	2	2	1	2		6	2	2	3	2	3	2	2	
fKo	-22/-14	-18	-18	-18	-18	-21	-18	-18		-22/-14	-16	-16	-17	-18	-16	-16	-17	
P/T-φ [mm]	191.704	[191.4/191.85]								206.229	[206.1/206.4]							



Tolerance	Medio	Val. misur [µm]						Qual	Tolerance	Val. misur [µm]						Medio	Qual	
fHSm	-15±6	-16	Var 6							±6	Var 5						1	
fH&S	-15±8	-16	-13	-16	-14	-28	-19	-13		±8	3	-1	-11	0	1	4	1	
F&S	11	3	4	3	3	13	3	5		11	4	3	10	2	3	4	3	
ff&S	7	1	1	1	1	3	2	1		7	1	1	1	1	3	2	2	
CS	5/9	7	8	7	7	8	7	9		5/9	6	7	7	6	6	6	6	
Bd	15±8	15								15±8								14

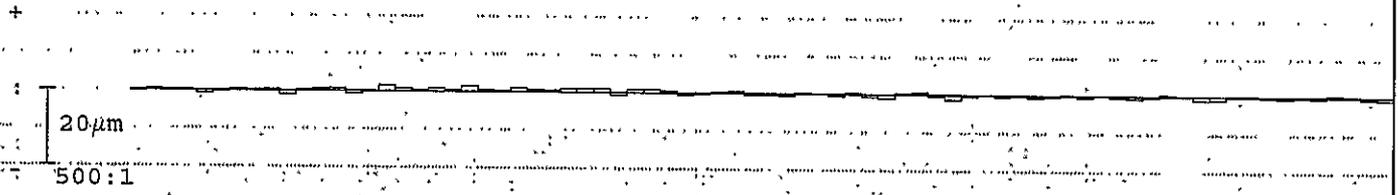
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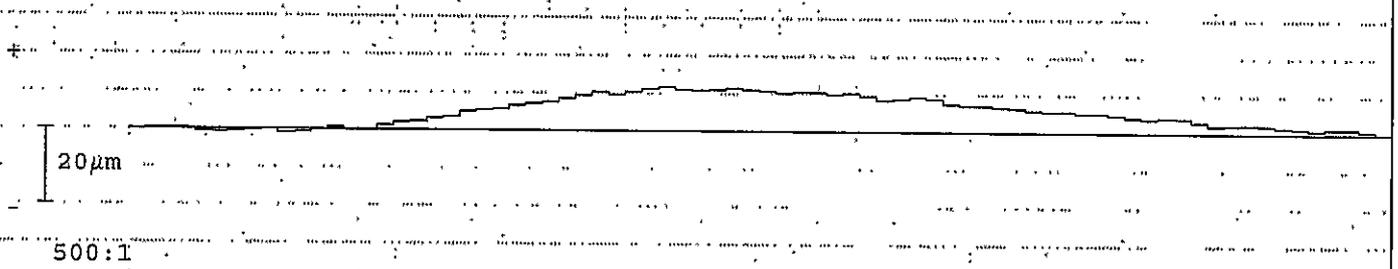


Nr. prog.: STI0410005 0	PNC35 B4784	Controllore: TURNO C	Data: 07.01.2015 17:06
Denominazione: ring gear	Numero denti z 76	Angolo pressione 20°	
Numero disegno: 250.1.4240.52-IF	Modulo m 2.4mm	Angolo elica 24°	
Commessa/serie nr.: PPAP 4	Untersuchungszweck: Laufende Messung		
Masch.Nr.: M001	Spindel: FORMULAZIONE	Charge:	

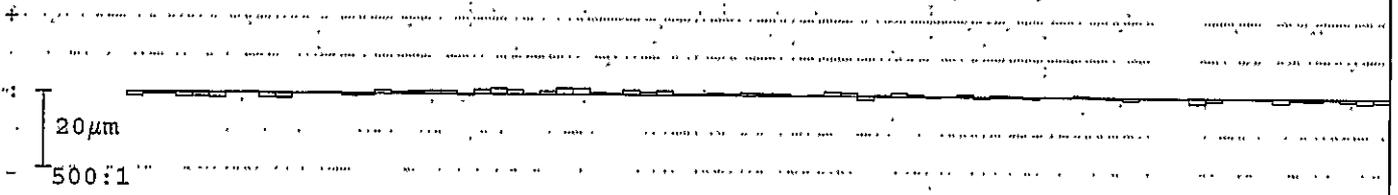
**Errori singoli di divisione fp fianco sinistro**



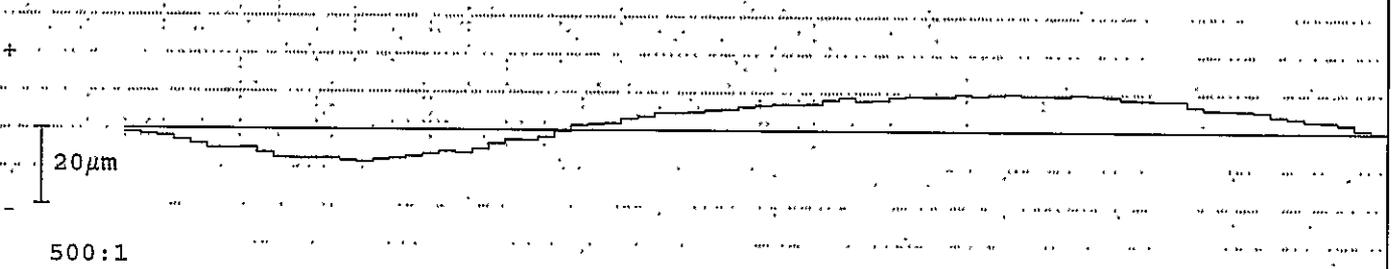
**Errore somma di divisione Fp fianco sinistro**



**Errori singoli di divisione fp fianco destro**

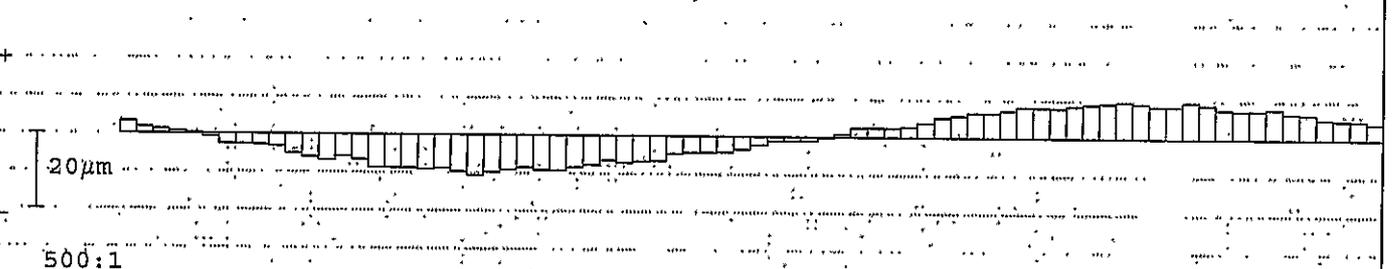


**Errore somma di divisione Fp fianco destro**



Corso per misura divis.: 198.98 z=15.2mm	fianco sinistro / TIRO				fianco destro			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. arr. singoli divisione fp max	1		11		2		11	
Gr. salto di passo fu max	2		14		2		14	
Scarto di divisione Rp	2				3			
Err. globale di divisione Fp	12		45		18		45	
Err. cordale di divisione Fpz/8	7				9			

**Centricità Fr (Ø-sfera =4.25mm) ☉ : 18µm**



Err. di concentricità Fr	20	32		
Variaz. spessore dente Rs				

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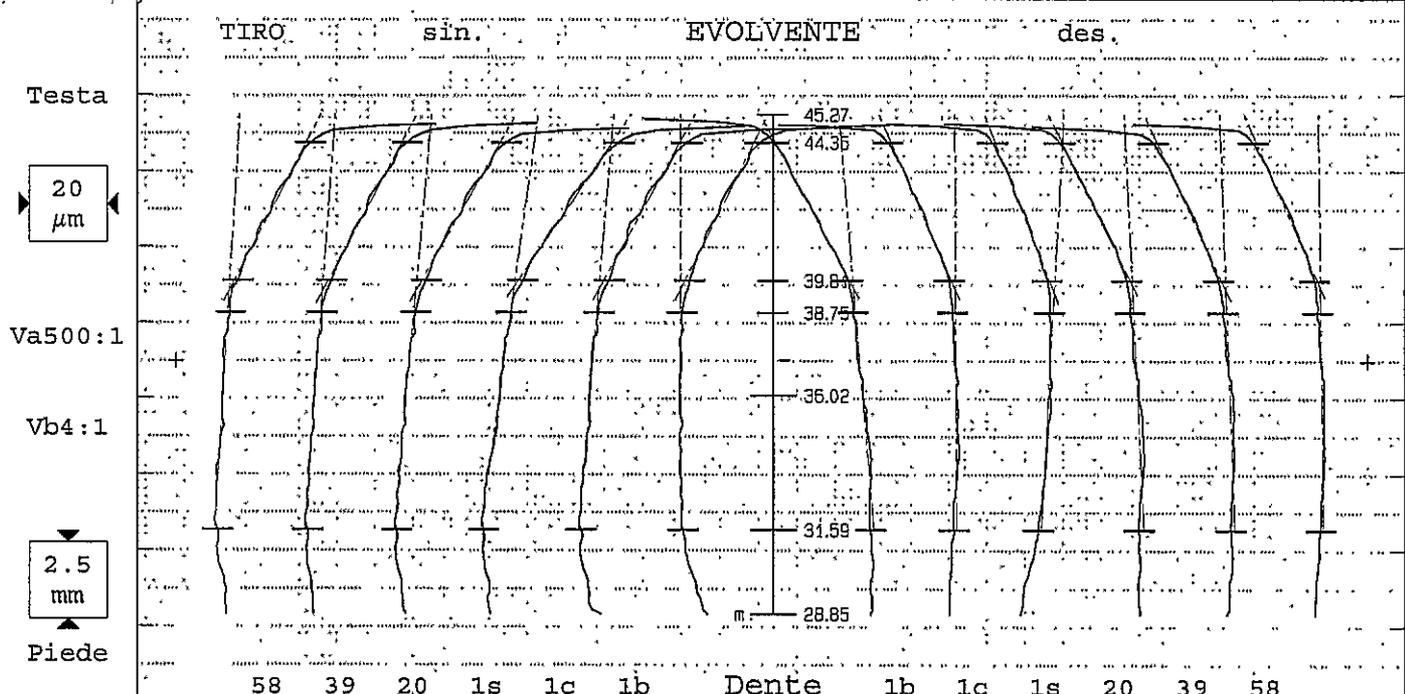


# GETRAG

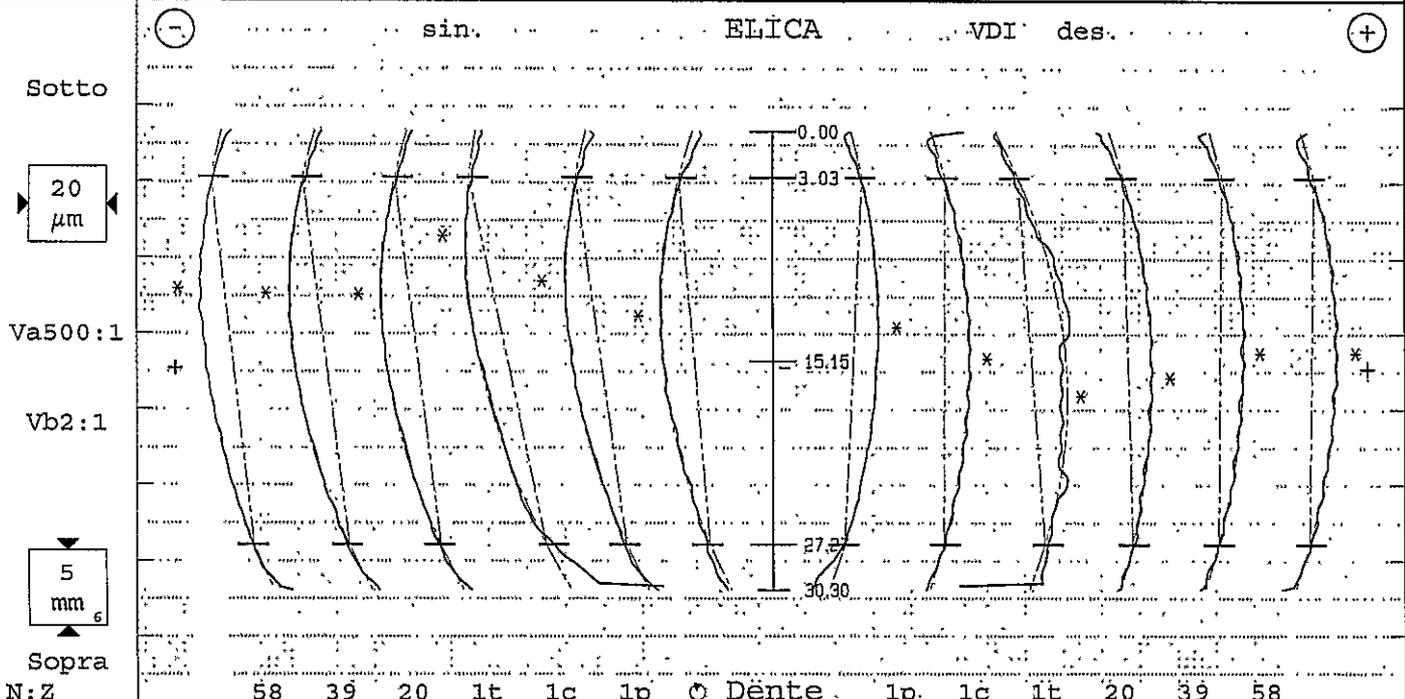
## Ruota cilindrica Evolvente/Elica



Nr. prog.:	STI041005 0	PNC35 B4784	Controllore:	TURNO C	Data:	07.01.2015 16:13
Denominazione:	ring gear		Numero denti z	76	Largh. fasc. dent. b	30.3mm
Numero disegno.:	250.1.4240.52-IF		Modulo m	2.4mm	Tratto evolv. La	7.16mm
Comessa/serie nr.:	PPAP 5		Angolo pressione	20°	Tratto elica Ls	24.24mm
Masch.Nr.:	M001	Spindel: Forme	Angolo elica	24°	Inizio elab. M1	31.59mm
Untersuchungszweck:	Laufende Messung		Ø Base db	185.4824mm	Salpatore Ø	(#1) 1mm
Werkzeug:	Charge:		Ang. Base	22.47°	Fat. scor. pr. x	- .142



Tolerance	Medio	Val. misur [ $\mu$ m]							Qual	Tolerance	Val. misur [ $\mu$ m]							Medio	Qual	
fH <sub>dm</sub>	-5±6	-5	Var 1								±6	Var 3							-2	
fH <sub>a</sub>	-5±5	-5	-4	-4	-5	-8	-5	0		±5	-5	0	3	-3	-2	-1	-2			
F <sub>a</sub>	2	2	3	2	1	3	1	5		5	2	4	4	3	2	3				
fF <sub>a</sub>	6	1	2	1	1	1	1	1		6	2	2	2	2	2	2				
fK <sub>o</sub>	-22/-14	-18	-18	-18	-19	-20	-18	-19		-22/-14	-17	-17	-18	-17	-17	-16	-17			
P/T- $\phi$ [mm]	191.692		[191.4/191.85]								206.222		[206.1/206.4]							



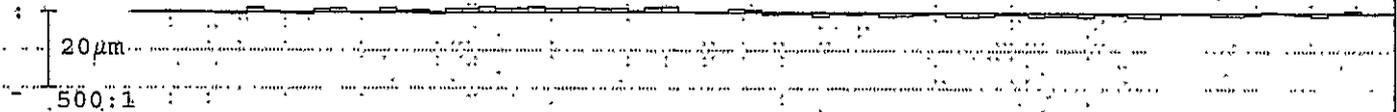
Tolerance	Medio	Val. misur [ $\mu$ m]							Qual	Tolerance	Val. misur [ $\mu$ m]							Medio	Qual	
fH <sub>dm</sub>	-15±6	-15	Var 3								±6	Var 4							0	
fH <sub>S</sub>	-15±8	-15	-14	-15	-15	-25	-17	-10		±8	6	0	-9	-3	1	1	0			
F <sub>S</sub>	11	4	3	5	4	10	3	6		11	5	9	11	4	2	3	5			
fF <sub>S</sub>	7	1	1	2	1	3	1	1		7	1	1	4	2	2	2	2			
CE	5/9	8	7	8	8	7	8	8		5/9	6	7	9	6	6	6	6			
Bd	15±8	15								15±8							15			



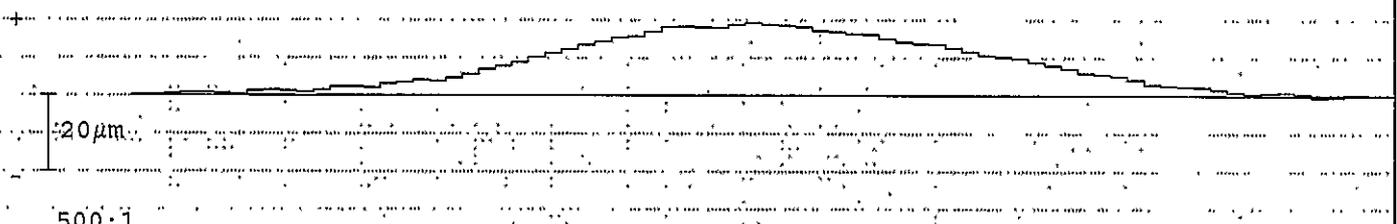


Nr. prog.:	STI0410005 0 PNC35 B4784	Controllore:	TURNO C	Data:	07.01.2015 16:13
Denominazione:	ring gear	Numero denti z	76	Angolo pressione	20°
Numero disegno.:	250.1.4240.52-IF	Modulo m	2.4mm	Angolo elica	24°
Comessa/serie nr.:	PPAP 5	Untersuchungszweck:	Laufende Messung		
Masch.Nr.:	M001	Spindel:	FORMA	Arbeitszeug:	Charge:

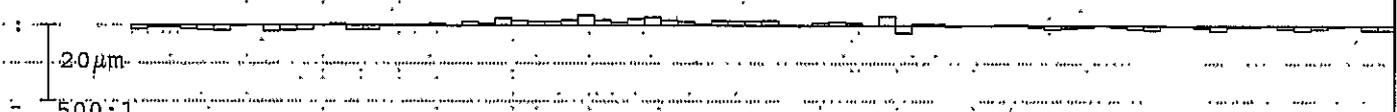
**Errori singoli di divisione fp fianco sinistro**



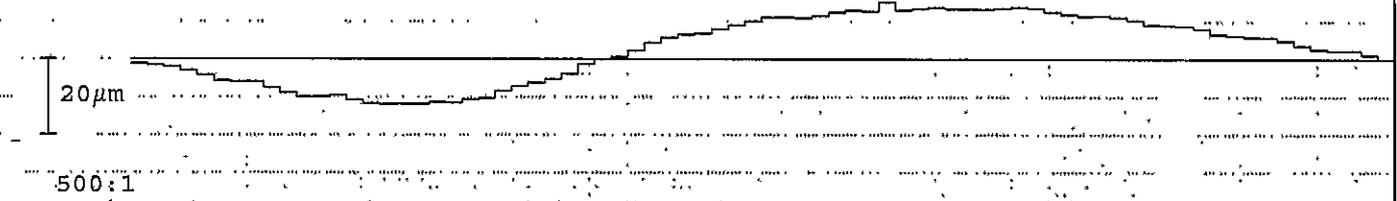
**Errore somma di divisione Fp fianco sinistro**



**Errori singoli di divisione fp fianco destro**

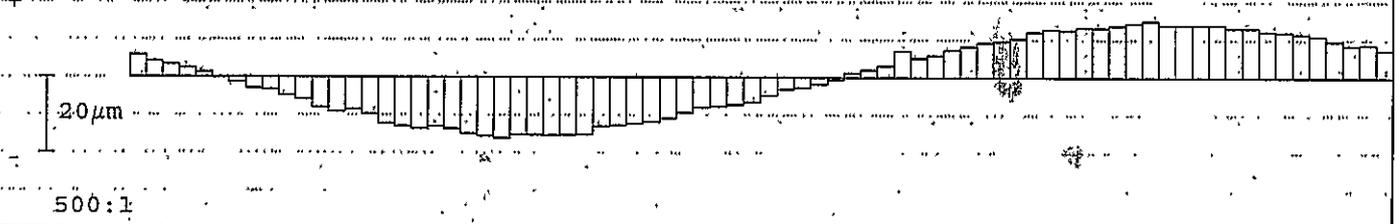


**Errore somma di divisione Fp fianco destro**



Corsa per misura divis.:198.98 z=15.2mm	fianco sinistro / TIRO				fianco destro			
	Val.misur	Qual.	Val. amm	Qual.	Val.misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	1		11		3		11	
Gr. salto di passo fu max	1		14		4		14	
Scarto di divisione Rp	2				5			
Err. globale di divisione Fp	20		45		27		45	
Err. cordale di divisione Fpz/8	11				15			

**Centricità Fr (Ø-sfera =4.25mm) Ⓞ : 29µm**



Err. di concentricità Fr	31	32		
Variab. spessore dente Rs				

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<b>Point</b>	<b>Caracteristic</b>	<b>Tolerance</b>	<b>Part 1</b>	<b>Part 2</b>	<b>Part 3</b>	<b>Part 4</b>	<b>Part 5</b>
4	MDK	204,098/204,030	204,072	204,068	204,077	204,07	204,066

## **Manual measures by Marposs**

**RG 250 1 6463 00**

12,Jan 2015 2014