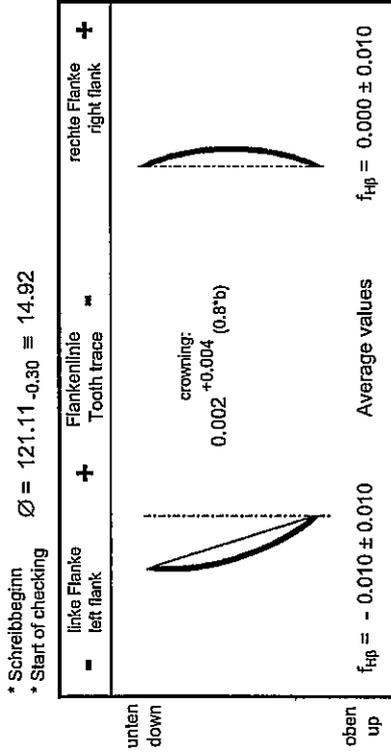
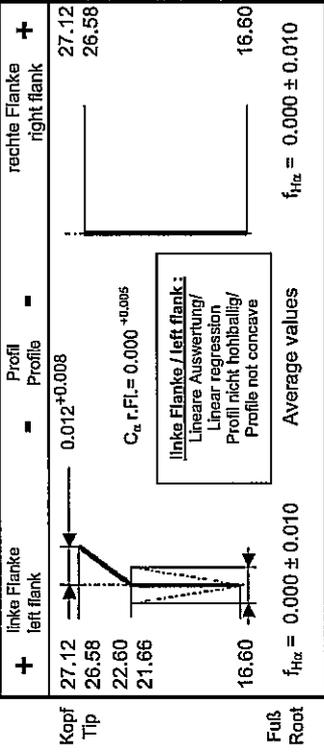
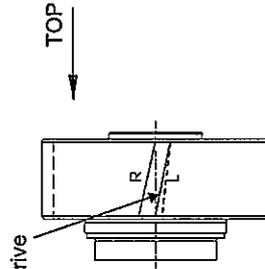


Part Name Speed Gear SRrv		Customer Part Number 250.1.4228.05	
Shown on Drawing No. 250.1.4228.05		Organization Part # _____	
Engineering Change Level a 35670		Dated 11 August 2014	
Additional Engineering Changes _____		Dated _____	
Safety and/or Government Regulation <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Purchase Order No. _____ Weight (kg) 0,8380	
Checking Aid No. _____		Checking Aid Engineering Change Level _____ Dated _____	
ORGANIZATION MANUFACTURING INFORMATION		CUSTOMER SUBMITTAL INFORMATION	
GETRAG MODUGNO		RENAULT	
Organization Name & Supplier/Vendor Code _____		Customer Name/Division _____	
VIA DEI CICLAMINI N°4		Buyer/Buyer Code _____	
Street Address _____		Buyer/Buyer Code _____	
MODUGNO BARI	70026	ITALY	TYP 250
City	Region	Postal Code	Country
_____	_____	_____	_____
MATERIALS REPORTING		Application _____	
Has customer-required Substances of Concern information been reported? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a		Submitted by IMDS or other customer format: _____	
Are polymeric parts identified with appropriate ISO marking codes? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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)			
<input type="checkbox"/> Level 1 - Warrant only (and for designated appearance items, an Appearance Approval Report) submitted to customer.			
<input type="checkbox"/> Level 2 - Warrant with product samples and limited supporting data submitted to customer.			
<input checked="" type="checkbox"/> Level 3 - Warrant with product samples and complete supporting data submitted to customer.			
<input type="checkbox"/> Level 4 - Warrant and other requirements as defined by customer.			
<input type="checkbox"/> Level 5 - Warrant with product samples and complete supporting data reviewed at organization's manufacturing location.			
SUBMISSION RESULTS			
The results for <input checked="" type="checkbox"/> dimensional measurements <input checked="" type="checkbox"/> material and functional tests <input type="checkbox"/> appearance criteria <input checked="" type="checkbox"/> statistical process package			
These results meet all drawing and specification requirements: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> n/a			
Organization Authorized Signature _____		Date 15 Jan 2015	
Print Name Pennacchia Vincenzo	Phone No. tel 390805853580	Fax No. _____	
Title GPS Leader	E-mail vincenzo.pennacchia@getrag.com		
FOR CUSTOMER USE ONLY (IF APPLICABLE)			
Part Warrant Disposition: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Other			
Customer Signature _____		Date 15.01.15	
Print Name _____		Customer Tracking Number (optional) _____	

STIRNRAD		Toleranzen der Verzahnung (DIN 3961 vom Aug. 1978)		(9)	
GEAR		gültig für Werte am Einzelzahn		Tolerances of gearing (DIN 3961 of Aug. 1978)	
valid for values at individual tooth		linke Fl. left flank	rechte Fl. right flank	linke Fl. left flank	rechte Fl. right flank
Zähnezahl Number of teeth	67				
Modul Normal module	1.60000	f_{fa}	0.022	Eingriffstellungs-Abweich. Normal pitch error	f_{pb} 0.022
Eingriffswinkel Normal pressure angle	17° 30' 0"	F_{α}		Teilungs-Einzelabweichung Adjacent pitch error	f_p 0.022
Schrägungswinkel Helix angle	31° 0' 0"	f_{fz}	0.000	Teilungssprung Diff. bet. adjacent pitches	f_u 0.025
Steigungsrichtung Hand of helix	RIGHT	f_{fz}	± 0.018	Teilungs-Summenabweich. Cumulative circ. pitch error	F_{pk}
Profilverstärkungsfaktor Addendum modification coef.	-0.041	f_{fz}	- 0.010	Rundlaufabweichung Radial run-out	F_r 0.056
Teilkreisdurchmesser Pitch diameter	125.063	f_{fz}	± 0.025	Zahndickenschwankung Range of tooth thckn. error	R_s
Kopfkreisdurchmesser Outside diameter	129.70 -0.30	f_{fp}	0.014	Zweifel-Wälzabweichung Radial composite error	F_r 0.063
Tip diam. usable theo.	129.30	f_{fp}	0.085	Zweifel-Wälzabweichung Radial composite error	f_r 0.028
Kopfnutkreisd. theo. min. d _{1a}	128.85	f_{fp}		Radial tooth to tooth comp. err.	R_{μ} 20.65
Tip diam. usable theo.	119.60 -0.45	f_{fp}		Radial tooth to tooth comp. err.	
Fußkreisdurchmesser Root diameter	121.98	f_{fp}		Radial tooth to tooth comp. err.	
Root diameter usable	58.687	f_{fp}		Radial tooth to tooth comp. err.	
Grundkreisradius Base circle radius	117.374	f_{fp}		Radial tooth to tooth comp. err.	
Basisdurchmesser Base diameter	2.394	f_{fp}		Radial tooth to tooth comp. err.	
Normalzahnstärke max. s _n	2.359	f_{fp}		Radial tooth to tooth comp. err.	
Normalzahnstärke min. s _n		f_{fp}		Radial tooth to tooth comp. err.	
Normalzahnstärke		f_{fp}		Radial tooth to tooth comp. err.	
Meßzahnzahl Number of teeth spanned	11	f_{fp}		Radial tooth to tooth comp. err.	
Zahnweite max. W _k	51.793	f_{fp}		Radial tooth to tooth comp. err.	
Base tangent length min. W _k	51.759	f_{fp}		Radial tooth to tooth comp. err.	
Zahnweite Base tangent length	3.0000	f_{fp}		Radial tooth to tooth comp. err.	
Meßkugeldurchmesser Ball diameter	129.587	f_{fp}		Radial tooth to tooth comp. err.	
Diam. Zweikugelmäß max. M _{kk}	129.484	f_{fp}		Radial tooth to tooth comp. err.	
Measurement o. balls	0.072	f_{fp}		Radial tooth to tooth comp. err.	
Diam. Zweikugelmäß min. M _{kk}	0.192	f_{fp}		Radial tooth to tooth comp. err.	
Measurement o. balls		f_{fp}		Radial tooth to tooth comp. err.	
Verdrehflankenspiel Circumferential backlash		f_{fp}		Radial tooth to tooth comp. err.	



* Schreibebeginn $\emptyset = 121.11 - 0.30 \approx 14.92$
 * Start of checking

Profile and helix checking according to VDI/VDE 2612
 Listed tolerance data for F_p and f_{fp} refers to the total face width in the meas. dia. d_M
 Tooth trace testing area $L\beta = 0.8*b$ calculated to $1.0*b$
 Terms of the tooth system according to DIN (German Industrial Standards) No. 868, 3960, 3998

Verteiler:		Schutzvermerk nach DIN 34 beachten	
Ersatz für		Schutzvermerk nach DIN 34 beachten	
Abbildungen sind unmaßstäblich, Diagrams not to scale,		Schutzvermerk nach DIN 34 beachten	
bei Getriebetypen:		Schutzvermerk nach DIN 34 beachten	
250.0.0004.16		Schutzvermerk nach DIN 34 beachten	
Verzahnungsblatt Endkontrolle		Schutzvermerk nach DIN 34 beachten	
Final Check Gear Data		Schutzvermerk nach DIN 34 beachten	
Benennung:		Schutzvermerk nach DIN 34 beachten	
Nennung:		Schutzvermerk nach DIN 34 beachten	
Schaltraderw		Schutzvermerk nach DIN 34 beachten	
250.1.4229.04		Schutzvermerk nach DIN 34 beachten	
Buch.	Anz.	Änd.Nr.	
Ersatz für			
Abbildungen sind unmaßstäblich, Diagrams not to scale,			
bei Getriebetypen:			
250.0.0004.16			
Verzahnungsblatt Endkontrolle			
Final Check Gear Data			
Benennung:			
Nennung:			
Schaltraderw			
250.1.4229.04			

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

Wkz-Profil siehe Werkzeugdatenblatt Nr. 250.1.4229.04
 For Tooth profile, see tool data sheet number

6

TEILEVORLAGE-BESTÄTIGUNG (Part Submission Warrant, PSW)



Name des Teiles Kupplungskoeper		Teilenummer	<u>0558538300</u>									
Sicherheits- und/oder gesetzl. Vorschrift		<input type="checkbox"/> Ja <input checked="" type="checkbox"/> Nein	Technischer Änderungsstand Index a									
Zusätzliche technische Änderungen -				Vorlagedatum 02.09.09								
Zeichnungsnummer 0558538300		Bestellnummer -	Datum -									
Nr. spezifisches Prüfmittel -		Änderungsstand F	Gewicht 44,370g									
			Freigabedatum 02.09.09									
Produktionsauskunft des Lieferanten			Auskunft über die Art der Vorlage									
HOERBIGER Synchron Technik GmbH			<input type="checkbox"/> Maße	<input type="checkbox"/> Material / Funktion								
Lieferantename und Kennnummer			<input type="checkbox"/> Aussehen									
Lembacher Str. 2			GETRAG GmbH & Cie. KG									
Straße, Hausnummer			Kundenname/Bereich									
Oberstenfeld Deutschland 71720			Bruder, Kelvin									
Stadt Land Postleitzahl			Einkäufer / Kennnummer									
			Projekt 250									
			Anwendung (Modell)									
Material Bericht												
Verlangt der Kunde, dass Verbotsstoffinformationen berichtet werden? <input checked="" type="checkbox"/> Ja <input type="checkbox"/> Nein <input type="checkbox"/> n/a												
Übermittelt durch IMDS o. Kundenformat : IMDS-Nr. 110908007/1												
Sind Kunststoffteile gemäss ISO Forderungen gekennzeichnet? <input type="checkbox"/> Ja <input type="checkbox"/> Nein <input checked="" type="checkbox"/> n/a												
Grund der Vorlage												
<input type="checkbox"/> Erstmalige Vorlage		<input type="checkbox"/> Änderung zur optionalen Konstruktion oder Werkstoff										
<input type="checkbox"/> Technische Änderung(en)		<input type="checkbox"/> Änderung von Unterlieferant oder Lieferquelle des Werkstoffs										
<input type="checkbox"/> Werkzeug: Verlegung, Ersatz, Überholung oder Sonstiges		<input type="checkbox"/> Änderung im Bearbeitungsprozess										
<input type="checkbox"/> Korrektur eines Fehlers		<input type="checkbox"/> Teile werden an einem zweiten Standort hergestellt										
<input type="checkbox"/> Werkzeug für mehr als ein Jahr inaktiv		<input checked="" type="checkbox"/> Sonstiges – Bitte geben Sie Einzelheiten an:										
Geforderte Vorlagestufe (Bitte eine Vorlagestufe ankreuzen)												
<input type="checkbox"/> 1. Stufe - Bestätigung (warrant) und für ausgewiesene Aussehensteile Bericht zur Freigabe des Aussehens												
<input type="checkbox"/> 2. Stufe - Bestätigung (warrant) mit Musterteilen und eingeschränkte unterstützende Daten werden dem Kunden vorgelegt												
<input checked="" type="checkbox"/> 3. Stufe - Bestätigung (warrant) mit Musterteilen und umfassende unterstützende Daten werden dem Kunden vorgelegt												
<input type="checkbox"/> 4. Stufe - Bestätigung (warrant) und andere Forderungen wie sie vom Kunden festgelegt wurden												
<input type="checkbox"/> 5. Stufe - Bestätigung (warrant) mit Musterteilen und vollständige unterstützende Daten, die am Produktionsstandort des Lieferanten bewertet werden												
Ergebnisse der Vorlage												
Die Ergebnisse stammen aus <input type="checkbox"/> Maßprüfungen <input type="checkbox"/> Material- und Funktionsprüfungen <input type="checkbox"/> Aussehensbeurteilungen <input checked="" type="checkbox"/> statistische Prozessdaten												
Diese Ergebnisse erfüllen alle Zeichnungs- und Spezifikationsanforderungen <input checked="" type="checkbox"/> Ja <input type="checkbox"/> Nein (Falls „Nein“ bitte Erklärung)												
Form, Nest, Produktionsprozess												
Erklärung												
Ich bestätige hiermit, dass die in diesem Formblatt (warrant) dargestellten Muster repräsentativ für unsere Teile sind und in Übereinstimmung mit den Forderungen im anzuwendenden Handbuch Produktteil-Freigabeverfahren (PPAP) 3. Ausgabe hergestellt wurden. Ich bestätige weiterhin, dass diese Musterteile mit einer Produktionsstückzahl von 500 / 8 Stunden hergestellt wurden. Jegliche Abweichungen sind nachstehend aufgeführt.												
Erklärung/Bemerkungen <u>Prozessfähigkeiten liegen bei.</u>												
Kundenwerkzeuge gekennzeichnet u. Nummeriert? <input type="checkbox"/> Ja <input type="checkbox"/> Nein <input checked="" type="checkbox"/> n/a												
<table border="0"> <tr> <td colspan="2">Quality Manager</td> <td colspan="2"></td> </tr> <tr> <td>Thomas Lorenz</td> <td>PSO-PPS-3</td> <td>+49 7062 266 2284</td> <td>+49 7062 266 2198</td> </tr> </table>					Quality Manager				Thomas Lorenz	PSO-PPS-3	+49 7062 266 2284	+49 7062 266 2198
Quality Manager												
Thomas Lorenz	PSO-PPS-3	+49 7062 266 2284	+49 7062 266 2198									
Name in Druckschrift		Position										
Unterschrift der vom Lieferanten bevollmächtigten Person: <u>J. Lorenz</u>		Telefonnummer										
		Faxnummer										
		Datum <u>02.09.2009</u>										
Nur für den Kundengebrauch												
Entscheidung <input checked="" type="checkbox"/> freigegeben <input type="checkbox"/> verworfen <input type="checkbox"/> Funktionsfreigabe des Teils: <input type="checkbox"/> freigegeben <input type="checkbox"/> verzichtet												
<input type="checkbox"/> andere												
<u>K. Bruder</u>		<u>K. Bruder</u>		<u>02.09.09</u>								
Kundenname		Kundenunterschrift		Datum								

DEQ-BR-09-185

Istruzioni di controllo



PP Produzione GPS

Materiale: 2501422805/S

Indice del disegno finito:

Descrizione: Ruota dentata libera RM com. Stato: Rilasciato Produzione + Calcolo costi

Data emissione: 11.11.2014 / Vito Fiore

Operazione: 0090 Dentatura a creatore

Data aggiornamento: 06.11.2013 / Vito Fiore

Centro di lavoro: FRW14610 DENTATURA A CREATORE SGR

Il Pz Hanno	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
0004	Controllo 1° pz sec. VBZ 200_803251				MVZ-400249 EVOLVENTIMETRO						1° pz 2.3.1.1-R 2		Misu: controllo primo pezzo
0010	Diámetro Mdk da correlazione ±0.015	mm	-0,015	0,015	MOA-416121 RUGOSIMETRO TIPO PRK						1° pz 2.3.1.1-R 2		CR1: calcolatore di misura
0020	FhB Sx e Dx con svergolamento (da correlazione)	0,000 mm	-0,006	0,006	MZA-401071 CALCOLATORE DI MISURA E9066 MARPOSS	3	pz ogni 100 per macchina				pz ogni 100 per macchina		Misu: diagramma di dentatura
0025	Diagramma, "evolvente Sinistra - destra" su tutti i denti per eccesso di materiale "vedi diagramma allegato"				MVZ-400249 EVOLVENTIMETRO						pz ogni 100 per macchina		Misu: Diagramma di Misura
0030	Diámetro di fondo 119,6 -0.35	119,600 mm	119,250	119,600	MVZ-400249 EVOLVENTIMETRO						pz ogni 100 per macchina		Misu: Diagramma di Misura
0045	Diámetro esterno 129,7 -0,02	129,700 mm	129,500	129,700	MVZ-400249 EVOLVENTIMETRO						pz ogni 100 per macchina		Misu: Diagramma di Misura
0050	Oscillazione radiale dentat. Fr 0+0.032	0,000 mm	0,000	0,032	MVZ-400249 EVOLVENTIMETRO						pz ogni 100 per macchina		Misu: diagramma di dentatura
0070	Rugosità dente Rz 0+0.004	0,0 µm	0,0	4,0	MOA-416121 RUGOSIMETRO TIPO PRK						1° pz 2.3.1.1-R 2		Misu: controllo primo pezzo
0080	Rugosità dente Rmax+0.008	0,0 µm	0,0	8,0	MOA-416121 RUGOSIMETRO TIPO PRK						1° pz 2.3.1.1-R 2		Misu: controllo primo pezzo
0090	Bava non ammessa sul profilo dente (valido solo per ruote non sbavate)	0,000 mm	0,000	0,000	MOA-416120 PROFILOMETRO PCV						pz a turno/mac.		Misu: protocollo di misura
0100	Bava ammessa sul fianco denteMax 0.3 mm	0,000	0,000	0,300	MOA-416120 PROFILOMETRO PCV						pz a turno/mac.		Misu: protocollo di misura

Istruzioni di controllo



PP Produzione GPS

Materiale: 2501422805/S
 Descrizione: Ruota dentata libera RM com. Stato: Rilasciato Produzione + Calcolo costi
 Indice del disegno finito: 11.11.2014 / Vito Fiore
 Operazione: 0090 Dentatura a creatore
 Data emissione: 11.11.2014 / Vito Fiore
 Centro di lavoro: FRW14610 DENTATURA A CREATORE SGR
 Data aggiornamento: 06.11.2013 / Vito Fiore

0110	GN 3010	Caratteristica	Misura nomin.	LTI	LTS	Strumento di controllo	Quantità	Frequenza RK1:	Quantità	Frequenza RK2:	Quantità	Frequenza Sala di misura	Metodi di gestione / Documentazione
		Pulizia e completezza "assenza di truciol"					3	pz per rack					
							3	pz per rack					

PROTOCOLLO DI MISURA ZEISS UMESS

SRRG 080_803462

CICLO CNC

DISEGNO No.	MACCHINA DI MIS.	FORNITORE/CLIENTE	LAVORAZ.	OPERAZIONE
2501422802	PRISMO SACC	GETRAG	T. HARD	-

OPERATORE	DATA	NUMERO PART.	COD. MACCH.	EDIZ.DISEG.FIN.
	15. 1.2015	PPAP 1		-

IND	NOMI	IDF	SY	VAL ATT	VAL NOM	TOL.S	TOL:I	DEV	MAG
-----	------	-----	----	---------	---------	-------	-------	-----	-----

309	ALT.TOTALE			Z	27.303	27.300	0.030	-0.030	0.003	+
SUPERFICIE RICHIAMO (14) CON TRASFORMAZIONE										
311	DIAM.CONO			D	70.603	70.600	0.010	-0.010	0.003	++
DIAMETRO CONO										
312	ALT.CONO			Z	19.611	19.600	0.040	-0.040	0.011	++
COORDINATE CONO										
313	ANGOL.CONO			AC	7.002	7.000	0.030	-0.030	0.002	+
FORMULA: AC(310)/2										
315	CONO.2			t	0.004	0.020				+
GDT OSCILL. RADIALE										

PROTOCOLLO DI MISURA ZEISS UMESS

SRRG 080_803462

CICLO CNC

DISEGNO No.	MACCHINA DI MIS.	FORNITORE/CLIENTE	LAVORAZ.	OPERAZIONE
2501422802	PRISMO SACC	GETRAG	T. HARD	-

OPERATORE	DATA	NUMERO PART.	COD. MACCH.	EDIZ.DISEG.FIN.
	15. 1.2015	PPAP 2		-

IND	NOMI	IDF	SY	VAL ATT	VAL NOM	TOL.S	TOL.I	DEV	MAG
-----	------	-----	----	---------	---------	-------	-------	-----	-----

309	ALT.TOTALE			Z	27.303	27.300	0.030	-0.030	0.003	+
SUPERFICIE RICHIAMO (14) CON TRASFORMAZIONE										
	ALTEZZA INT. 19.60mm									
311	DIAM.CONO			D	70.604	70.600	0.010	-0.010	0.004	++
	DIAMETRO INT. 70.6mm									
312	ALT.CONO			Z	19.615	19.600	0.040	-0.040	0.015	++
313	ANGOL.CONO			AC	7.006	7.000	0.030	-0.030	0.006	+
315	CONO.2			t	0.003	0.020				+

PROTOCOLLO DI MISURA ZEISS UMESS

SRRG 080_803462

CICLO CNC

DISEGNO No.	MACCHINA DI MIS.	FORNITORE/CLIENTE	LAVORAZ.	OPERAZIONE
2501422802	PRISMO SACC	GETRAG	T. HARD	-

OPERATORE	DATA	NUMERO PART.	COD. MACCH.	EDIZ.DISEG.FIN.
	15. 1.2015	PPAP 3		-

IND	NOMI	IDF	SY	VAL ATT	VAL NOM	TOL.S	TOL.I	DEV	MAG
-----	------	-----	----	---------	---------	-------	-------	-----	-----

309	ALT.TOTALE			Z	27.300	27.300	0.030	-0.030	0.000	+-
SUPERFICIE RICHIAMO (14) CON TRASFORMAZIONE										
ALTEZZA INT. 19.60mm										
311	DIAM.CONO			D	70.603	70.600	0.010	-0.010	0.003	++
DIAMETRO INT. 70.6mm										
312	ALT.CONO			Z	19.613	19.600	0.040	-0.040	0.013	++
COORDINATE CONO										
313	ANGOL.CONO			AC	6.993	7.000	0.030	-0.030	-0.007	-
FORMULA: AC(310)/2										
315	CONO.2			t	0.003	0.020				+
GDT ØSCILL. RADIALE										

PROTOCOLLO DI MISURA ZEISS UMESS

SRRG 080_803462

CICLO CNC

DISEGNO No.	MACCHINA DI MIS.	FORNITORE/CLIENTE	LAVORAZ.	OPERAZIONE
2501422802	PRISMO SACC	GETRAG	T. HARD	-
OPERATORE	DATA	NUMERO PART.	COD. MACCH.	EDIZ.DISEG.FIN.
	15. 1.2015	PPAP 4		-

IND	NOMI	IDF	SY	VAL ATT	VAL NOM	TOL.S	TOL.I	DEV	MAG
-----	------	-----	----	---------	---------	-------	-------	-----	-----

309	ALT.TOTALE			SUPERFICIE RICHIAMO (14) CON TRASFORMAZIONE					
		Z		27.298	27.300	0.030	-0.030	-0.002	-
	ALTEZZA INT. 19.60mm								
311	DIAM.CONO			DIAMETRO CONO					
		D		70.604	70.600	0.010	-0.010	0.004	++
	DIAMETRO INT. 70.6mm								
312	ALT.CONO			COORDINATE CONO					
		Z		19.615	19.600	0.040	-0.040	0.015	++
313	ANGOL.CONO			FORMULA: AC(310)/2					
		AC		7.000	7.000	0.030	-0.030	0.000	+-
315	CONO.2			GDT OSCILL. RADIALE					
		t		0.004	0.020				+

PROTOCOLLO DI MISURA ZEISS UMESS

SRRG 080_803462

CICLO CNC

DISEGNO No.	MACCHINA DI MIS.	FORNITORE/CLIENTE	LAVORAZ.	OPERAZIONE
2501422802	PRISMO SACC	GETRAG	T. HARD	-
OPERATORE	DATA	NUMERO PART.	COD. MACCH.	EDIZ.DISEG.FIN.
	15. 1.2015	PPAP 5		-

IND	NOMI	IDF	SY	VAL ATT	VAL NOM	TOL.S	TOL.I	DEV	MAG
-----	------	-----	----	---------	---------	-------	-------	-----	-----

309	SUPERFICIE RICHIAMO (14) CON TRASFORMAZIONE								
	ALT.TOTALE		Z	27.301	27.300	0.030	-0.030	0.001	+
ALTEZZA INT. 19.60mm									
311	DIAMETRO CONO								
	DIAM.CONO		D	70.605	70.600	0.010	-0.010	0.005	++
DIAMETRO INT. 70.6mm									
312	COORDINATE CONO								
	ALT.CONO		Z	19.619	19.600	0.040	-0.040	0.019	++
313	FORMULA: AC(310)/2								
	ANGOL.CONO		AC	7.001	7.000	0.030	-0.030	0.001	+
315	GDT OSCILL. RADIALE								
	CONO.2		t	0.002	0.020				+

Point	Caracteristic	Tolerance	Part 1	Part 2	Part 3	Part 4	Part 5
4	MDK	129,587/129,484	129,562	129,539	129,544	129,559	129,505

Manual measures by Marposs

SRrw 2501 4228 05

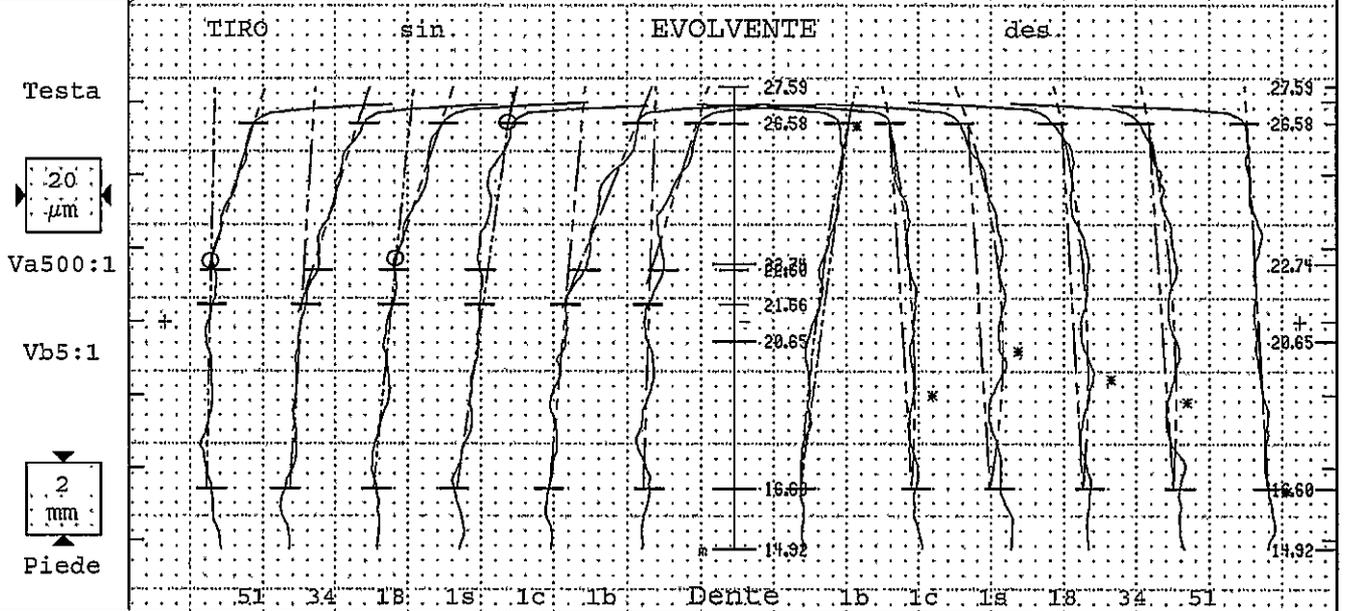
07,Jan,2015

GETRAG

Ruota cilindrica Evolvente/Elica

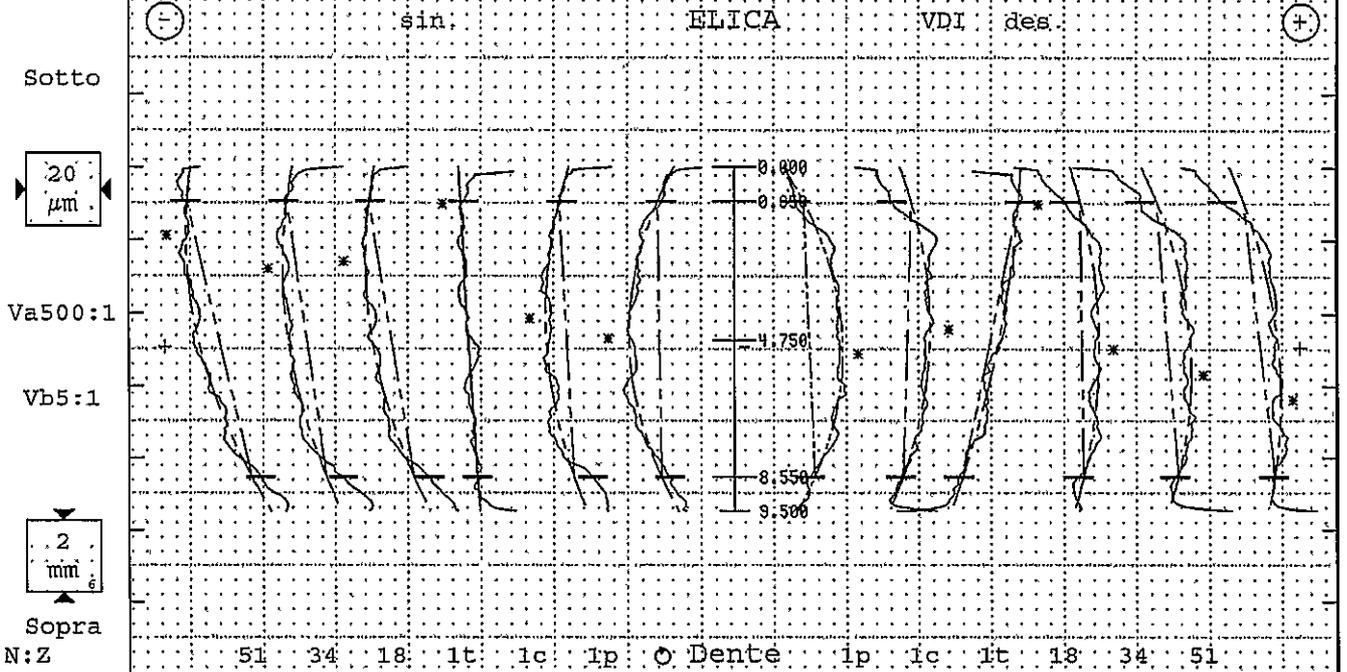


Nr. prog.:	STI0410o05 0 PNC35 B4784	Controllore:	turno A	Data:	22.12.2014 13:08	
Denominazione:	Speed gear reverse	Numero denti z	67	Largh.fasc.dent. b	9.5mm	
Numero disegno.:	250.1.4229.02-IF	Modulo m	1.6mm	Tratto evolv. La	5.06/9.98mm	
Commessa/serie nr.:	PPAP N.1	Angolo pressione	17.5°	Tratto elica Lb	7.6mm	
Masch.Nr.:	M001	spindel: Formi	Angolo elica	31°	Inizio elab. M1	16.6mm
Untersuchungszweck:	Laufende Messung	Ø Base db	117.3743mm	Palpatore Ø	(#1)1mm	
Werkzeug:	Charge:	Ang. Base	29.42°	Fat.scor.pr. x	-.041	



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
fHm ±10	-3	Var 4								±10	Var 1							-6	
fHα ±18	-3	-1	-3	-5	-7	-4	-2		±18	13	-6	-6	-6	-7	-6	-6			
Pα	5	3	6	6	8	5	5		19	12	8	13	11	13	7	10			
ffα 22	3	3	3	3	5	3	4		22	4	3	6	5	6	4	5			
Cα									0/5	-2	3	6	4	3	0	3			
fKo										0	0	0	0	0	0	0			
fKo -20/-12	-13	-12	-12	-12	0	-15	-11												

P/T-φ[mm]	119.378	[119.15/119.6]	129.486	[129.4/129.7]
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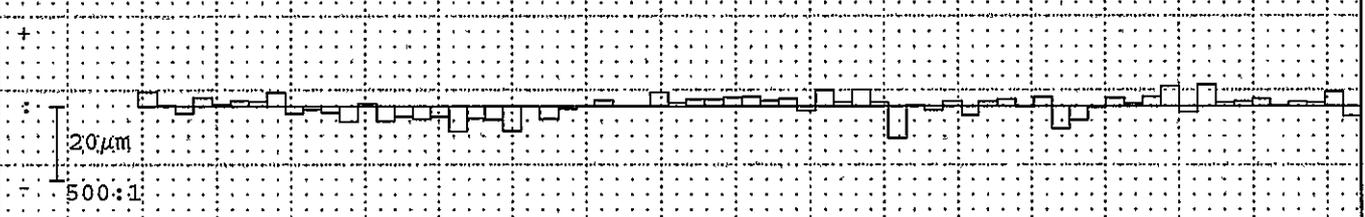
fHm-10±10	Medio	Var 17							Qual	±10	Var 14							Medio	Qual
fHm-10±10	-14	Var 17								±10	Var 14							-4	
fHβ -10±25	-14	-22	-14	-15	-6	-5	-1		±25	-4	3	19	-1	-7	-11	-4			
Fβ 23	11	15	10	11	8	9	14		23	12	14	18	9	23	23	17			
fβB 14	7	5	7	7	5	8	5		14	6	10	5	7	9	9	9			
Cβ 2/6	6	6	5	5	0	6	8		2/6	9	6	2	5	6	5	6			
Bd	5																-23		



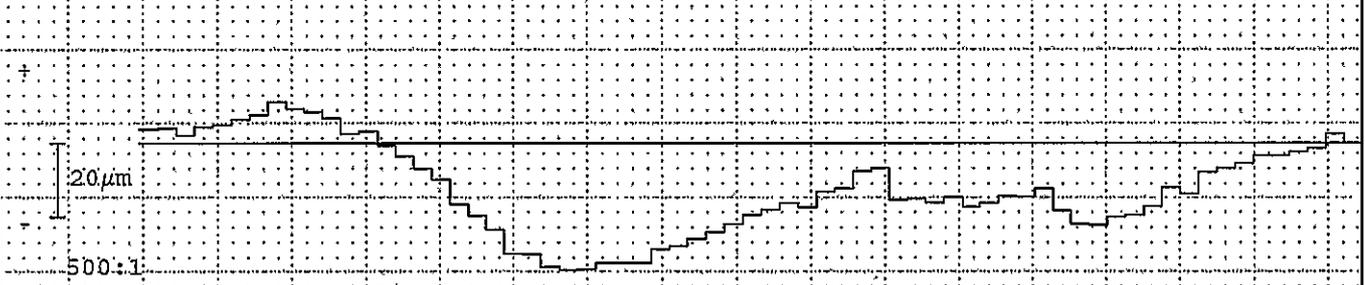


Nr. prog.: STI0410005 0 PNC35 B4784	Controllore: turno A	Data: 22.12.2014 13:08
Denominazione: Speed gear reverse	Numero denti z 67	Angolo pressione 17.5°
Numero disegno: 250.1.4229.02-IF	Modulo m 1.6mm	Angolo elica 31°
Commessa/serie nr.: PPAP N.1	Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: FORMULASatzelg:	Charge:

Errori singoli di divisione fp fianco sinistro



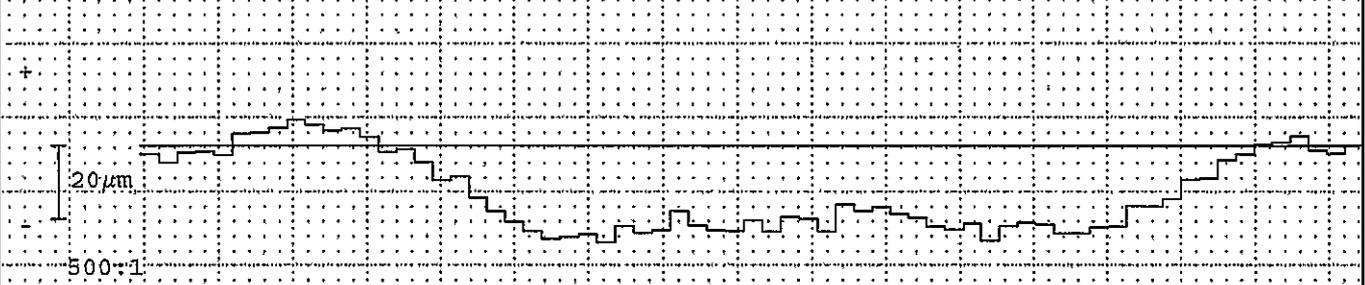
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

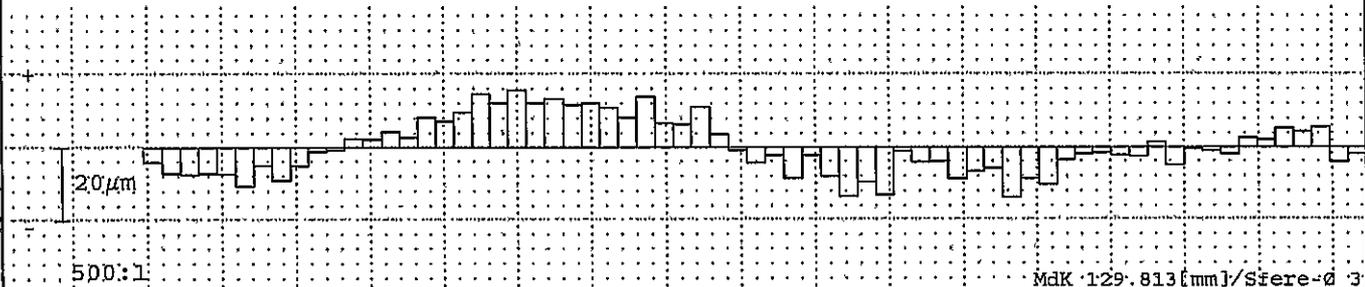


Errore somma di divisione Fp fianco destro



Corso per misura divis.: 125.88 z=4.8mm	fianco sinistro / TIRO				fianco destro			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	8		22		7		22	
Gr. salto di passo fu max	9		25		11		25	
Scarto di divisione Rp	14				13			
Err. globale di divisione Fp	46		85		33		85	
Err. cordale di divisione Fpz/8	33				24			

Centricità Fr (ø-sfera =3mm) © : 13µm



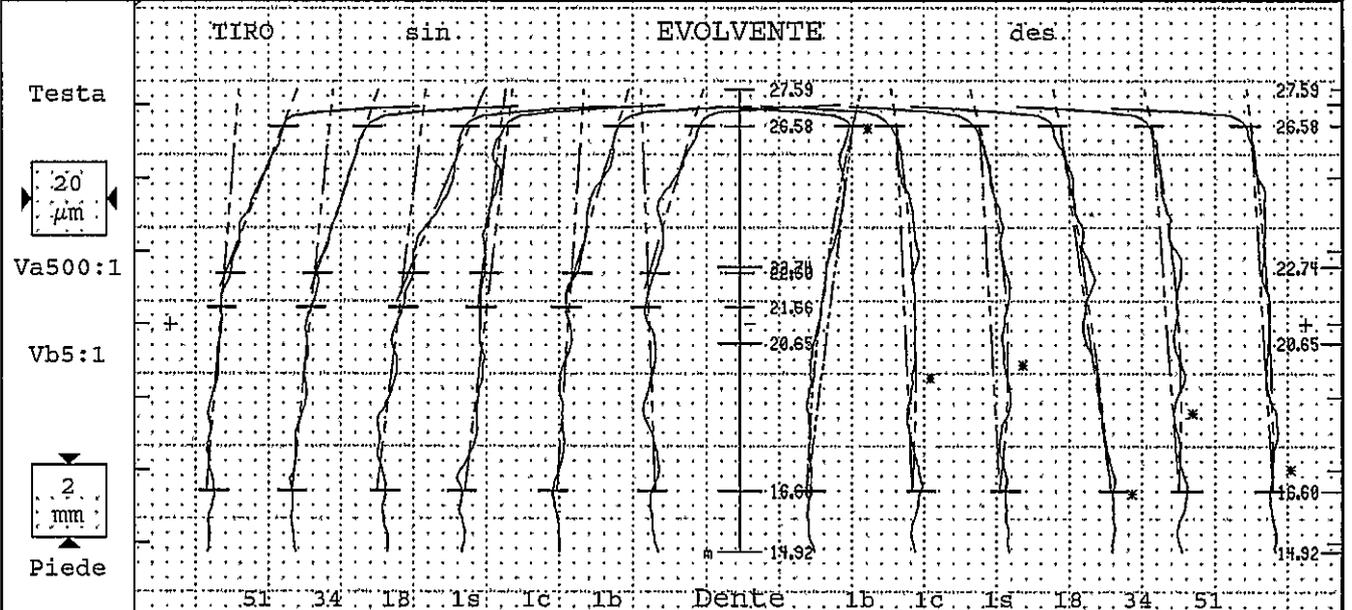
Err. di concentricità Fr	29	56	Val. amm
Variab. spessore dente Rs			Val. 129.517 129.534 129.493

GETRAG

Ruota cilindrica Evolvente/Elica

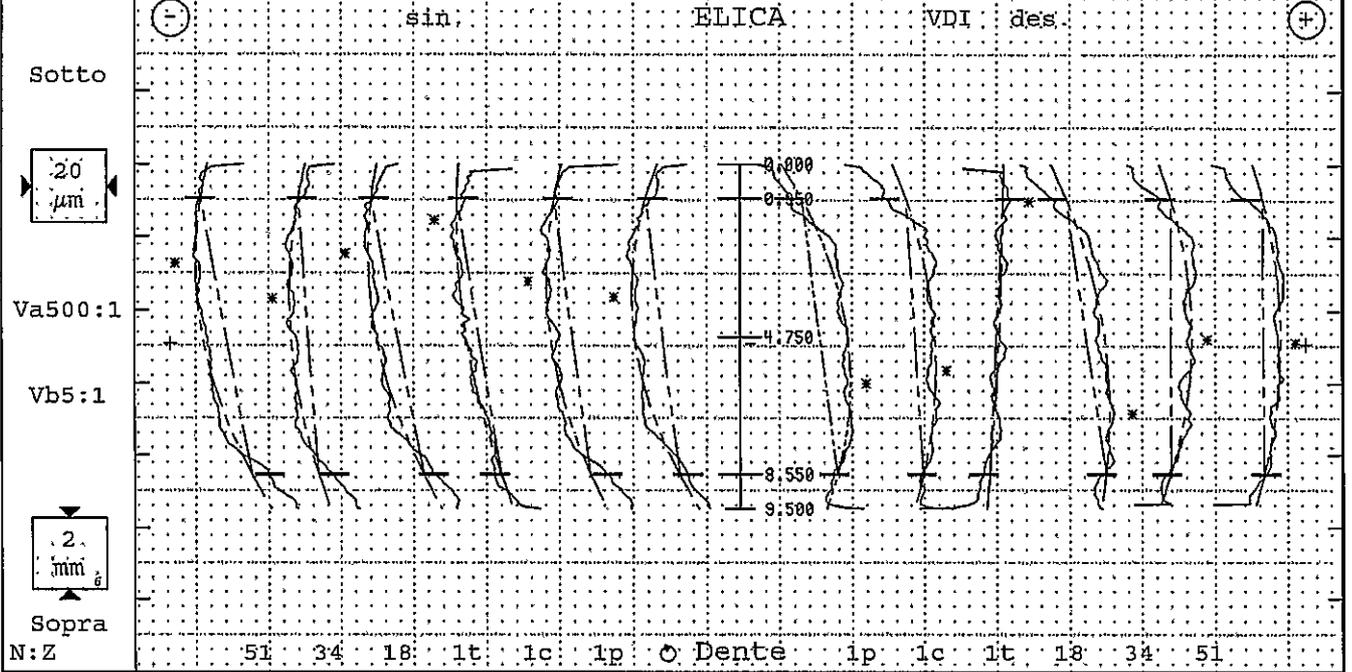


Nr. prog.:	STI0410o05 0	PNC35 B4784	Controllore:	turno A	Data:	22.12.2014 13:51
Denominazione:	Speed gear reverse		Numero denti z	67	Largh.fasc.dent. b	9.5mm
Numero disegno.:	250.1.4229.02-IF		Modulo m	1.6mm	Tratto evolv. La	5.06/9.98mm
Commessa/serie nr.:	PPAP N.2		Angolo pressione	17.5°	Tratto elica Ls	7.6mm
Masch.Nr.:	M001	Spindel: Form	Angolo elica	31°	Inizio elab. M1	16.6mm
Untersuchungszweck:	Laufende Messung		Ø Base db	117.3743mm	Palpatore Ø	(#1)1mm
Werkzeug:	Charge:		Ang. Base	29.42°	Fat.scor.pr. z	-.041



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
fHm ±10	-5	Var 3								±10	Var 10							-8	
fHa ±18	-5	-4	-5	-6	-6	-3	2		±18	13	-4	-5	-14	-7	-6	-8			
Fα	6	4	6	7	7	5	4		19	12	9	10	17	11	9	12			
ffα	22	3	3	2	4	5	3	4	22	3	5	3	5	4	3	4			
Cα									0/5	-3	3	5	1	3	2	2			
fKo									0	0	0	0	0	0	0	0			
fKo -20/-12	-13	-13	-12	-13	2	-12	-14												

P/T-φ [mm]	119.384	[119.15/119.6]	129.491	[129.4/129.7]
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fHm-10±10	Medio	Var 11							Qual	±10	Var 14							Medio	Qual
fHm-10±10	-14	Var 11								±10	Var 14							-5	
fHB -10±25	-14	-17	-7	-18	-15	-12	-11		±25	-12	-6	5	-14	0	-1	-5			
FB	23	11	13	8	11	6	10	9	23	21	16	8	17	9	9	13			
ffS	14	7	8	7	6	4	7	5	14	8	9	4	8	7	7	8			
CS	2/6	6	6	5	6	4	6	8	2/6	8	6	1	5	6	5	6			
Bd	4																-17		

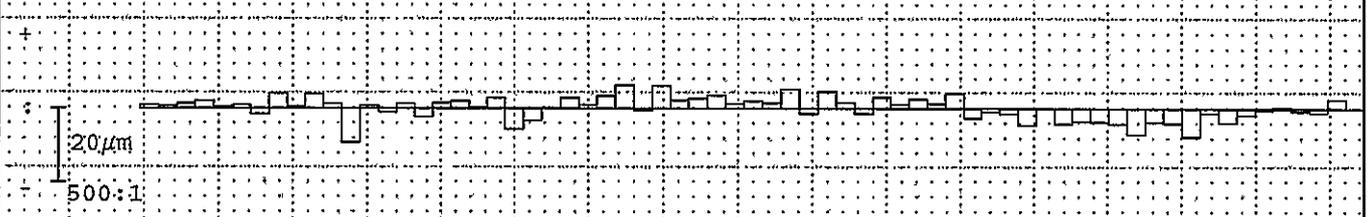
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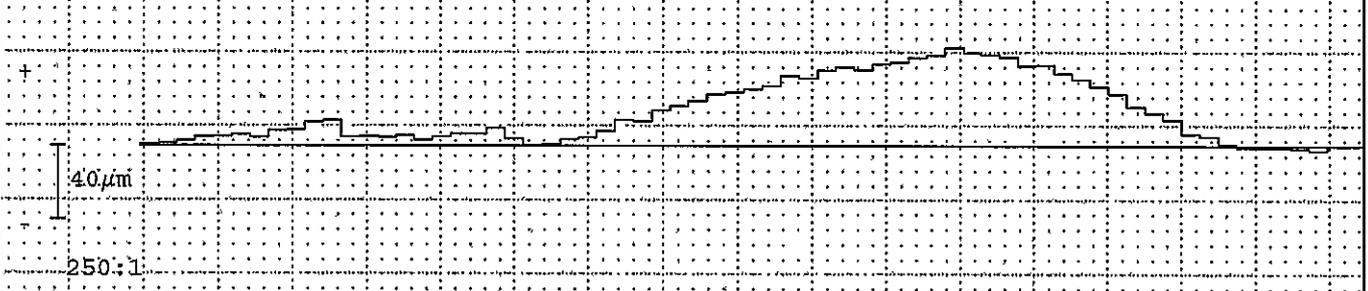


Nr. prog.:	STI0410005 0 PNC35 B4784	Controllore:	turno A	Data:	22.12.2014 13:51
Denominazione:	Speed gear reverse	Numero denti z	67	Angolo pressione	17.5°
Numero disegno:	250.1.4229.02-IF	Modulo m	1.6mm	Angolo elica	31°
Commessa/serie nr.:	PPAP N.2	Untersuchungszweck:	Laufende Messung		
Masch.Nr.:	M001	Spindel: FORM	Getzzeitg:	Charge:	

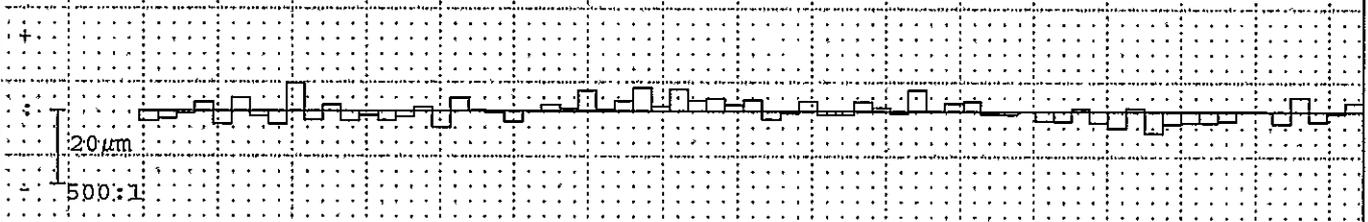
Errori singoli di divisione fp fianco sinistro



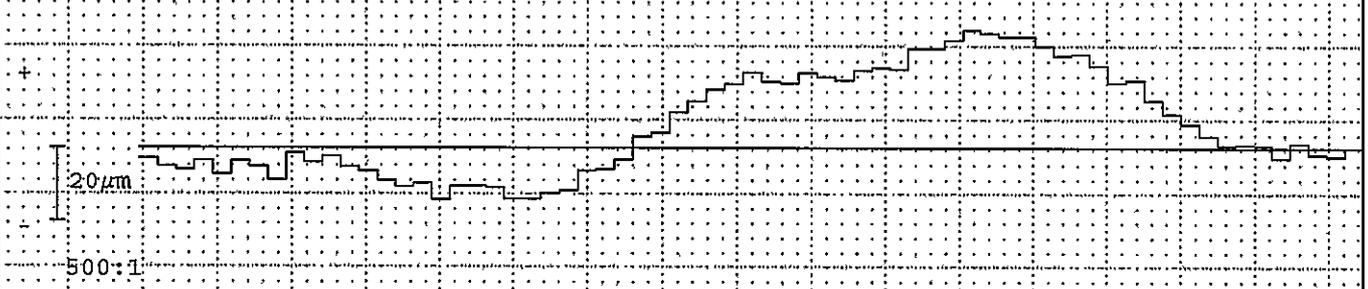
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

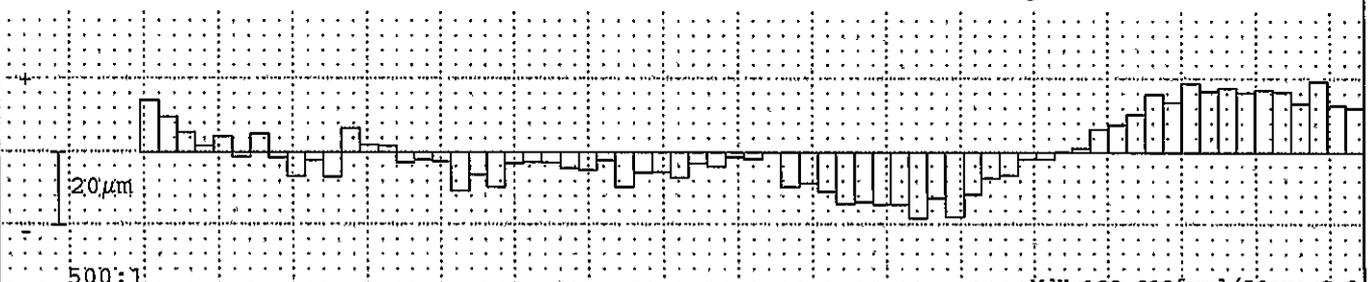


Errore somma di divisione Fp fianco destro



	Correa per misura divis.: 125,88 z=4.8mm							
	fianco sinistro / TIRO				fianco destro			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	9		22		7		22	
Gr. salto di passo fu max	10		25		11		25	
Scarto di divisione Rp	15				13			
Err. globale di divisione Fp	55		85		46		85	
Err. cordale di divisione Fpz/8	37				28			

Centricità Fr (Ø-sfera =3mm) Ⓞ : 21µm



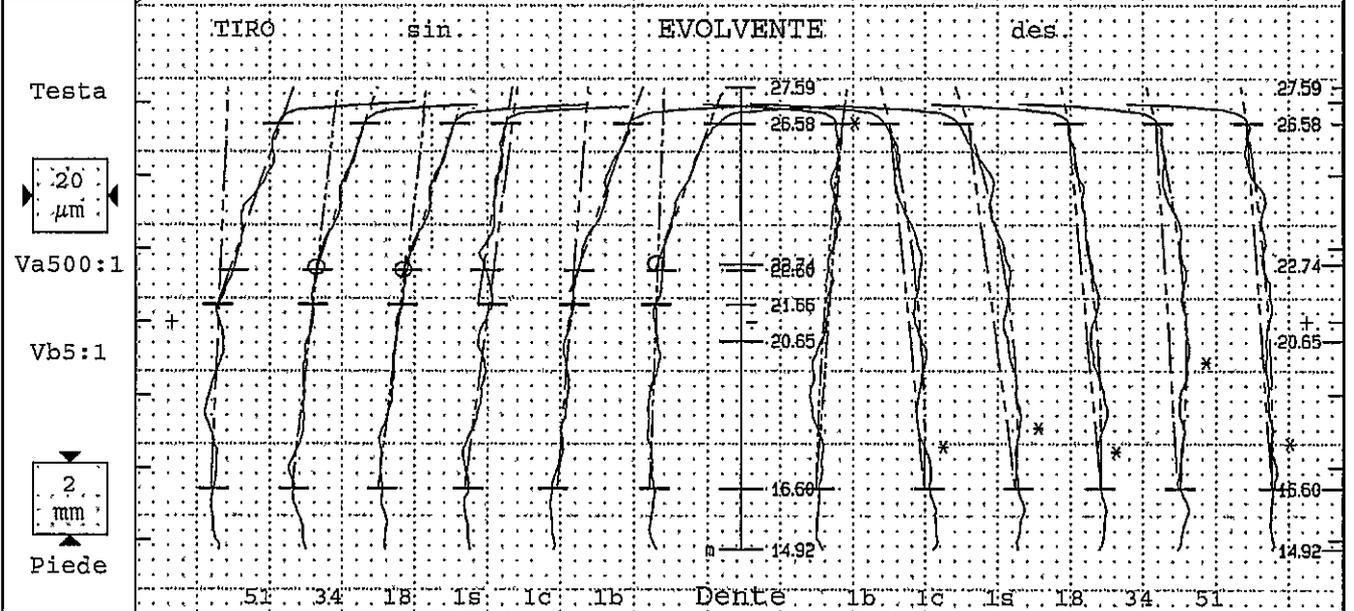
Err. di concentricità Fr	37	56	Val. amm	
Variaz. spessore dente Rs			Val. 129.518 129.535 129.492	

GETRAG B7590

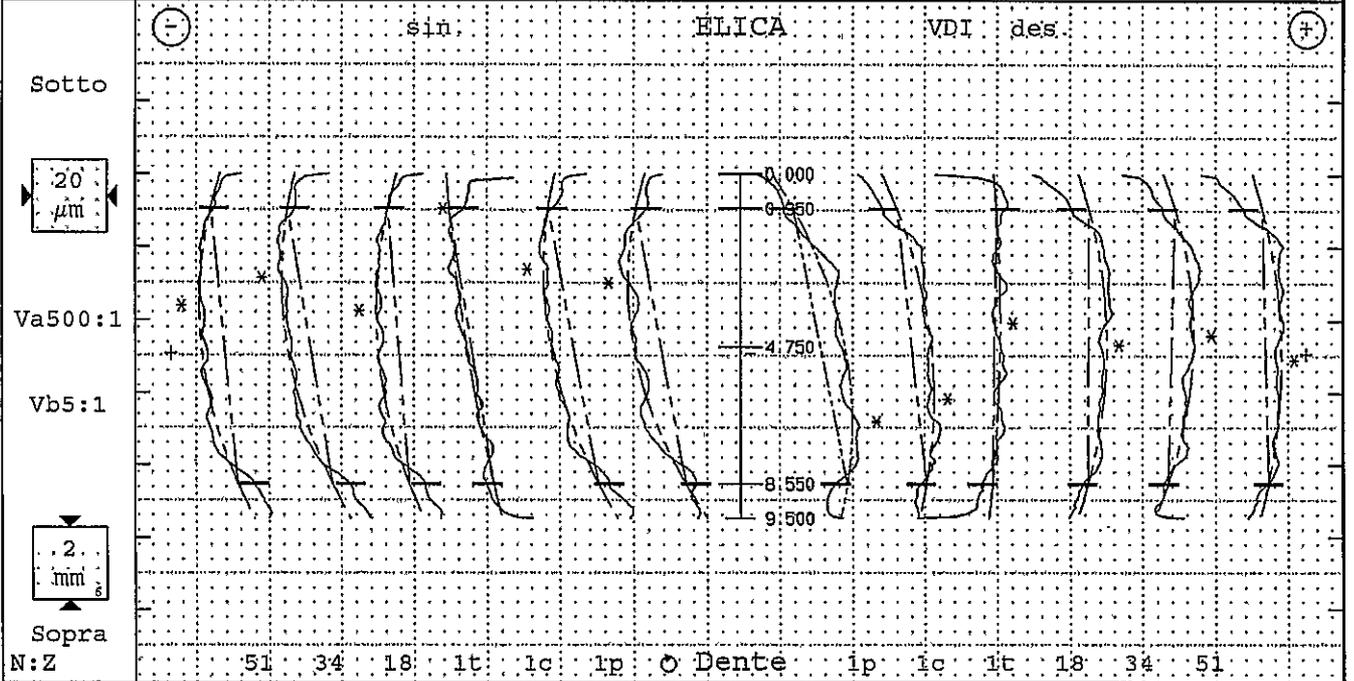
Ruota cilindrica Evolvente/Elica



Nr. prog.:	STI041005 0	P26 B7590	Controllore:	TURNO a	Data:	19.12.2014 23:21
Denominazione:	Speed gear reverse		Numero denti z	67	Largh. fasc. dent. b	9.5mm
Numero disegno.:	250.1.4229.02-IP		Modulo m	1.6mm	Tratto evolv. La	5.06/9.98mm
Commessa/serie nr.:	PPAP - PZ. 3		Angolo pressione	17° 30' 00"	Tratto elica L&S	7.6mm
Masch.Nr.:	M001	Spindel: Formu	Angolo elica	31° 00' 00"	Inizio elab. M1	16.6mm
Untersuchungszweck:	Laufende Messung		Ø Base db	117.3743mm	Palpatore Ø	(#2C)1mm
Werkzeug:	Charge:		Ang. Base	29° 25' 10"	Pat. scor. pr. x	- .041



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
fHm ±10	-5	Var 4								±10	Var 4							-8	
fHα ±18	-5	-2	-6	-6	-7	-4	-2		±18	7	-10	-13	-9	-6	-7	-8			
Fα	6	5	7	6	8	6	3		19	9	13	17	11	8	9	10			
ffα 22	3	4	3	3	6	2	3		22	5	5	5	4	3	4	4			
Cα									0/5	-1	3	5	3	5	2	3			
fKo										0	0	0	0	0	0	0			
fKo -20/-12	-12	-15	-12	-12	2	-12	-13												
B/T-φ [mm]	119.391 [119.15/119.6]								129.497 [129.4/129.7]										



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
fHSm ±10	-12	Var 10								±10	Var 13							-2	
fHs -10±25	-12	-9	-15	-7	-15	-17	-17		±25	-19	-10	1	0	3	-2	-2			
Fs 23	11	10	12	9	7	11	13		23	20	15	7	10	9	10	11			
ffs 14	7	7	7	8	6	6	7		14	8	7	5	7	7	9	8			
Cs 2/6	6	6	6	6	1	6	7		2/6	7	5	2	5	6	4	5			
Bd	-2																		



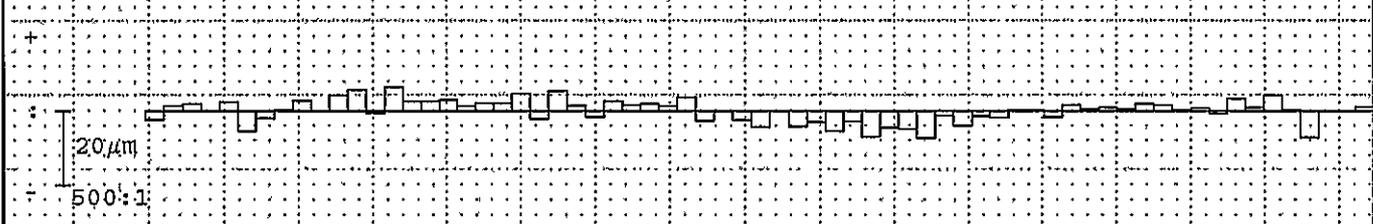
GETRAG B7590

Ruota cilindrica Divisione

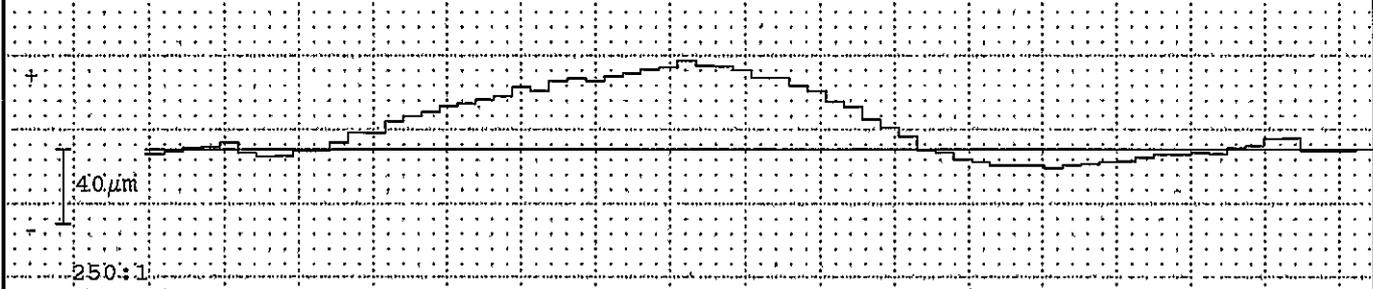


Nr. prog.: STI0410005 0	P26 B7590	Controllore: TURNO a	Data: 19.12.2014 23:21
Denominazione: Speed gear reverse		Numero denti z 67	Angolo pressione 17° 30' 00"
Numero disegno.: 250.1.4229.02-IF		Modulo m 1.6mm	Angolo elica 31° 00' 00"
Commessa/serie nr.: PPAP - PZ. 3		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Form	Getrag: g	Charge:

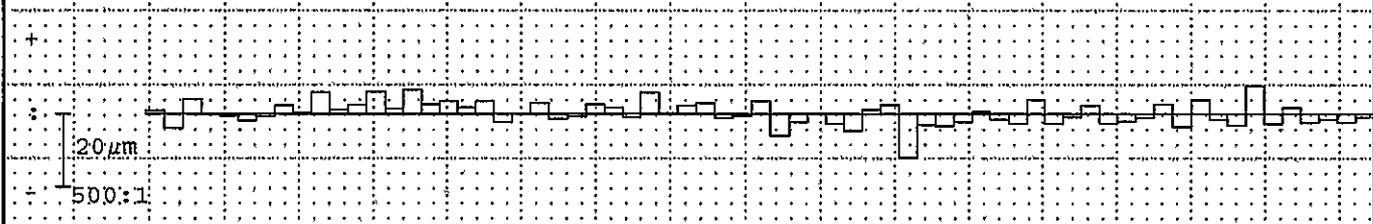
Errori singoli di divisione fp fianco sinistro



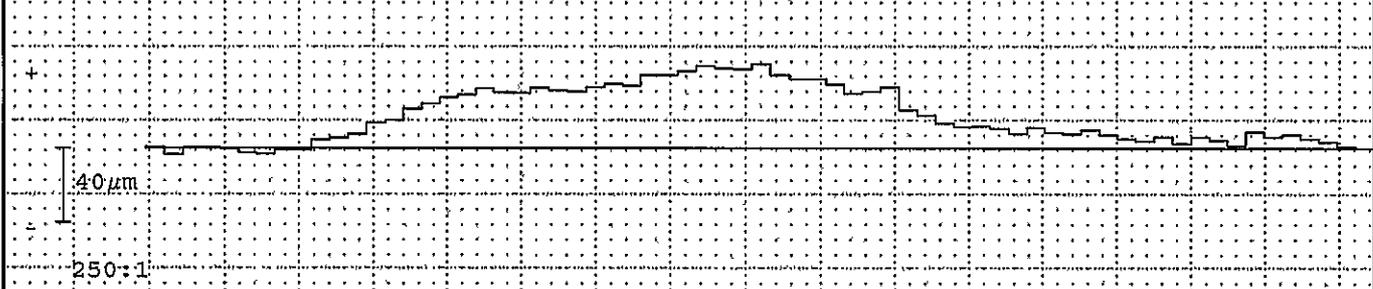
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



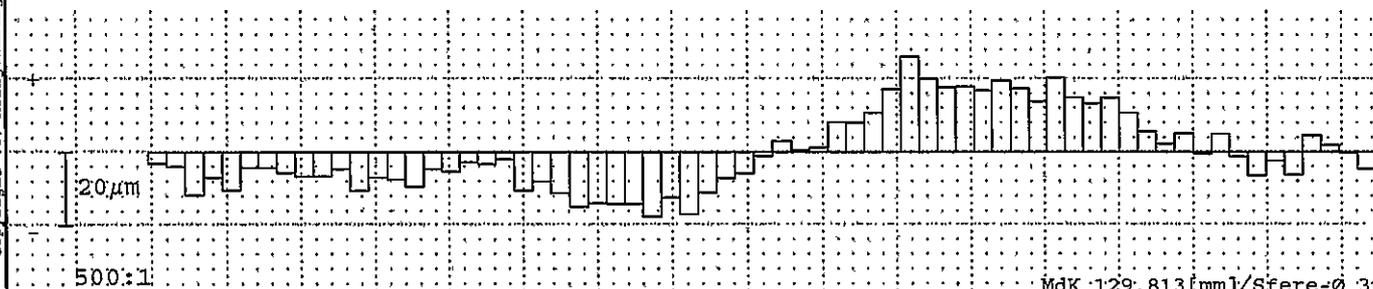
Errore somma di divisione Fp fianco destro



	fianco sinistro / TIRO				fianco destro			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	7		22		12		22	
Gr. salto di passo fu max	8		25		14		25	
Scarto di divisione Rp	13				19			
Err. globale di divisione Fp	58		85		49		85	
Err. cordale di divisione Fpz/8	39				28			

Centricità Fr (Ø-sfera =3mm)

⊙ : 24 μm



Err. di concentricità Fr	44	56	Val. amm
Variab. spessore dente Rs			Val. 129.535 129.555 129.51

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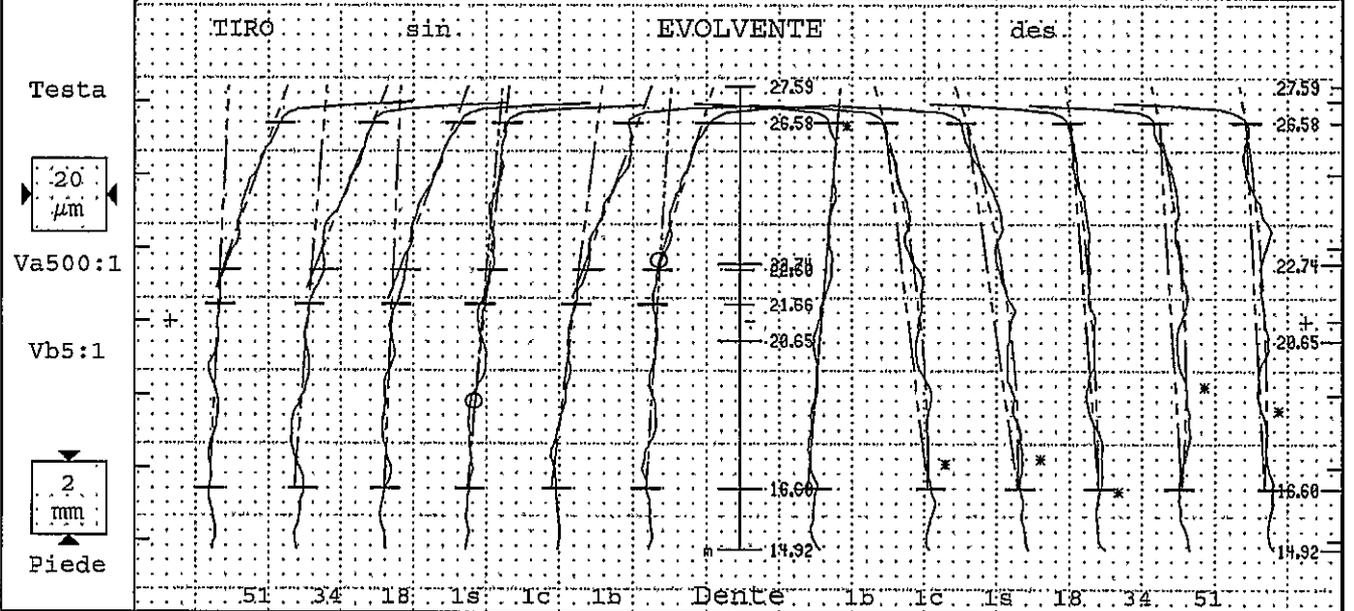


GETRAG

Ruota cilindrica Evolvente/Elica

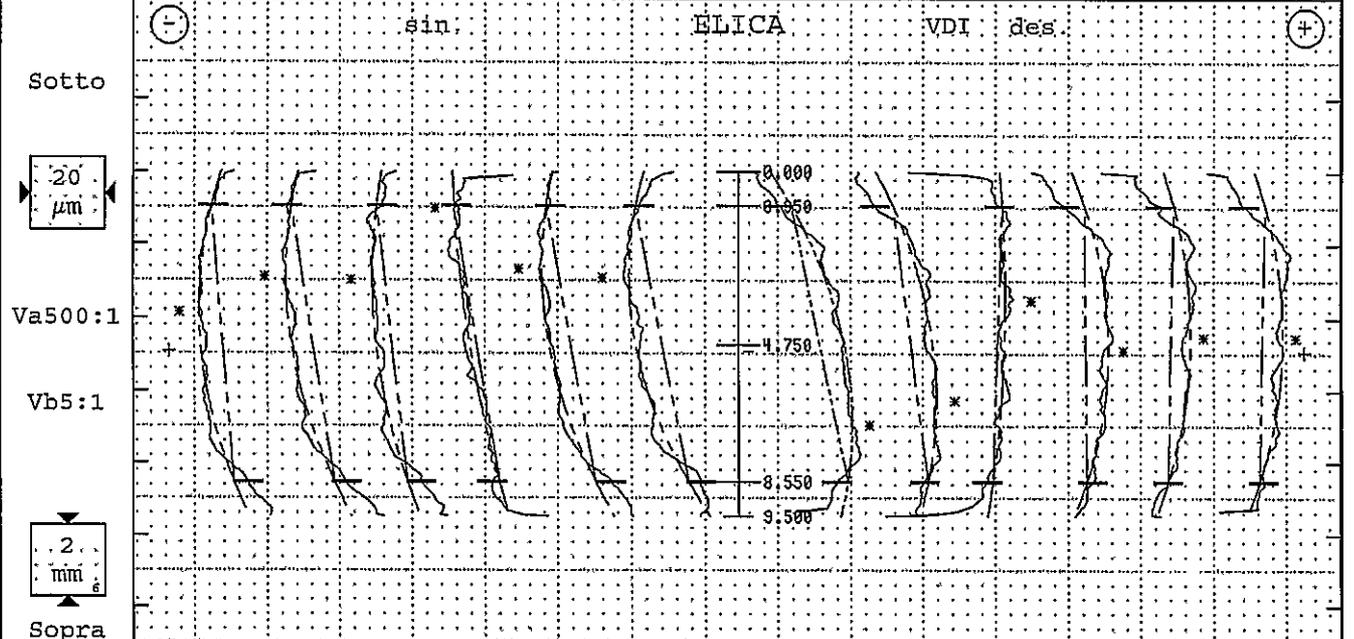


Nr. prog.:	STI0410005 0	PNC35 B4784	Controllore:	turno A	Data:	22.12.2014 13:22
Denominazione:	Speed gear reverse		Numero denti z	67	Largh.fasc.dent. b	9.5mm
Numero disegno:	250.1.4229.02-IF		Modulo m	1.6mm	Tratto evolv. La	5.06/9.98mm
Commessa/serie nr.:	PPAP N.4		Angolo pressione	17.5°	Tratto elica Ls	7.6mm
Masch.Nr.:	M001	Spindel: FORM	Angolo elica	31°	Inizio elab. M1	16.6mm
Untersuchungszweck:	Laufende Messung		Ø Base db	117.3743mm	Palpatore Ø	(#1)1mm
Werkzeug:	Charge:		Ang. Base	29.42°	Fat.scor.pr. x	-.041



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual	
fH _{0m}	±10	-4	Var 4								±10	Var 7							-8	
fH _α	±18	-4	-2	-4	-2	-4	-6	-3		±18	8	-12	-14	-8	-6	-5	-8			
F _α		5	3	5	4	5	7	4		19	8	14	17	10	10	8	11			
f f _α	22	4	3	5	3	4	3	3		22	5	4	5	4	4	6	5			
C _α										0/5	0	4	4	2	4	2	3			
fK ₀											0	0	0	0	0	0	0			
fK ₀	-20/-12	-13	-13	-14	-15	-2	-12	-9												

P/T-φ[mm]	119.386	[119.15/119.6]	129.492	[129.4/129.7]
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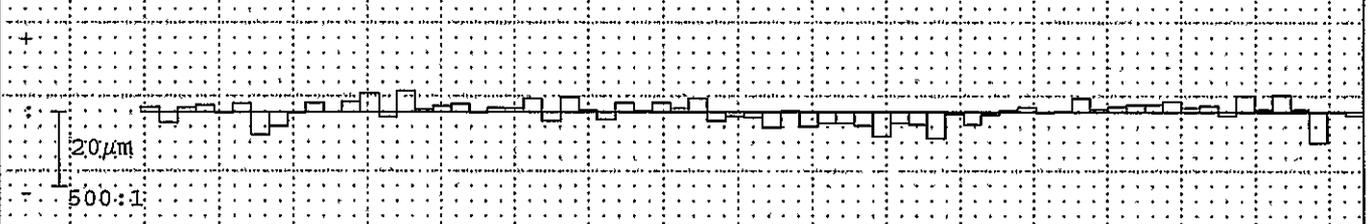
N:Z	fH _{Bm} -10±10	Medio	Var 9							Qual	fH _{Bm} -10±25	Medio	Var 14							Qual
	±10	-13	Var 9								±10	-13	Var 14							-2
fH _B	-10±25	-13	-8	-15	-11	-15	-17	-18		±25	-13	-8	-15	-11	-15	-17	-18			
F _B	23	10	8	10	9	7	12	14		23	10	8	10	9	7	12	14			
f f _B	14	7	6	6	7	4	7	7		14	7	6	6	7	4	7	7			
C _B	2/6	6	6	6	4	2	6	7		2/6	6	6	6	4	2	6	7			
B _d		-3									-3									



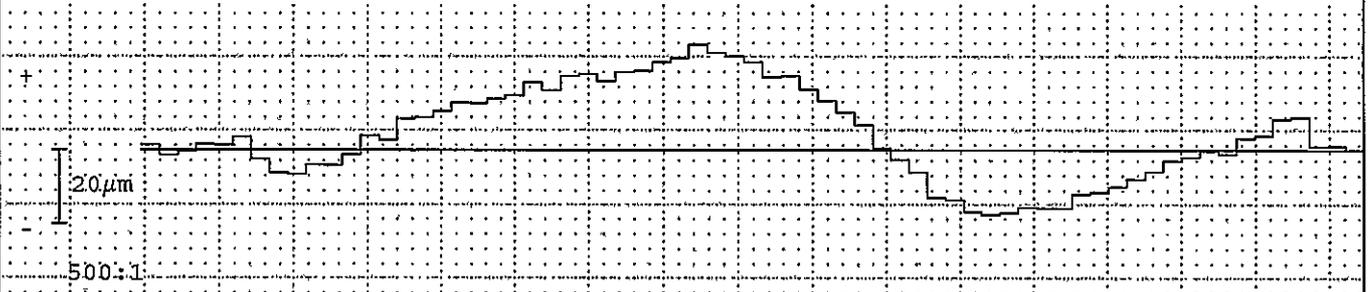


Nr. prog.: STI0410005 0 PNC35 B4784	Controllore: turno A	Data: 22.12.2014 13:22
Denominazione: Speed gear reverse	Numero denti z 67	Angolo pressione 17.5°
Numero disegno: 250.1.4229.02-IF	Modulo m 1.6mm	Angolo elica 31°
Commessa/serie nr.: PPAP N.4	Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: FORM 62	Charge:

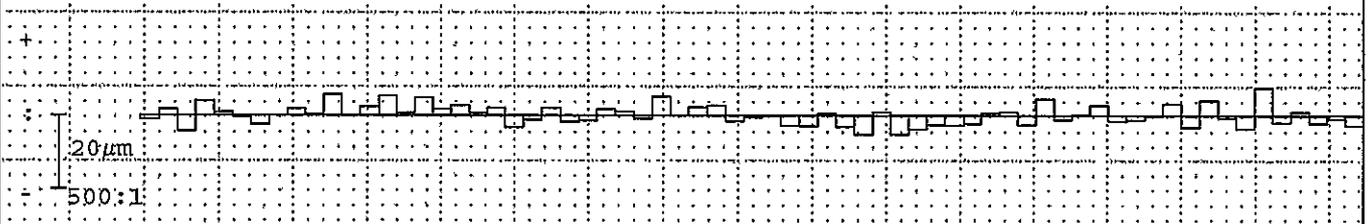
Errori singoli di divisione fp fianco sinistro



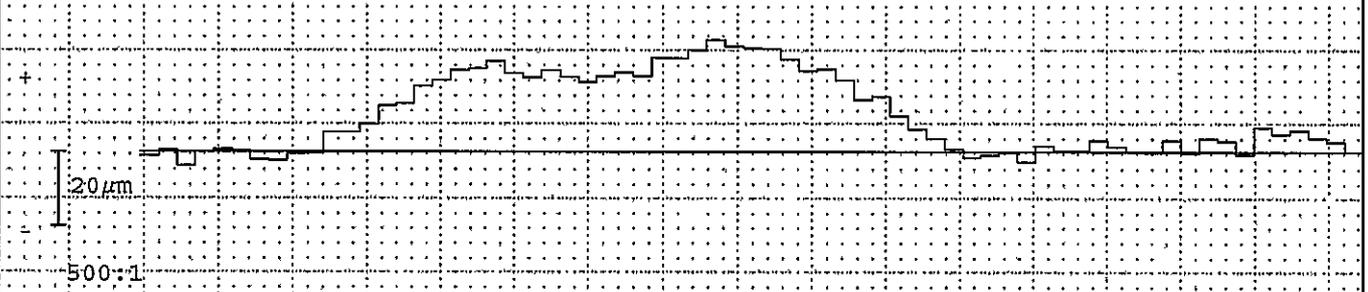
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



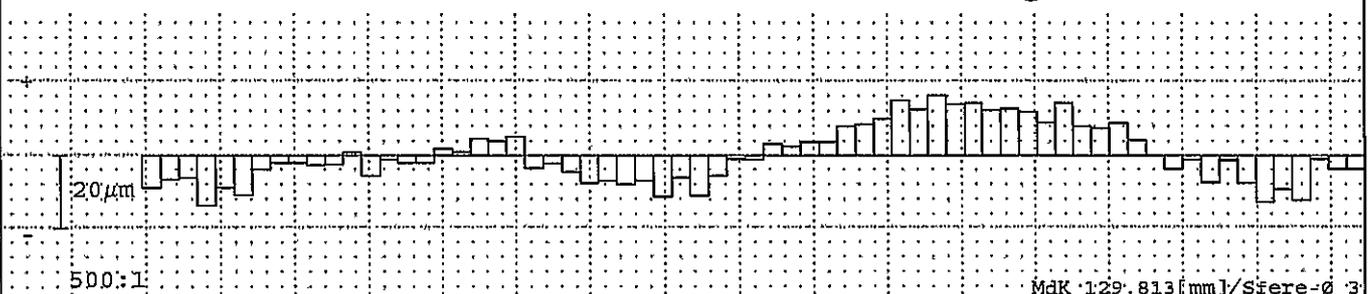
Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 125.88 z=4.8mm	fianco sinistro / TIRO				fianco destro			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	8		22		7		22	
Gr. salto di passo fu max	9		25		11		25	
Scarto di divisione Rp	14				12			
Err. globale di divisione Fp	46		85		34		85	
Err. cordale di divisione Fpz/8	33				24			

Centricità Fr (Ø-sfera =3mm)

⊙ : 14µm



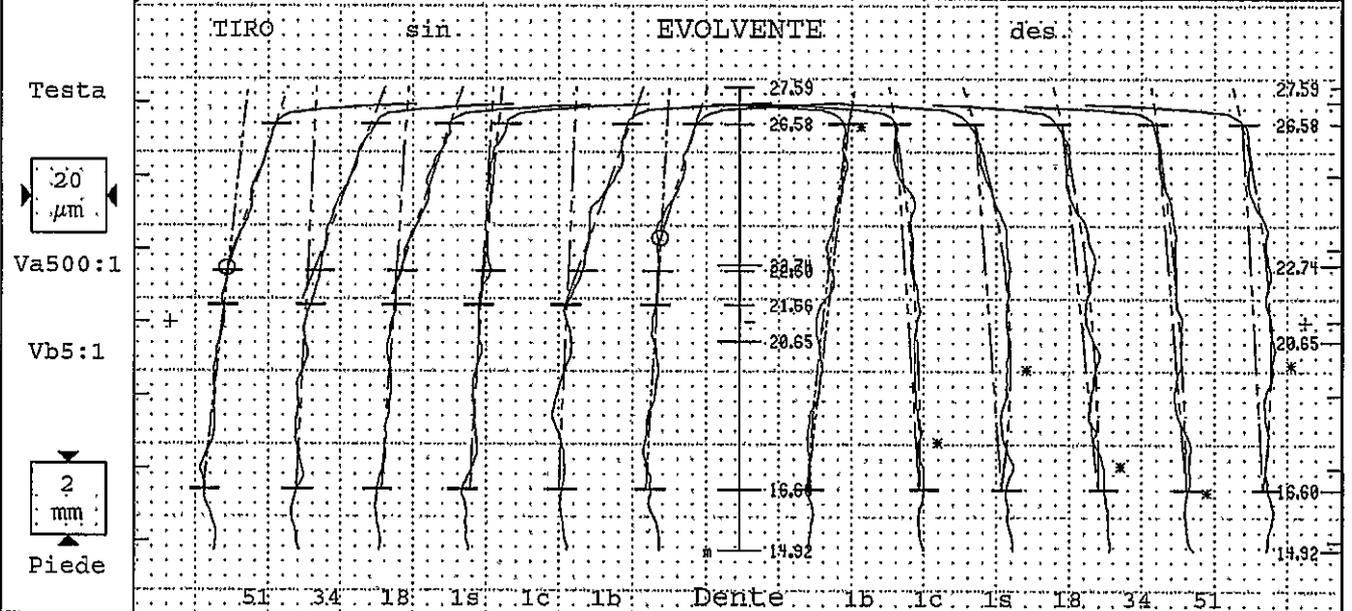
Err. di concentricità Fr	30	56	Val. amm
Variaz. spessore dente Rs			Val. 129.517 129.534 129.493

GETRAG

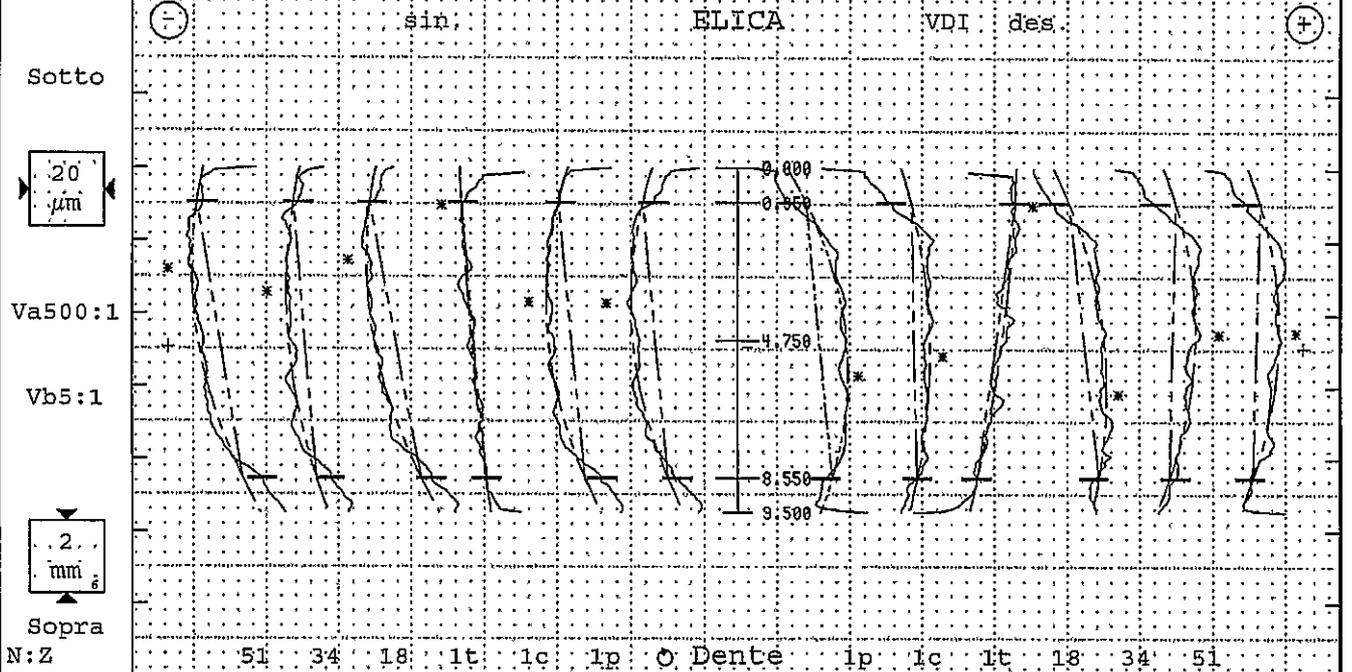
Ruota cilindrica Evolvente/Elica



Nr. prog.:	STI0410o05 0 PNC35 B4784	Controllore:	turno A	Data:	22.12.2014 13:58	
Denominazione:	Speed gear reverse	Numero denti z	67	Largh. fasc. dent. b	9.5mm	
Numero disegno.:	250.1.4229.02-IF	Modulo m	1.6mm	Tratto evolv. La	5.06/9.98mm	
Commissa/serie nr.:	PPAP N.5	Angolo pressione	17.5°	Tratto elica Lb	7.6mm	
Masch.Nr.:	M001	Spindel: Form	Angolo elicale	31°	Inizio elab. Ml	16.6mm
Untersuchungszweck:	Laufende Messung	Ø Base db	117.3743mm	Palpatore Ø	(#1)1mm	
Werkzeug:	Charge:	Ang. Base	29.42°	Fat. scor. pr. x	-.041	



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
		Var 4									Var 4								
fHm ±10	-4									±10								-8	
fHr ±18	-4	-6	-3	-3	-3	-2	-3		±18	11	-7	-7	-10	-8	-6	-8			
Fa	5	7	4	5	5	5	4		19	11	9	12	13	10	9	10			
ffa 22	3	3	3	2	4	5	3		22	4	4	5	5	4	3	4			
Ca									0/5	-1	2	6	3	2	5	3			
fKo										0	0	0	0	0	0	0			
fKo -20/-12	-14	-12	-16	-12	-2	-15	-8												
P/T-φ[mm]	119.388	[119.15/119.6]								129.491	[129.4/129.7]								



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
		Var 10									Var 12								
fHsm-10±10	-13								±10								-2		
fHB -10±25	-13	-16	-8	-18	-9	-9	-9		±25	-9	-2	13	-10	2	2	-2			
Fb 23	11	13	8	12	4	10	9		23	22	11	12	15	12	12	13			
f±B 14	7	8	7	7	4	7	5		14	7	10	6	8	10	7	9			
Cb 2/6	6	6	4	6	1	6	6		2/6	7	4	2	6	6	6	6			
Bd	0																	-22	



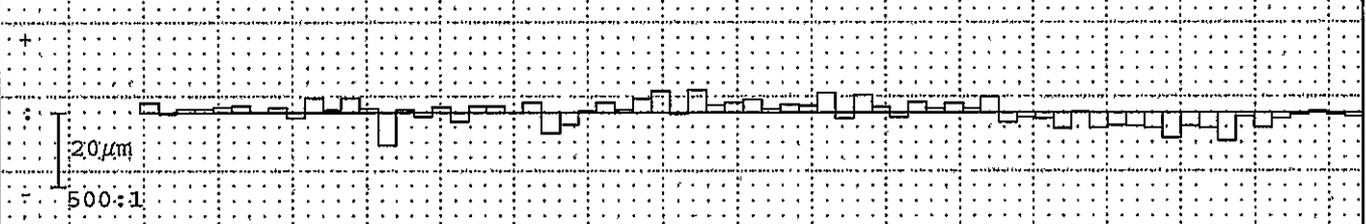
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Ruota cilindrica Divisione

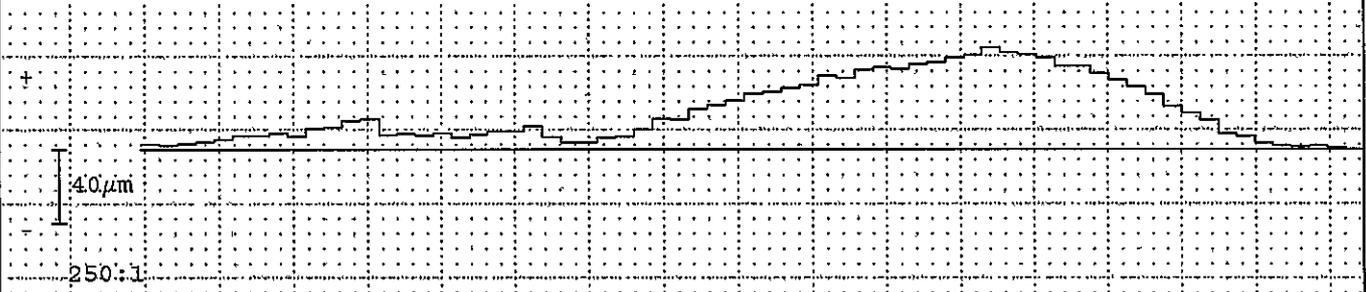


Nr. prog.: STI041005 0 PNC35 B4784	Controllore: turno A	Data: 22.12.2014 13:58
Denominazione: Speed gear reverse	Numero denti z 67	Angolo pressione 17.5°
Numero disegno.: 250.1.4229.02-IF	Modulo m 1.6mm	Angolo elica 31°
Commessa/serie nr.: PPAP N.5	Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: FORM 02	Charge:

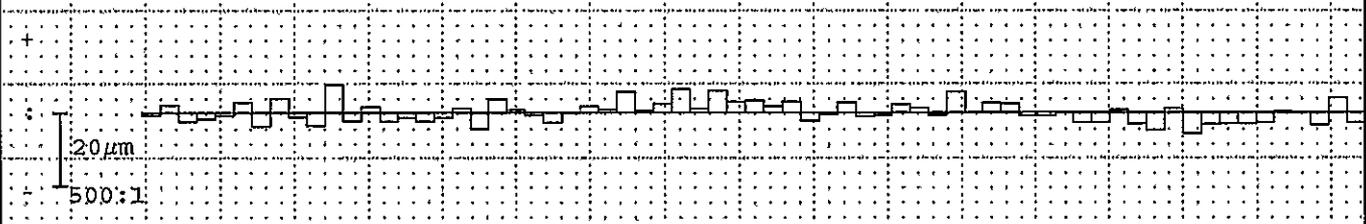
Errori singoli di divisione fp fianco sinistro



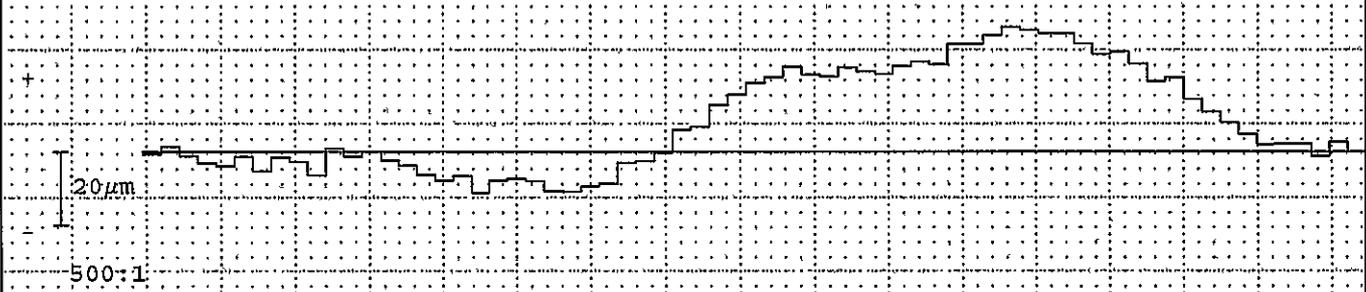
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



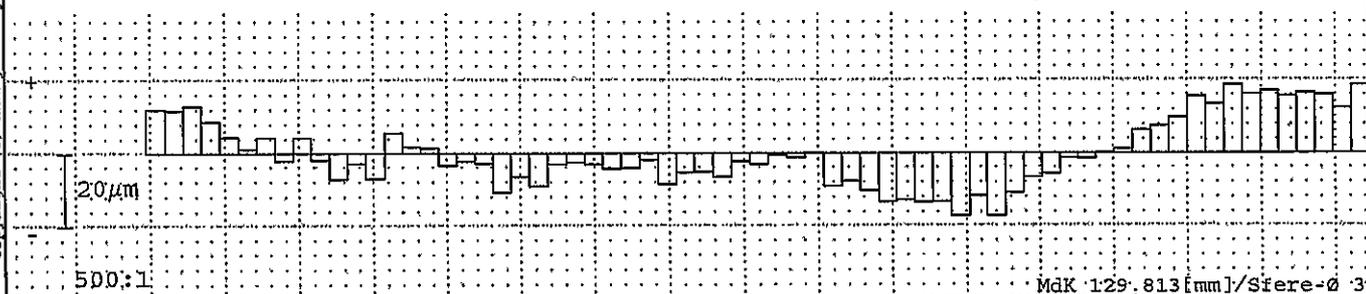
Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 125.88 z=4.8mm	fianco sinistro / TIRO				fianco destro			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	9		22		7		22	
Gr. salto di passo fu max	10		25		11		25	
Scarto di divisione Rp	15				13			
Err. globale di divisione Fp	55		85		45		85	
Err. cordale di divisione Fpz/8	37				27			

Centricità Fr (Ø-sfera =3mm)

© : 20 µm



Err. di concentricità Fr	36	56	Val. amm	
Variaz. spessore dente Rs			Val. 129.518 129.535 129.493	