GETRAG 312845

Part Submission Warrant

Part Name	Speed Gear SR5	Customer Part Number	250.1.3778.36
Shown on Drawing No.	250.1.3778.36	Organization Part #	
Engineering Change Level	a 35622	Dated	16 Jan 2013
Additional Engineering Changes		Dated	
Safety and/or Government Regulation	☑ Yes ☑ No	Purchase Order No.	Weight (kg) 0,4620
Checking Aid No.		Checking Aid Engineering Change Level	Dated

ORGANIZATION MANUFACTURING INFORMATION

GETRAG MODUGNO
Organization Name & Supplier/Vendor Code

VIA DEI CICLAMINI N°4
Street Address

MODUGNO | BARI | 70026 | ITALY
City | Region | Postal Code | Country

CUSTOMER SUBMITTAL INFORMATION

FORD
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)

- ☐ 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 Additional Location
- ☑ 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	16 Jan 2015
Print Name	Pennacchia Vincenzo	Phone No.	tel 390805858580
Title	GPS Leader	E-mail	vincenzo.pennacchia@getrag.com

FOR CUSTOMER USE ONLY (IF APPLICABLE)

Part Warrant Disposition:	☒ Approved ☐ Rejected ☐ Other		
Customer Signature		Date	16.01.15
Print Name		Customer Tracking Number (optional)	

March 2006 CFG-1001

GETRAG Production Part Approval

DIMENSIONAL TEST RESULTS

Organization:	GETRAG	Part Number:	250.1.3778.36
Supplier/Vendor Code:	GETRAG Modugno	Part Name:	SR5
INSPECTION FACILITY:		Design Record Change Level:	a 35622
NA		Engineering Change Documents:	

Organization Measurement Results (Data)

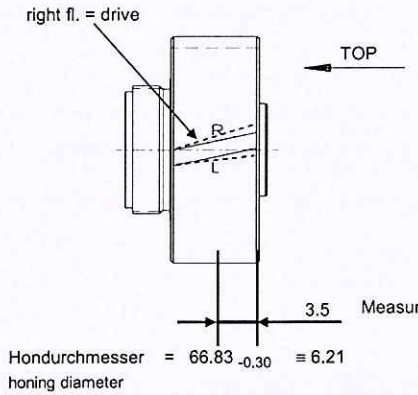
Item	Dimension/Specification	Specification / Limits		Test Date	Qty. Tested	1	2	3	4	5	controllo distruttivo	Ok	Not Ok
1	Profile Teeth	--	--		5	ok	ok	ok	ok	ok		ok	
2	Root diameter	65,800	65,45		5	65,6020	65,604	65,613	65,597	65,615		ok	
3	Outside diameter	76,500	76,24		5	76,294	76,287	76,305	76,286	76,306		ok	
4	MDK	74,314	74,235		5	74,275	74,285	74,276	74,281	74,282		ok	

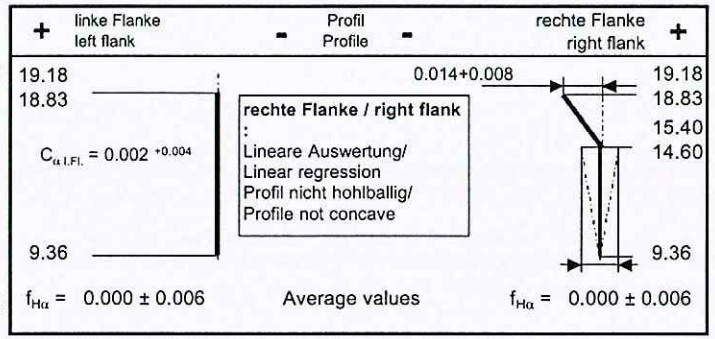
SIGNATURE	TITLE	DATE
G. Russo	QPE	16 Jan 2015

STIRNRAD / GEAR	außenverzahnt / external

Toleranzen der Verzahnung (DIN 3961 vom Aug. 1978) (8)
gültig für Werte am Einzelzahn
Tolerances of gearing (DIN 3961 of Aug. 1978)
valid for values at individual tooth

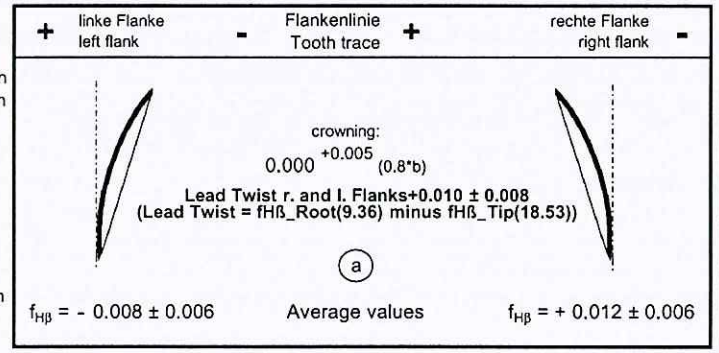
			linke Fl. left flank	rechte Fl. right flank		
Zähnezahl z Number of teeth	37					
Modul m_n Normal module	1.650000	Profil-Formabweichung $f_{f\alpha}$ Profile form error	0.004		Eingriffsteilungs-Abweich. f_{pe} Normal pitch error	0.014
Eingriffswinkel α_n Normal pressure angle	17° 30' 0"	Profil-Gesamtabweichung F_α Total profile error			Teilungs-Einzelabweichung f_p Adjacent pitch error	0.014
Schrägungswinkel β Helix angle	29° 0' 0"	Profil-Winkelabweichung $f_{H\alpha}$ Profile angle error	0.000 ± 0.010	0.000 ± 0.010	Teilungssprung f_u Diff. bet. adjacent pitches	0.018
Steigungsrichtung Hand of helix	LINKS	Flankenl.-Winkelabweich. $f_{H\beta}$ Tooth alignment error	- 0.008 ± 0.013	+ 0.012 ± 0.013	Teilungs-Summenabweich. F_{pk} Cumulative circ. pitch error	
Profilverschiebungsfaktor x Addendum modification coeff.	0.667	Flankenl.-Gesamtabweich. F_β Total alignment error			Rundlaufabweichung F_r Radial run-out	0.032
Teilkreisdurchmesser d Pitch diameter	69.802	Flankenl.-Formabweich. $f_{f\beta}$ Longitudinal alignment err.	0.004		Zahndickenschwankung R_S Range of tooth thickn. error	
Kopfkreisdurchmesser d_a Outside diameter	76.50 $_{-0.26}$	Teilungs-Gesamtabweich. F_p Cumulative pitch error	0.050			
Kopfnutzkreisd. theo. max. d_{Na} Tip diam. usable theo.	76.05	Einf.-Wälzabweichung F_i' Tangential composite error			Zweifl.-Wälzabweichung F_i'' Radial composite error	0.040
Kopfnutzkreisd. theo. min. d_{Na} Tip diam. usable theo.	75.70	Einflanken-Wälzsprung f_i' Tang. tooth to tooth comp. err.			Zweifl.-Wälzsprung f_i'' Radial tooth to tooth comp. err.	0.016
Fußkreisdurchmesser d_f Root diameter	65.80 $_{-0.35}$	Radbreite im Meßkreis d_M b Facewidth in meas. diam.	14.50 (b)		Meßkreis Krümmungsradius ρ_{dM} Radius of curvature meas. diam.	13.60
Fußnutzkreisdurchmesser d_{Nf} Root diameter usable	68.28					
Grundkreisradius r_b Base circle radius	32.833					
Grundkreisdurchmesser d_b Base diameter	65.665					
Normalzahndicke max. s_n Normal tooth thickness	3.285					
Normalzahndicke min. s_n Normal tooth thickness	3.255					
Meßzähnezahl k Number of teeth spanned	7					
Zahnweite max. W_k Base tangent length	33.640					
Zahnweite min. W_k Base tangent length	33.611					
Meßkugeldurchmesser D_M Ball diameter	2.5000					
Diam. Zweikugelmaß max. M_{dK} Measurement o. balls	74.314					
Diam. Zweikugelmaß min. M_{dK} Measurement o. balls	74.235					
Verdrehflankenspiel theo. Circumferential backlash	0.070 0.177					





* Schreibbeginn
* Start of checking

Ø = 66.83 $_{-0.30}$ ≡ 6.21



* ffαf (zwischen dNf und dem Schreibbeginn ds) max ffα/2, jedoch 0.003 zulässig
* ffαf (between dNf and start of checking ds) max ffα/2, 0.003 allowable.

Profil- und Flankenlinienprüfung nach VDI/VDE 2612
Tabellenwerte für F_β und $f_{H\beta}$ sind auf die gesamte Radbreite im Meßkreis d_M bezogen
Flankenlinienprüfbereich Lβ = 0.8*b hochgerechnet auf 1.0*b
Begriffe für Stirnräder nach DIN 868, 3960, 3998

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

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

Wkz-Profil siehe Werkzeugdatenblatt Nr.
For Tooth profile, see tool data sheet number 250.1.3779.35

b	1	35639-1	See change report	20130828	Cricenti
a	1	35978	See change report	20130515	Cricenti
Buch.	Anz.	Änd.Nr.		Datum	Name

Abbildungen sind unmaßstäblich.
Diagrams not to scale.

Ersatz für

Erstverwendung bei Getriebetype: 250.0.0003.17

	Datum	Name
gez.	2011-08-05	Cricenti, Fabrizio
gepr.		

Verzahnungsblatt Endkontrolle
Final Check Gear Data

Benennung:
Naming:

Schaltrad 5.Gg.

Verteiler:

Schutzvermerk nach ISO 16016 beachten
Protection per ISO 16016

GETRAG

GETRAG Getriebe- und Zahnradfabrik Hermann Hagenmeyer GmbH & Cie KG

Remark:

Zeichnungsnummer:
Drawing number:

250.1.3779.35

Fuer Freigabeinformation freihalten! KEEP FREE FOR RELEASE INFORMATION!

055.8.7253.00

250.1.3779.35

Teilkreis-Ø
PITCH DIA

↗	0.1	A

A

B

SHORT WAVINESS 0.001 MAX.
FILTER 15-150 µm
Kurzwelligkeit 0.001 max.
bei Filter 15-150 µm
Nadellaufbahn
NEEDLE TRACK
Rz 3
Rmax 4

Ø45 G6(-0.025 -0.050)

//	0.007	B
○	0.006	
—	0.004	

Konkav nicht zulaessig
CONCAVE NOT ALLOWED

Z

↗	0.1	A

(19.04±0.04)

23.44 -0.18 -0.08

Kontrollmass
CONTROL MEASUREMENT

Rz 6.3

Rz 6.3

↗	0.03	A

↗	0.03	A

25.71±0.03

Z
unmassstaeblich
not to scale

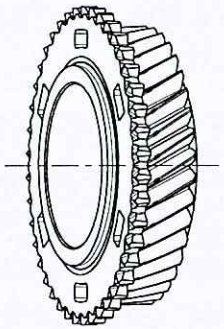
Prozess ISO 4063 - 522

ⓐ TO FULL PENETRATION s 2.8

360 +2°

0.5 max.
Schweissnahtueberstand
Weld bead stand-off

ⓐ CHECKED ACCORDING ENGINEERING SPECIFICATION S 3S7R-7M161-AA. DEVIATION FROM THIS SPECIFICATION: LONGITUDINAL MICRO CRACKS IN THE WELDING MATERIAL ARE PERMISSIBLE TO A TOTAL OF 2% AROUND THE CIRCUMFERENCE.



Fuer GETRAG intern:
Dieses Bauteil ist Bestandteil der Gruppen Nummer 250.1.6427.00
Lieferant/Hersteller: Bari
GETRAG INTERNAL ONLY:
THIS COMPONENT IS PART OF GROUP NUMBER 250.1.6427.00
SUPPLIER/MANUFACTURER: Bari

Fuer die Lieferung und Kennzeichnung im Data Matrix Code
(Bauteil und/oder Verpackung)
muss die Gruppen Nummer 250.1.6427.00 verwendet werden.
FOR SHIPPMENT AND IDENTIFICATION WITHIN THE DATA MATRIX CODE
(COMPONENT AND/OR PACKAGING)
THE GROUP NUMBER 250.1.6427.00 HAS TO BE USED.

PPAP nach / ACCORDING TO 250.1.3778.36

Technische Sauberkeit / TECHNICAL CLEANLINESS:

Es gelten die Sauberkeitsanforderungen nach GN 4340-1
CLEANLINESS REQUIREMENTS OF THE GN 4340-1 HAVE TO BE ABIDED

Naehere Angaben zur Verzahnung
siehe Verzahnungsblatt
250.1.3779.35
FURTHER GEAR DATA SEE
DATA SHEET NUMBER
250.1.3779.35

(√)

-0.3 -0.1 (⌊)

GCG/TS 803001	0	<M>					
	0	▽					
GN 3010	0	<M>					
	0	<C>					
	0	<A>					
CAD Prof Engineer			a	2x	35622	Z: Bemerkung/NOTE geaendert/CHANGED. 2.8 TO FULL PENETRATION wgr/nAS 3-0.5 Spezifikationsreifegrad F erteilt SPECIFICATION MATURITY LEVEL F APPROVED	20130116

Massstab / SCALE	Buchst. CHANGE INDEX	Anzahl NUMBER	Aend.-Nr. CHANGE REQUEST NO.	Aenderung --nur mittels CAD zulaessig; FMEA ueberpruefen-- MODIFICATION --ONLY ALLOWED BY CAD; CHECK FMEA--	Datum DATE
M: 1:1 (--)					

Allgemeintoleranzen fuer Laengenmasse, Form und Lage ISO 2768 - mH gebrochene Kanten, Radien und Winkelmasse ISO 2768 - v
GENERAL TOLERANCES FOR LINEAR DIMENSIONS, FORM AND POSITION ISO 2768 - mH; CHAMFERS, RADII AND ANGULAR DIMENSIONS ISO 2768 - v

Informationen auf dieser Zeichnung sind ohne Angaben zu Verwendung und Freigabe unverbindlich.
INFORMATION ON THIS DRAWING PROVIDED WITHOUT OBLIGATION IF USAGE AND RELEASE ARE NOT SHOWN.

Auswertung der Durchmessermessung erfolgt nach der Gauss-Methode (Arithmetischer Mittelwert)
EVALUATION OF THE DIAMTER MEASUREMENT IS CARRIED OUT ACCORDING TO THE GAUSS METHOD (ARITHMETICAL MEAN VALUE)

Form- und Lagetolerierung FORM AND POSITION TOLERANCES EN ISO 1101	Tolerierung TOLERANCING ISO 8015	Oberflaechenangaben SURFACE TEXTURE GN 4005	Werkstueckkanten BREAK EDGES ISO 13715

Werkstoff / MATERIAL

Halbzeug
SEMI-FINISHED -

oeberuehrte Oberflaeche
OIL WETTED SURFACE

Gesamtoberflaeche
SURFACE AREA 0 mm²

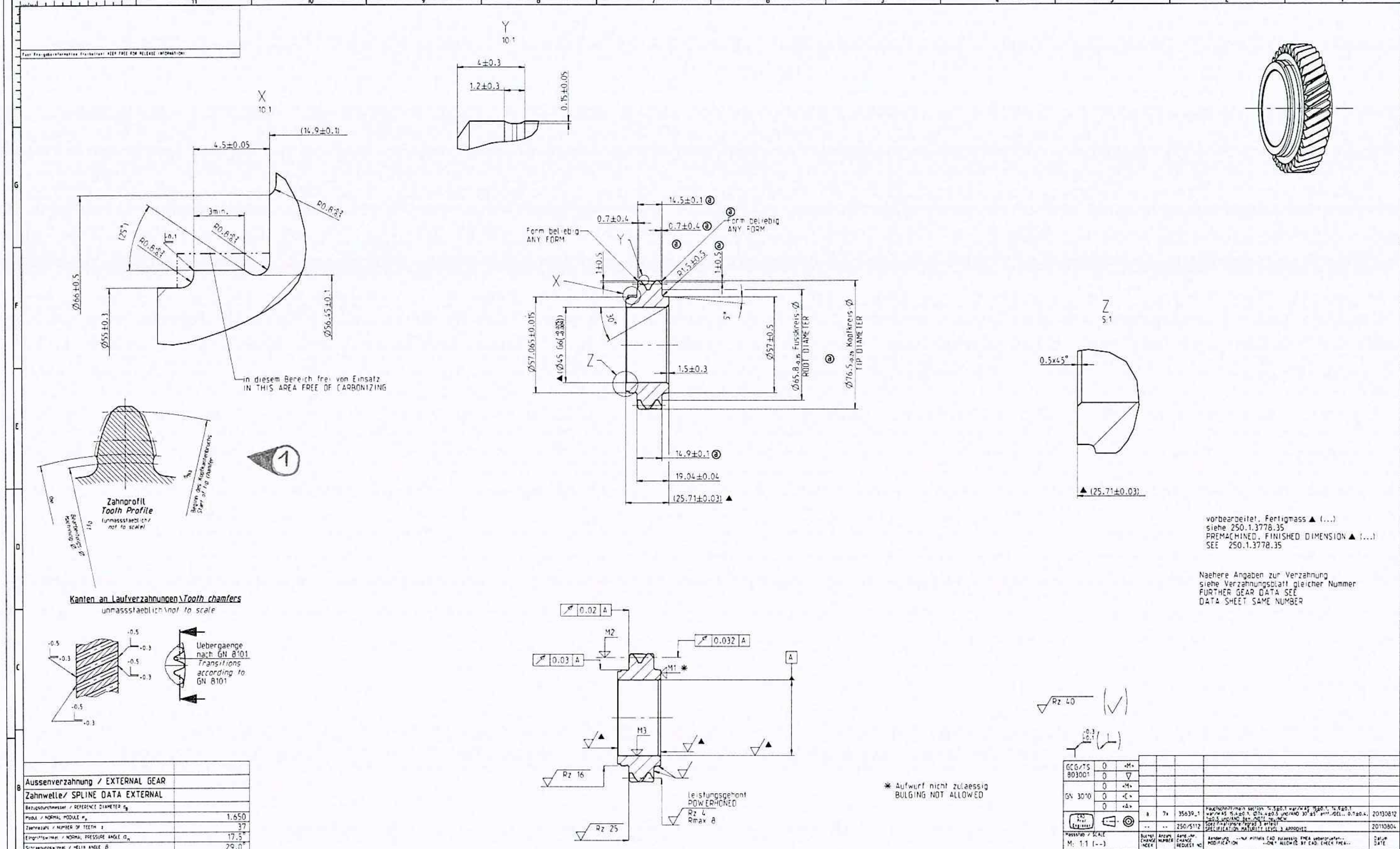
Masse
MASS 0.462 kg

GETRAG
Getriebe- und Zahnradfabrik Hermann Hagenmeyer GmbH & Cie KG

Schutzvermerk nach ISO 16016 beachten
PROTECTION PER ISO 16016

Benennung / ITEM NAME	Artikel-Nr./ ITEM NO.	Blatt/SHEET 1 von/OF 1	Reifegrad MATURITY	Format SIZE
Schaltrad 5. Gang vst. SPEED GEAR 5TH. CPL.	2501377836 CAD-Modell: 2501377836		F	A2

Ersatz fuer SUBSTITUTE FOR	-	INTRALINK DATA	CHECKED IN BY	CHECKED IN ON dd.mm.yyyy hh:mm:ss	VERSION
		Zchng / DRW:	Petra.Kaufmann	16.01.2013 13:59:21	2.
		MODEL:	Petra.Kaufmann	16.01.2013 13:59:21	2.



* Aufwurf nicht zulaessig
BULGING NOT ALLOWED

einsatzgehaertet und angelassen
M1 (Oberflaechenhaerte) : 80.5-2.5 HRA
M2 (Zahnflanke) : CHD (Eht) 550= 0.5-0.4
M3 (Bohrung) : CHD (Eht) 550= 0.3 min.
M4 (Kernhaerte) : min. 300 HV10

CASE HARDENED AND TEMPERED
M1 (CASE HARDNESS) : 80.5-2.5 HRA
M2 (TOOTH FLANK) : CHD (Eht) 550= 0.5-0.4
M3 (BORE) : CHD (Eht) 550= 0.3 min.
M4 (INSIDE BASE OF TOOTH) : min. 300 HV10

Aussenverzahnung / EXTERNAL GEAR		
Zahnwelle/ SPLINE DATA EXTERNAL		
Bezugsdurchmesser / REFERENCE DIAMETER d_B		
Modul / NORMAL MODULE m_n		1.650
Zaehnezahl / NUMBER OF TEETH z		37
Eingriffswinkel / NORMAL PRESSURE ANGLE α_n		17.5°
Schraegungswinkel / HELIX ANGLE β		29.0°
Richtung / HAND OF HELIX		LEFT, Links
Bezugsprofil / BASIC RACK		
Profilverschiebung/ADDENDUM MODIFICATION xm_n	Nennmass / NOMINAL	1.100
Qualitaet / GEAR TOOTH QUALITY (DIN3961)		8
Toleranzklasse / TOLERANCE CLASS		
Zahndicke / TOOTH THICKNESS s_n (Lehrenmass / GAGE DIMENSION)	effective max.	
Zahndicke / TOOTH THICKNESS s_n (Einzelmessung / ACTUAL)	max.	3.285
	min.	3.255
Messkugel-Ø / BALL DIA D_M		2.50
Pruefmass / MEASUREMENT OVER BALLS M_{dK} (Einzelmessung / ACTUAL)	max.	74.314
	min.	74.235

GCG/TS 803001	0	«M»
	0	▽
GN 3010	0	«M»
	0	«C»
	0	«A»

Buchst. CHANGE INDEX	Anzahl NUMBER	Aend.-Nr. CHANGE REQUEST NO	Aenderung --nur mittels CAD zulaessig FMEA ueberpruefen-- MODIFICATION --ONLY ALLOWED BY CAD; CHECK FMEA--	Datum DATE
a	7x	35639_1	Hauptschnitt/main section 14.5±0.1 war/WAS 15±0.1, 14.9±0.1 war/WAS 15.4±0.1, Ø74.4±0.5 und/AND 30°±5° entf./DEL., 0.7±0.4, 1±0.5 und/AND Bem./NOTE neu/NEW	20130812
--	--	250/5112	Spezifikationsreifegrad 3 erteilt SPECIFICATION MATURITY LEVEL 3 APPROVED	20110804

Massstab / SCALE M: 1:1 (--)

Allgemeintoleranzen fuer Laengenmasse, Form und Lage ISO 2768 - mH gebrochene Kanten, Radien und Winkelmasse ISO 2768 - ∗ GENERAL TOLERANCES FOR LINEAR DIMENSIONS, FORM AND POSITION ISO 2768 - mH CHAMFERS, RADII AND ANGULAR DIMENSIONS ISO 2768 - ∗

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Auswertung der Durchmessermessung erfolgt nach der Gauss-Methode (Arithmetischer Mittelwert)
EVALUATION OF THE DIAMTER MEASUREMENT IS CARRIED OUT ACCORDING TO THE GAUSS METHOD (ARITHMETICAL MEAN VALUE)

Form- und Lagetolerierung FORM AND POSITION TOLERANCES EN ISO 1101	Tolerierung TOLERANCING ISO 8015	Oberflaechenangaben SURFACE TEXTURE GN 4005	Werkstueckkanten BREAK EDGES ISO 13715

Werkstoff / MATERIAL: GCG_805000_02_20MnCrS5

Halbzeug / SEMI-FINISHED: -

oelbenetzte Oberflaeche / OIL WETTED SURFACE: 0 mm²

Gesamtoberflaeche / SURFACE AREA: 18013 mm²

Masse / MASS: 0.360 kg

GETRAG
Getriebe- und Zahnradfabrik Hermann Hagenmeyer GmbH & Cie KG

Schutzvermerk nach ISO 16016 beachten
PROTECTION PER ISO 16016

Benennung / ITEM NAME: Schaltrad 5.Gang
SPEED GEAR 5th

Artikel-Nr. / ITEM NO.: 2501377935
CAD-Modell: 2501377935

Blatt/SHEET 1 von/OF 1 | Reifegrad MATURITY: 3 | Format SIZE: A1

Ersatz fuer / SUBSTITUTE FOR: -

INTRALINK DATA | Zchng. / DRW. | Modl.
CHECKED IN BY: Petra.Kaufmann | Petra.Kaufmann
CHECKED IN ON: 12.08.2013 15:35:01 | 12.08.2013 15:35:01
VERSION: 5 | 4

Istruzioni di controllo

GETRAG

PP Produzione GPS

Materiale: 2501377836
Descrizione: Ruota dentata libera 5M com Stato:Rilasciato Produzione + Calcolo costi
Operazione: 0150 Levigatura di potenza
Centro di lavoro: HNW14440 LEVIGATURA DI POTENZA SG5

Indice del disegno finito:
Data emissione: 10.02.2014 / Rocco Tanzella
Data aggiornamento: 09.01.2015 / Rocco Tanzella

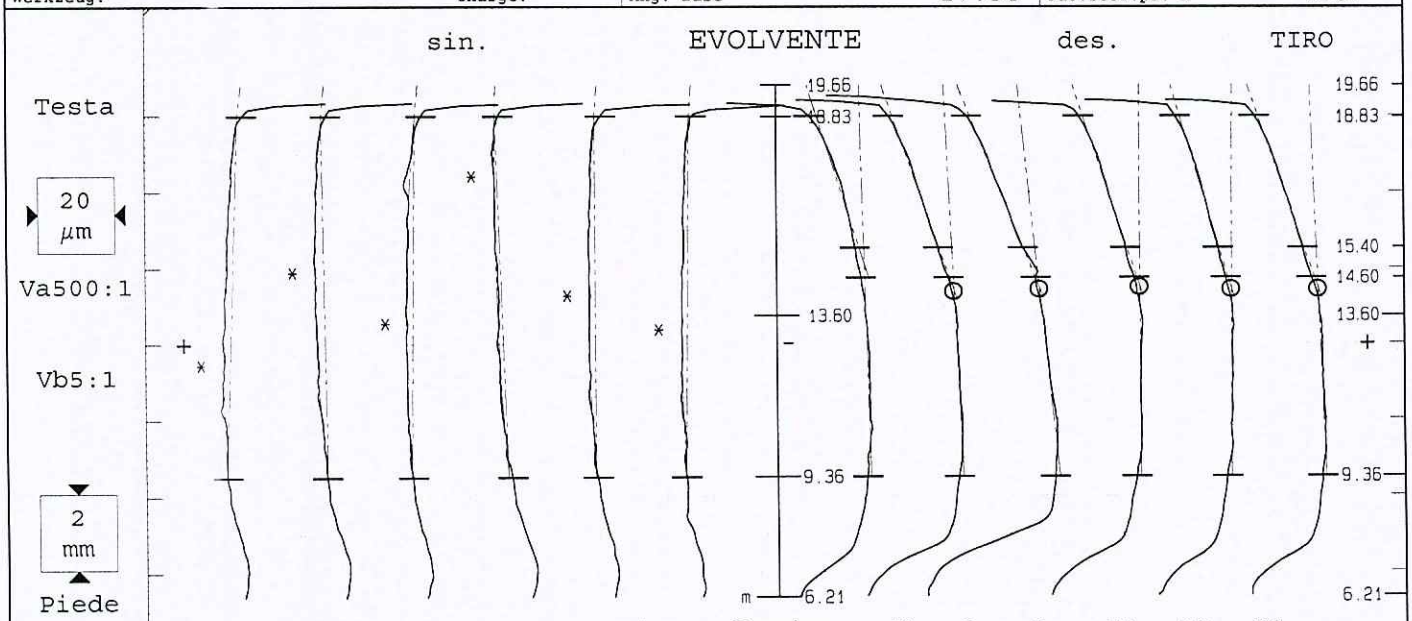
n. SAP ID interno	GN 3010	Caratteristica	Misura nomin.	LTI	LTS	Strumento di controllo	Quantità	Frequenza RK1:	Quantità	Frequenza RK2:	Quantità	Frequenza Sala di misura	Cambio ut.	Metodi di gestione / Documentazione
0004		Controllo 1° pz secondo Gear data 250.1.3779.3X				MVZ-400249 EVOLVENTIMETRO					1	1° pz 2.3.1.1-R 2		Misu: controllo primo pezzo
						MOA-416121 RUGOSIMETRO TIPO PRK					1	1° pz 2.3.1.1-R 2		
						MZA-450311 Calcolatore di misura E9066 Marposs					1	1° pz 2.3.1.1-R 2		
0014	M	Diametro Mdk	77,033 mm	76,990	77,077	MZA-450311 Calcolatore di misura E9066 Marposs	3	pz ogni 100 per macchina						CR1: calcolatore di misura
0024	M	Evolvente ed elica sec.G.D. con svergolamento				MVZ-400249 EVOLVENTIMETRO					1	pz ogni 100 per macchina		Misu: diagramma di dentatura
0026	M	Svergolamento evolventi				MVZ-400249 EVOLVENTIMETRO					1	Ultimo PZ. prima ravvivatu ra		Misu: diagramma di dentatura
0034	M	Errore globale di divisione	0,000 mm	0,000	0,050	MVZ-400249 EVOLVENTIMETRO					1	pz. p. turno		Misu: diagramma di dentatura
0036	M	Oscillazione radiale dentat. Fr	0,000 mm	0,000	0,032	MVZ-400249 EVOLVENTIMETRO					1	pz. p. turno		Misu: diagramma di dentatura
0044	M	Rugosità dente Rz	0,0 µm	0,0	4,0	MOA-416121 RUGOSIMETRO TIPO PRK					1	1° pz 2.3.1.1-R 2		Misu: controllo primo pezzo
0054	M	Rugosità dente Rmax	0,0 µm	0,0	8,0	MOA-416121 RUGOSIMETRO TIPO PRK					1	1° pz 2.3.1.1-R 2		Misu: controllo primo pezzo
0056		Aspetto, privo di bava, senza danni Controllo visivo					10	pz per rack						CR1: no documentazione
0074		Sup. dente completamente levigata controllo visivo					10	pz per rack						CR1: no documentazione

Trattare i prodotti non conformi secondo procedura 2.3.5 del Manuale dei Processi

Gli audit di prodotto sono stati eseguiti secondo il piano annuale

GETRAG — Ruota cilindrica Evolvente/Elica

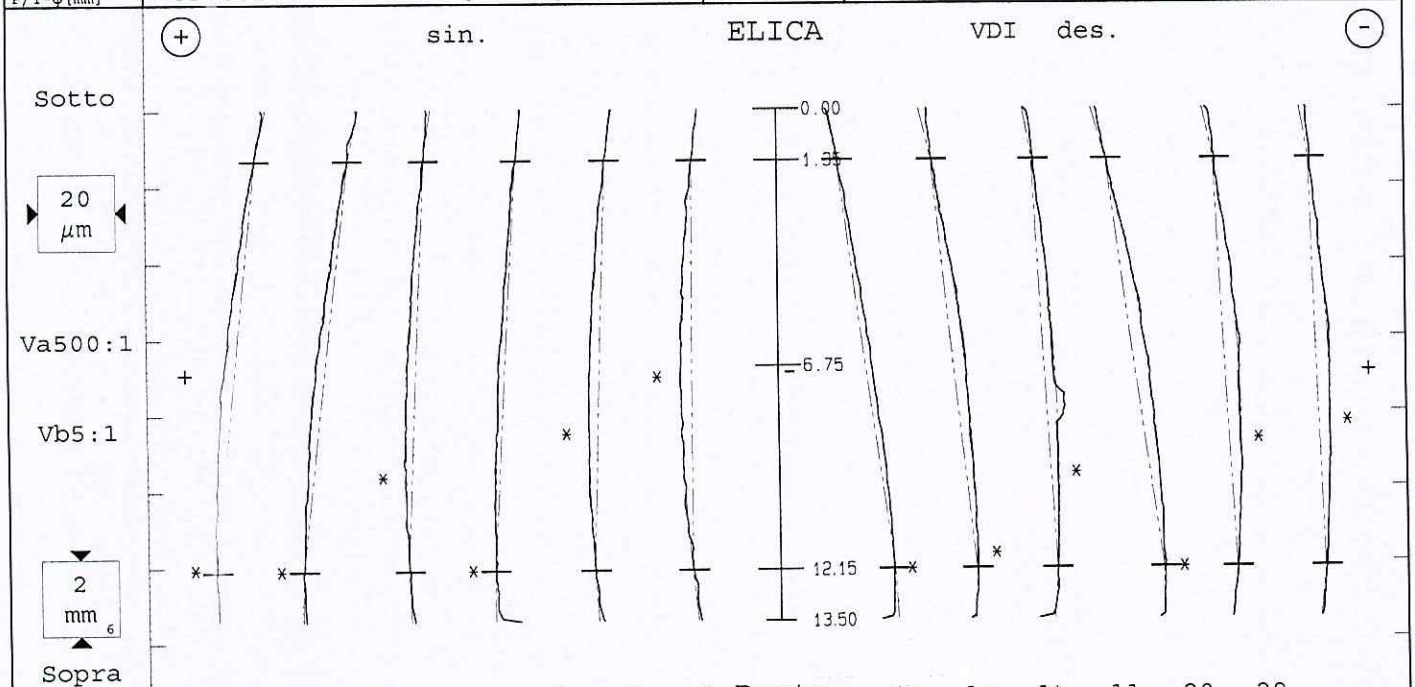
Nr. prog.:	STI0410o05 0 PNC35 B4784	Controllore:	TURNO c	Data:	13.01.2015 09:40
Denominazione:	SR5	Numero denti z	37	Largh.fasc.dent. b	13.5mm
Numero disegno.:	250.1.3779.35-ICA	Modulo m	1.65mm	Tratto evolv. La	9.47/5.24mm
Commessa/serie nr.:	PPAP 1	Angolo pressione	17.5°	Tratto elica Lß	10.8mm
Masch.Nr.:	M001 Spindel: Formmeast	Angolo elica	-29°	Inizio elab. M1	9.36mm
Untersuchungszweck:	Laufende Messung	ø Base db	65.6652mm	Palpatore ø	(#1) 1mm
Werkzeug:	Charge:	Ang. Base	-27.54°	Fat.scor.pr. x	.667



Dente: 29 20 11 1s 1c 1b | 1b 1c 1s 11 20 29

Tolerance		Medio	Val.misur[µm]						Qual
			Var 4						
fHαm	±6	-1							
fHα	±10	-1	-3	1	-1	3	0	-1	
Fα		3	4	2	3	4	2	2	
ffα	4	2	2	2	3	2	2	1	
Cα	2/6	2	2	2	2	1	2	1	
fKo		0	0	0	0	0	0	0	
fKo									
P/T-φ[mm]		65.602	[65.45/65.8]						

Tolerance	Val.misur[µm]						Medio	Qual
	Var 2							
±6							-1	
±10	-1	-2	-6	0	0	-2	-1	
	3	4	6	2	2	4	3	
4	2	2	2	2	2	2	2	
-22/-14	-11	-14	-13	-15	-14	-14	-14	
	76.294						[76.24/76.5]	



N:Z — Dente: 29 20 11 1t 1c 1p | 1p 1c 1t 11 20 29

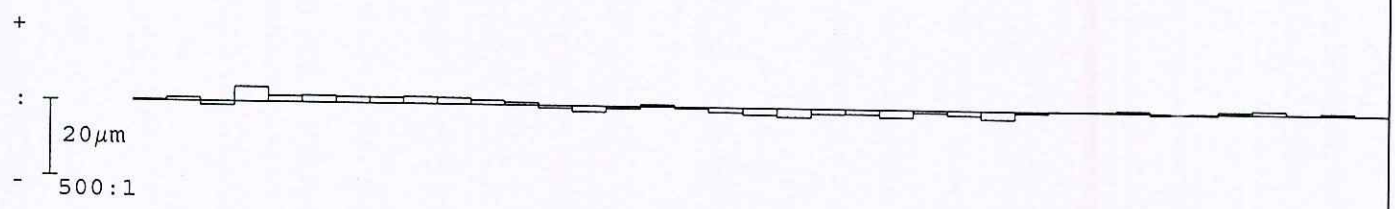
fHßm	-8±6	-10	Var 12						12±6	Var 13						11
fHß	-8±13	-10	-14	-16	-6	-8	-4	-1	12±13	18	14	7	18	7	5	11
Fß		6	6	7	4	2	5	7		5	4	6	6	7	7	6
ffß	4	1	1	1	1	1	1	1	4	1	1	3	1	1	1	1
Cß	0/5	3	3	2	2	1	3	3	0/5	2	3	3	4	4	3	4
Bd	10±8	7							10±8							11

KLINGELNBERG

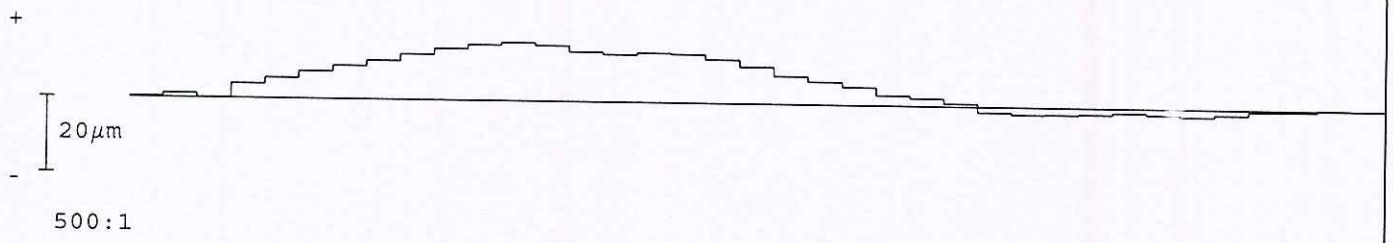
GETRAG — Ruota cilindrica Divisione

Nr. prog.:	STI0410o05 0 PNC35 B4784	Controllore:	TURNO C	Data:	13.01.2015 09:40
Denominazione:	SR5	Numero denti z	37	Angolo pressione	17.5°
Numero disegno.:	250.1.3779.35-ICA	Modulo m	1.65mm	Angolo elica	-29°
Commessa/serie nr.:	PPAP 1	Untersuchungszweck:	Laufende Messung		
Masch.Nr.:	M001	Spindel: Formmesszeug:		Charge:	

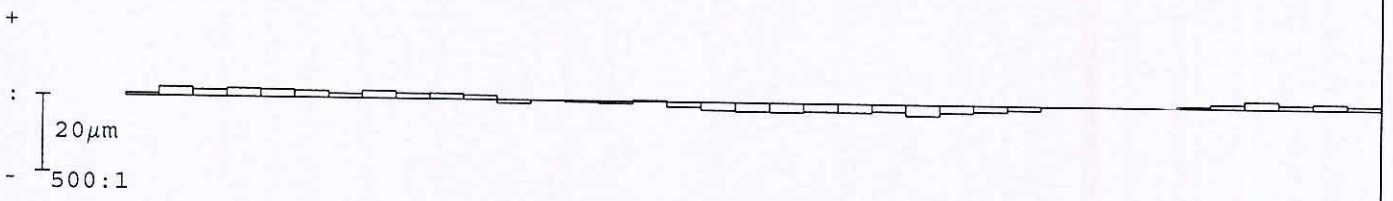
Errori singoli di divisione fp fianco sinistro



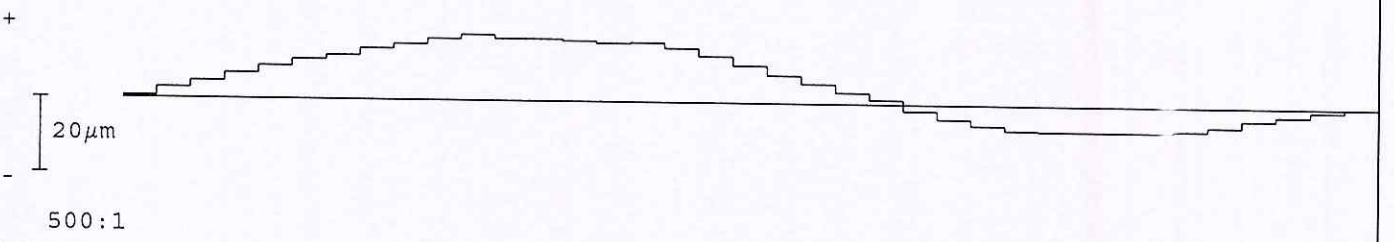
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



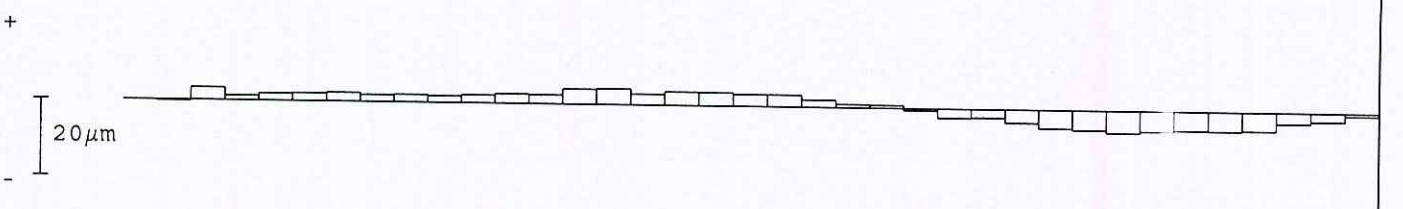
Errore somma di divisione Fp fianco destro



Corsa per misura divis.:71.076 z=6.8mm

		fianco sinistro		fianco destro / TIRO	
		Val.misur Qual.	Val. amm Qual.	Val.misur Qual.	Val. amm Qual.
Gr. err. singoli divisione	fp max	4	14	3	14
Gr. salto di passo	fu max	5	18	2	18
Scarto di divisione	Rp	6		5	
Err. globale di divisione	Fp	17	50	24	50
Err. cordale di divisione	Fpz/8	10		12	

Centricità Fr (Ø-sfera =2.75mm) ◎ : 8µm

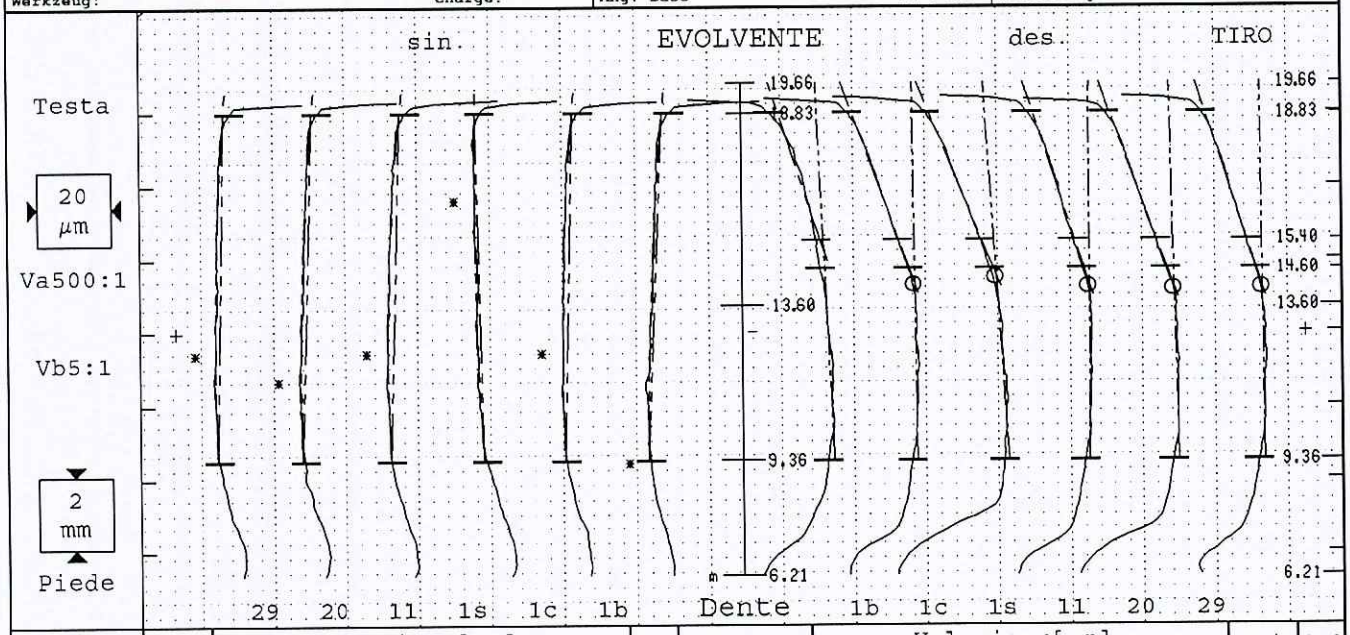


Err. di concentricitá	Fr	10	32	
Variaz. spessore dente	Rs			

KLINGELNBERG

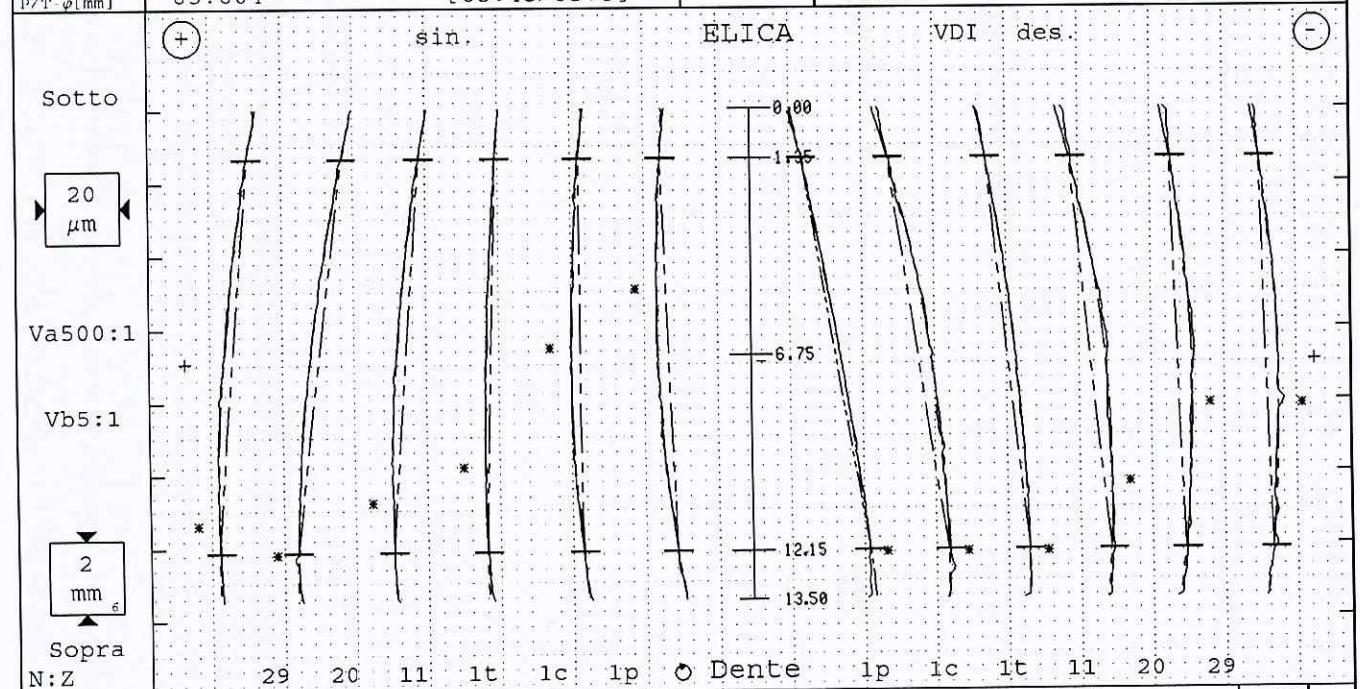
GETRAG — Ruota cilindrica Evolvente/Elica

Nr. prog.:	STI0410o05 0 PNC35 B4784	Controllore:	TURNO c	Data:	13.01.2015 09:34
Denominazione:	SR5	Numero denti z	37	Largh.fasc.dent. b	13.5mm
Numero disegno.:	250.1.3779.35-ICA	Modulo m	1.65mm	Tratto evolv. La	9.47/5.24mm
Commessa/serie nr.:	PPAP 2	Angolo pressione	17.5°	Tratto elica Lß	10.8mm
Masch.Nr.:	M001 Spindel: Formr[illegible]	Angolo elica	-29°	Inizio elab. M1	9.36mm
Untersuchungszweck:	Laufende Messung	ø Base db	65.6652mm	Palpatore ø	(#1)1mm
Werkzeug:	Charge:	Ang. Base	-27.54°	Fat.scor.pr. x	.667



Tolerance	Medio	Val.misur[µm]						Qual
		Var 1						
fHαm ±6	-3							
fHα ±10	-3	-2	-3	-3	2	-2	-4	
Fα	4	4	4	4	3	4	6	
ffα 4	2	2	2	2	2	2	3	
Cα 2/6	2	2	2	2	1	2	1	
fKo	0	0	0	0	0	0	0	
fKo								
P/T-φ[mm]	65.604	[65.45/65.8]						

Tolerance	Val.misur[µm]						Medio	Qual
	Var 1							
±6							-1	
±10	-2	-1	-3	0	-1	0	-1	
	4	3	5	3	4	3	3	
4	3	3	3	3	3	3	3	
-22/-14	-11	-17	-16	-15	-17	-15	-16	
	76.287	[76.24/76.5]						



fHßm -8±6	-9	Var 17							12±6	Var 16							11
fHß -8±13	-9	-11	-16	-10	-4	1	5		12±13	23	20	14	14	5	4		11
Fß	6	4	7	4	4	8	11			8	8	3	5	8	7		7
ffß 4	1	1	1	1	1	1	1		4	1	1	1	2	2	2		2
Cß 0/5	3	2	2	3	1	3	3		0/5	1	4	2	4	4	3		4
Bd 10±8	9								10±8								9

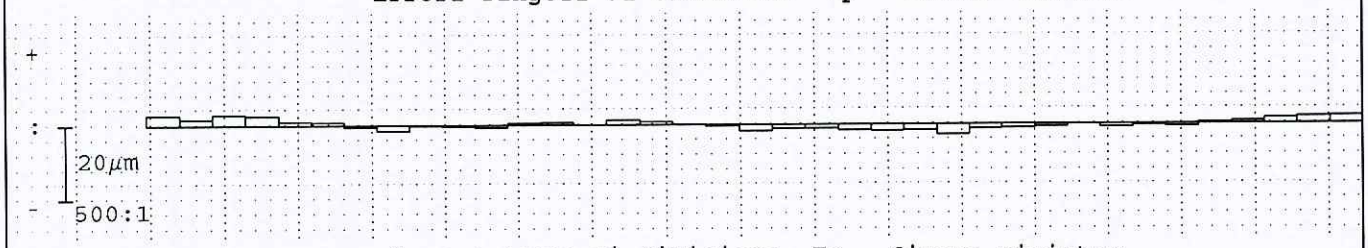
KLINGELNBERG

GETRAG

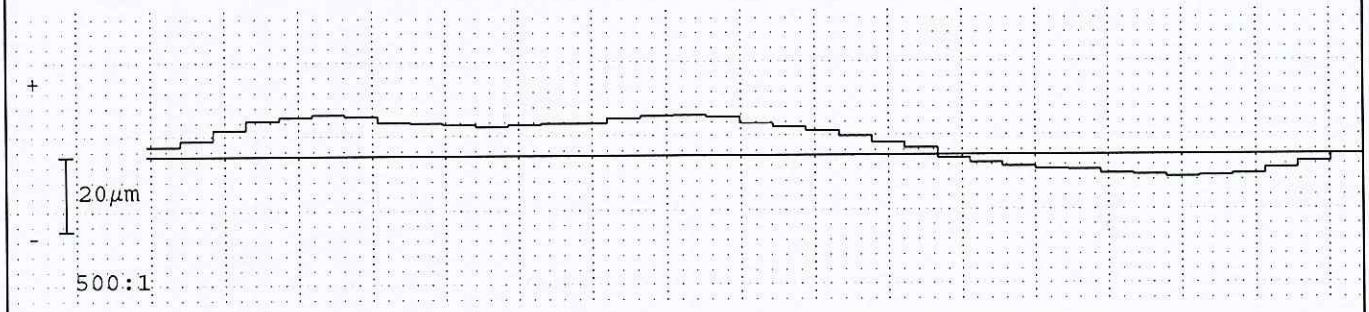
Ruota cilindrica Divisione

Nr. prog.:	STI0410o05 0 PNC35 B4784	Controllore:	TURNO c	Data:	13.01.2015 09:34
Denominazione:	SR5	Numero denti z	37	Angolo pressione	17.5°
Numero disegno.:	250.1.3779.35-ICA	Modulo m	1.65mm	Angolo elica	-29°
Commessa/serie nr.:	PPAP 2	Untersuchungszweck:	Laufende Messung		
Masch.Nr.:	M001 Spindel: Formmaster	Werkzeug:		Charge:	

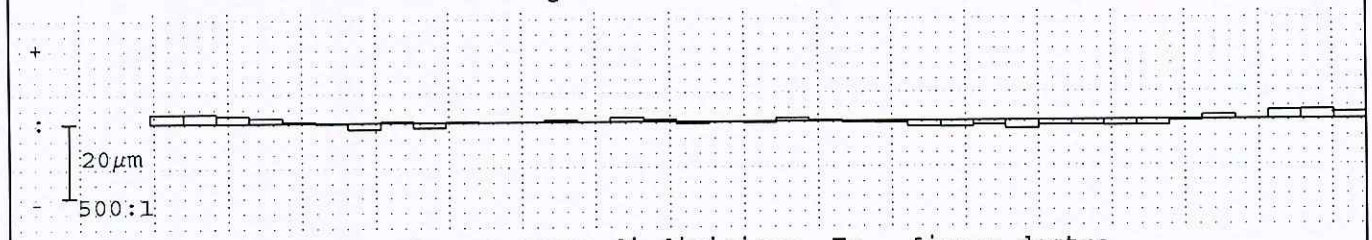
Errori singoli di divisione fp fianco sinistro



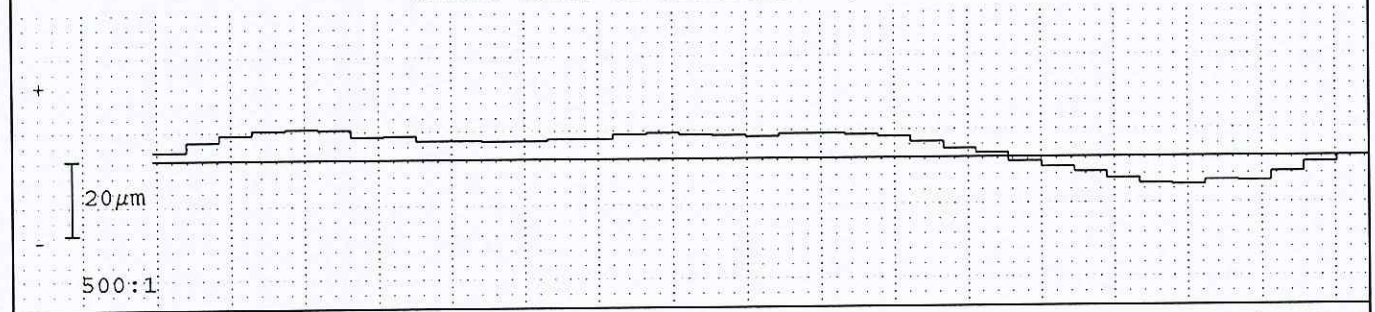
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



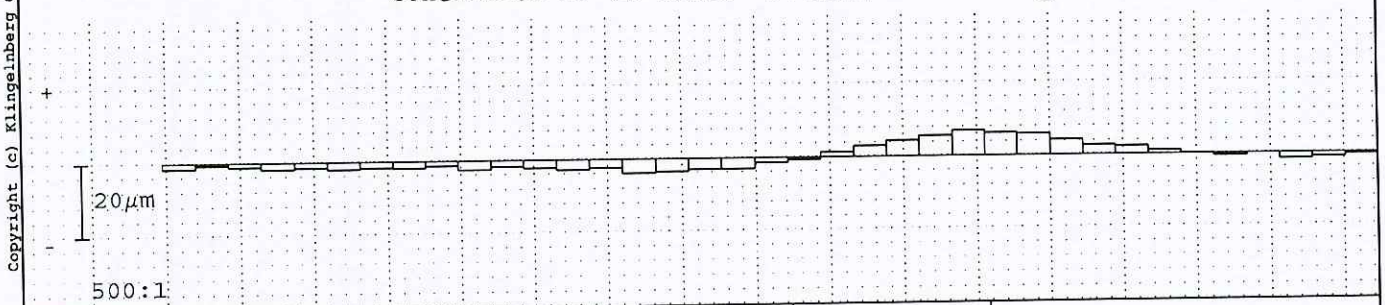
Errore somma di divisione Fp fianco destro



Corsa per misura divis.:71.076 z=6.8mm

		fianco sinistro		fianco destro / TIRO	
		Val.misur Qual.	Val. amm Qual.	Val.misur Qual.	Val. amm Qual.
Gr. err. singoli divisione	fp max	3	14	2	14
Gr. salto di passo	fu max	2	18	2	18
Scarto di divisione	Rp	6		4	
Err. globale di divisione	Fp	18	50	16	50
Err. cordale di divisione	Fpz/8	12		11	

Centricità Fr (Ø-sfera =2.75mm) ◎ : 7µm

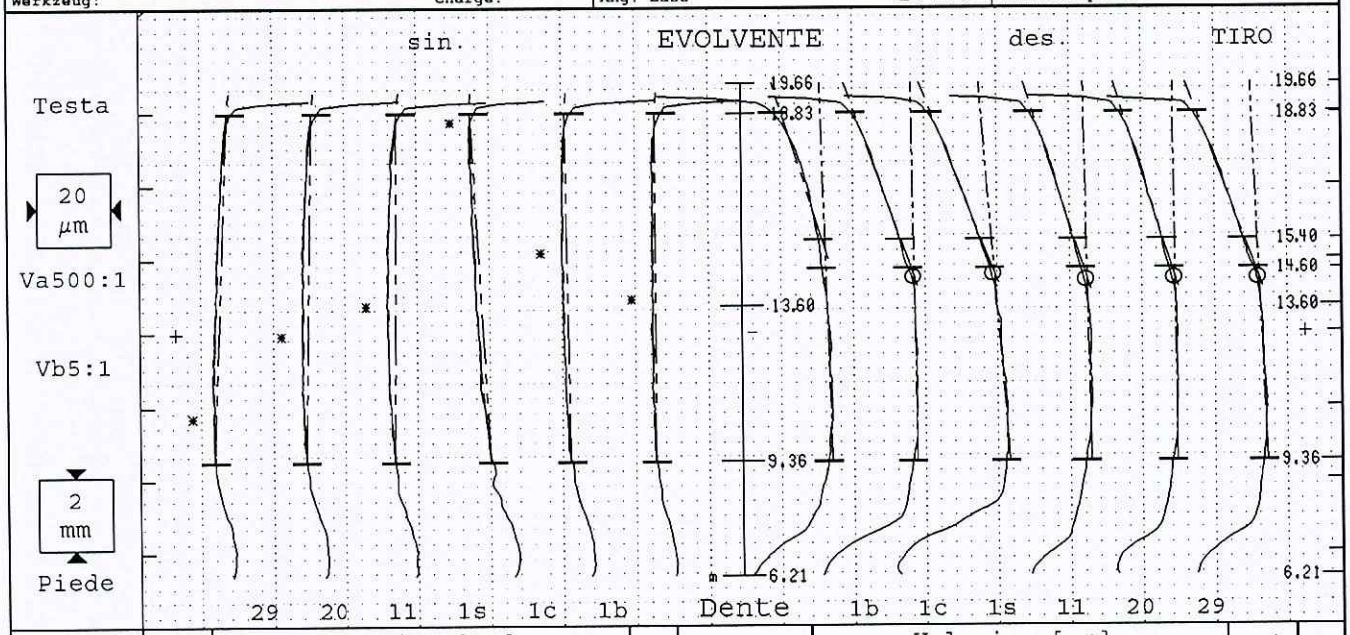


Err. di concentricitá	Fr	11	32	
Variaz. spessore dente	Rs			

KLINGELNBERG

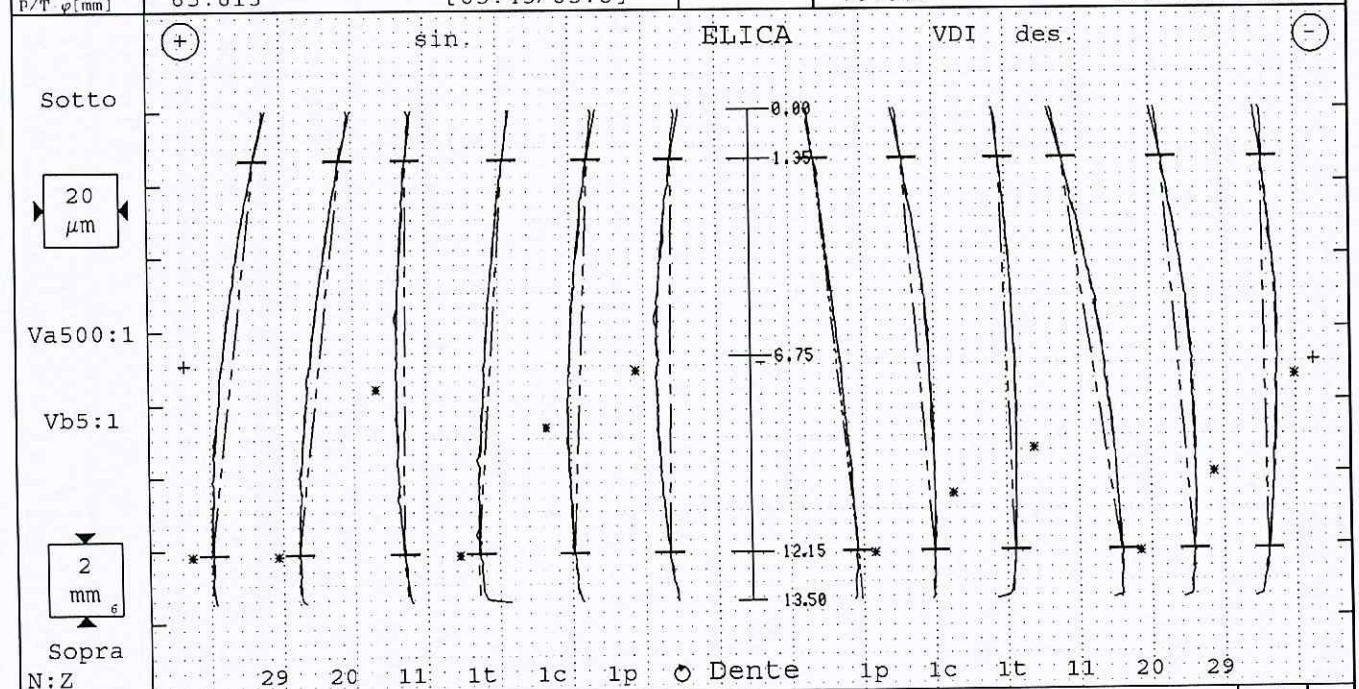
GETRAG — Ruota cilindrica Evolvente/Elica

Nr. prog.:	STI0410o05 0 PNC35 B4784	Controllore:	TURNO c	Data:	13.01.2015 10:03
Denominazione:	SR5	Numero denti z	37	Largh.fasc.dent. b	13.5mm
Numero disegno.:	250.1.3779.35-ICA	Modulo m	1.65mm	Tratto evolv. La	9.47/5.24mm
Commessa/serie nr.:	PPAP 3	Angolo pressione	17.5°	Tratto elica Lß	10.8mm
Masch.Nr.:	M001 Spindel: Formmaster	Angolo elica	-29°	Inizio elab. M1	9.36mm
Untersuchungszweck:	Laufende Messung	ø Base db	65.6652mm	Palpatore ø	(#1)1mm
Werkzeug:	Charge:	Ang. Base	-27.54°	Fat.scor.pr. x	.667



Tolerance	Medio	Val.misur[µm]						Qual
fHαm ±6	-2	Var 5						
fHα ±10	-2	-4	-2	-1	5	1	0	
Fα	4	5	4	3	6	2	2	
ffα 4	2	1	2	2	2	2	2	
Cα 2/6	2	2	2	2	1	2	1	
fKo	0	0	0	0	0	0	0	
fKo								
P/T φ[mm]	65.613	[65.45/65.8]						

Tolerance	Val.misur[µm]						Medio	Qual
±6	Var 2						-1	
±10	-2	-1	-4	-1	0	-2	-1	
	3	3	5	3	2	4	3	
4	2	2	2	2	2	2	2	
-22/-14	-11	-16	-14	-14	-14	-15	-15	
	76.305	[76.24/76.5]						



fHßm -8±6	-10	Var 14							12±6	Var 18						11
fHß -8±13	-10	-16	-15	-2	-9	-5	-1		12±13	14	11	5	20	11	2	11
Fß	6	7	6	6	3	4	8			2	4	6	7	5	9	6
ffß 4	1	1	1	1	2	1	2		4	1	1	1	1	1	1	1
Cß 0/5	3	3	3	2	2	3	4		0/5	1	3	2	3	4	3	3
Bd 10±8	8								10±8							9

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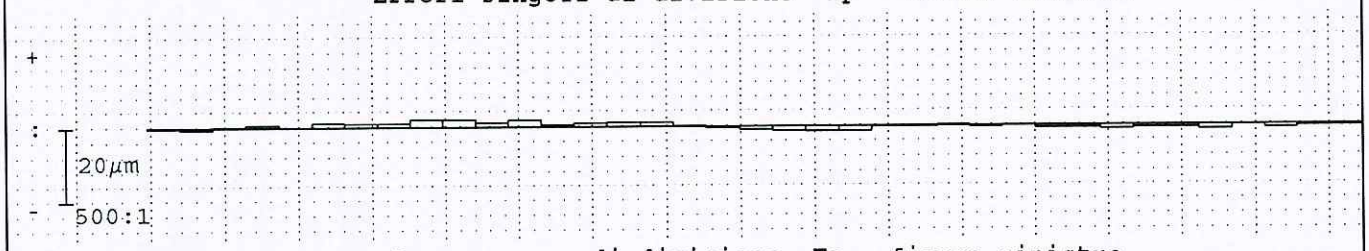
GETRAG

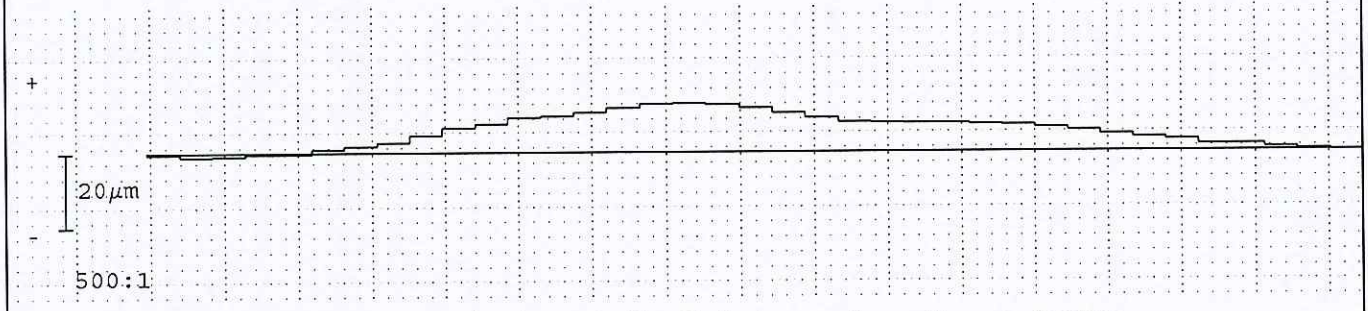
Ruota cilindrica Divisione

Nr. prog.:	STI0410o05 0 PNC35 B4784	Controllore:	TURNO c	Data:	13.01.2015 10:03
Denominazione:	SR5	Numero denti z	37	Angolo pressione	17.5°
Numero disegno.:	250.1.3779.35-ICA	Modulo m	1.65mm	Angolo elica	-29°
Commessa/serie nr.:	PPAP 3	Untersuchungszweck:	Laufende Messung		
Masch.Nr.:	M001 Spindel: Formschleifen			Charge:	

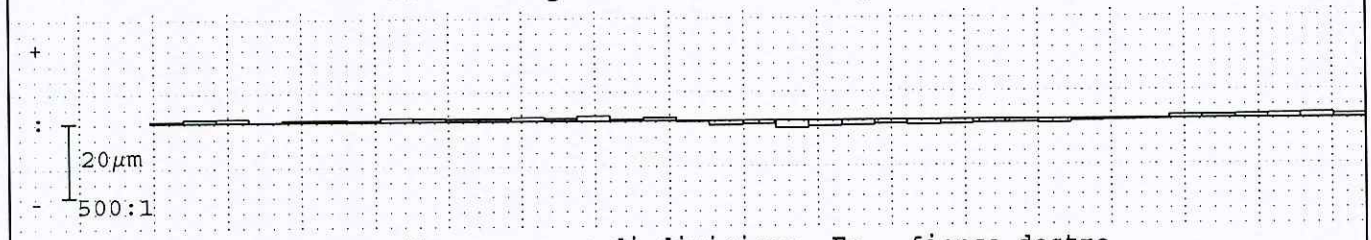
Errori singoli di divisione fp fianco sinistro



Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

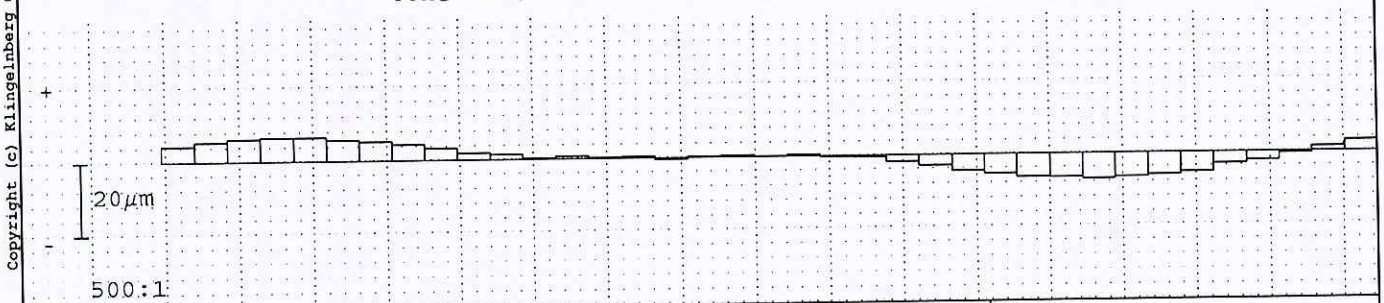


Errore somma di divisione Fp fianco destro

Corsa per misura divis.:71.076 z=6.8mm

		fianco sinistro			fianco destro / TIRO		
		Val.misur	Qual.	Val. amm Qual.	Val.misur	Qual.	Val. amm Qual.
Gr. err. singoli divisione	fp max	2		14	2		14
Gr. salto di passo	fu max	1		18	1		18
Scarto di divisione	Rp	3			3		
Err. globale di divisione	Fp	14		50	16		50
Err. cordale di divisione	Fpz/8	8			8		

Centricità Fr (Ø-sfera =2.75mm) ◎ : 10µm

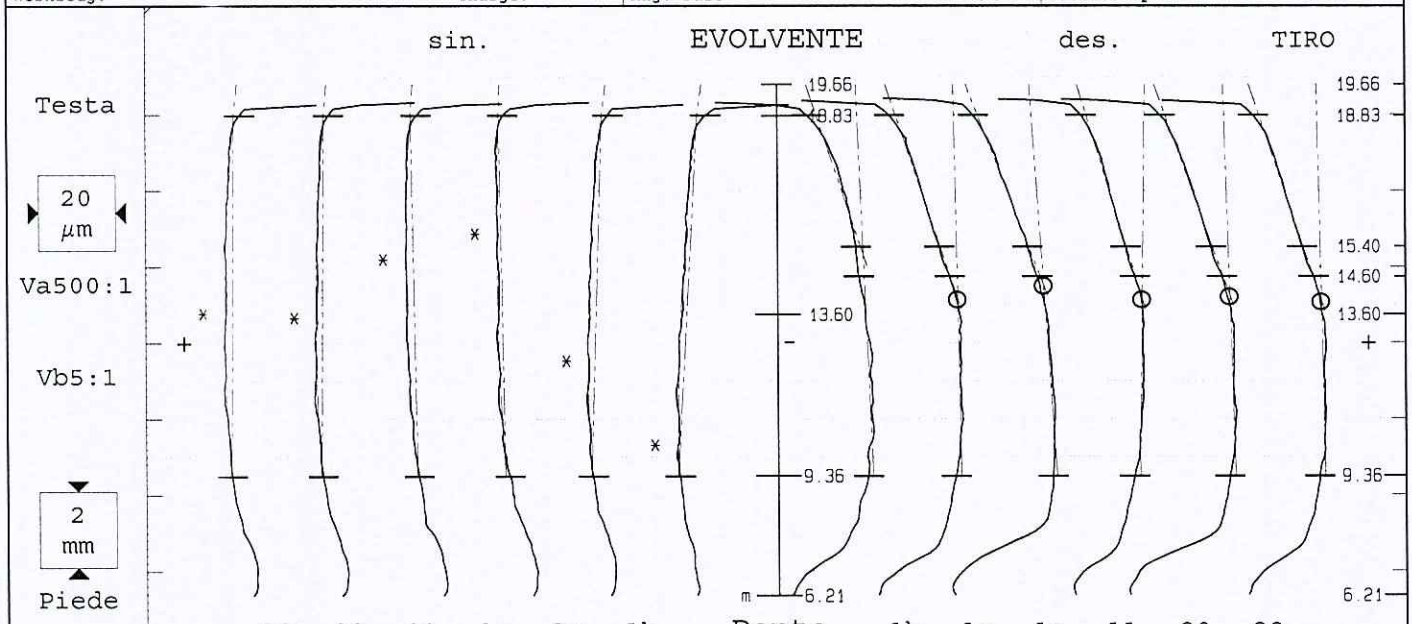


Err. di concentricitá	Fr	14	32	
Variaz. spessore dente	Rs			

KLINGELNBERG

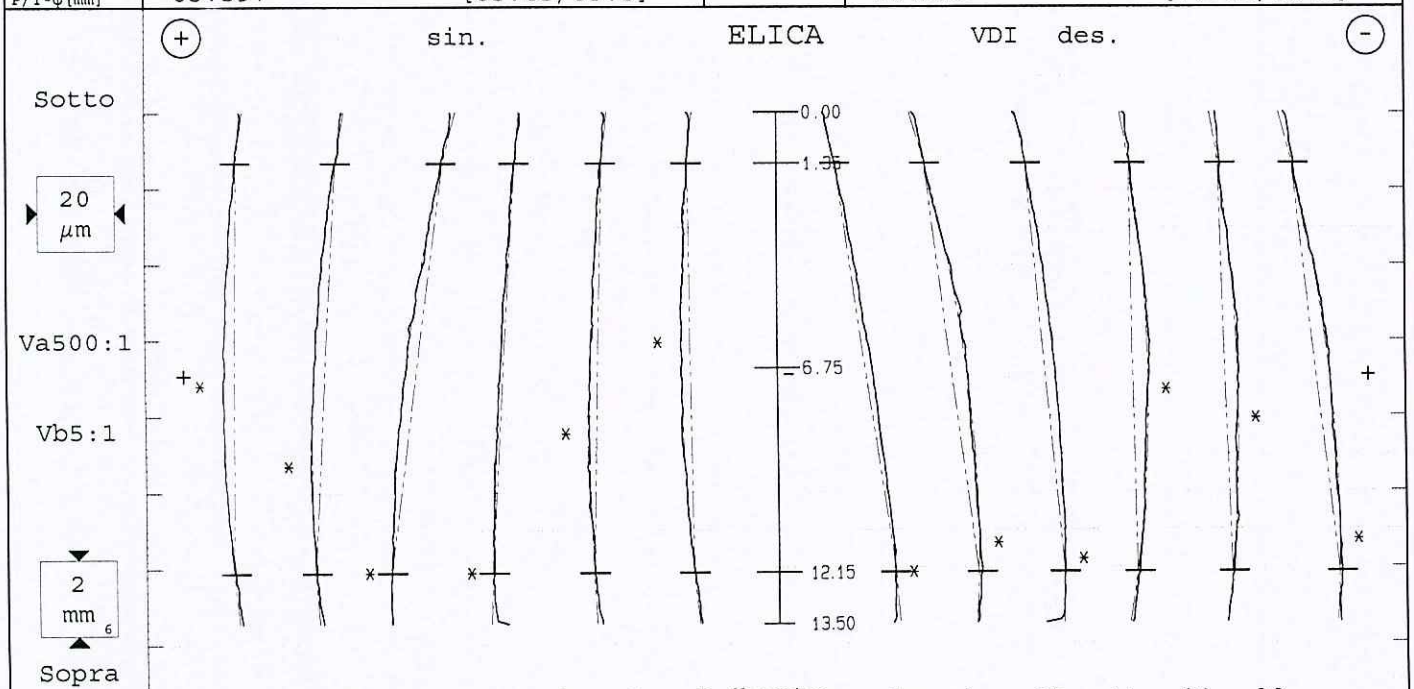
GETRAG — Ruota cilindrica Evolvente/Elica

Nr. prog.:	STI0410o05 0 PNC35 B4784	Controllore:	TURNO c	Data:	13.01.2015 09:51
Denominazione:	SR5	Numero denti z	37	Largh.fasc.dent. b	13.5mm
Numero disegno.:	250.1.3779.35-ICA	Modulo m	1.65mm	Tratto evolv. La	9.47/5.24mm
Commessa/serie nr.:	PPAP 4	Angolo pressione	17.5°	Tratto elica Lß	10.8mm
Masch.Nr.:	M001 Spindel: Formmaster	Angolo elica	-29°	Inizio elab. M1	9.36mm
Untersuchungszweck:	Laufende Messung	ø Base db	65.6652mm	Palpatore ø	(#1)1mm
Werkzeug:	Charge:	Ang. Base	-27.54°	Fat.scor.pr. x	.667



Tolerance		Medio	Val.misur[µm]						Qual
			Var 5						
fHam	±6	-1							
fHa	±10	-1	-1	-1	2	2	-3	-5	
Fa		3	3	2	2	3	5	7	
ffa	4	2	2	2	2	2	2	3	
Ca	2/6	2	2	2	2	1	2	2	
fKo		0	0	0	0	0	0	0	
fKo									
P/T-φ[mm]		65.597	[65.45/65.8]						

Tolerance	Val.misur[µm]						Medio	Qual
	Var 3							
±6							-1	
±10	-2	-1	-4	1	-2	-1	-1	
	4	3	5	3	4	3	3	
4	3	3	2	3	3	3	3	
-22/-14	-11	-15	-14	-15	-15	-15	-15	
	76.286						[76.24/76.5]	



N:Z 29 20 11 1t 1c 1p ○ Dente 1p 1c 1t 11 20 29

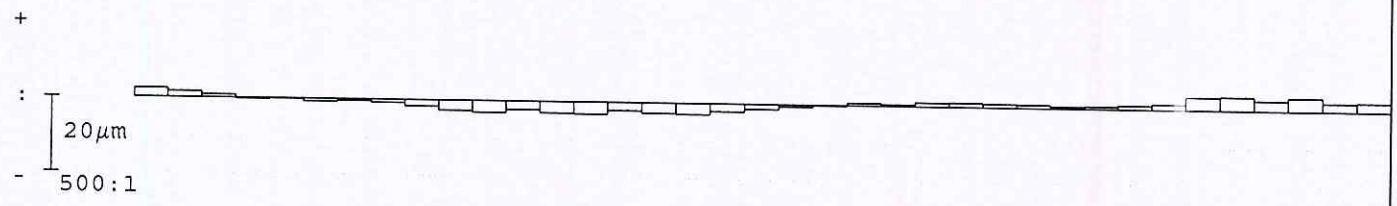
fHßm	-8±6	-7	Var 17						12±6	Var 15					10
fHß	-8±13	-7	-1	-7	-18	-8	-3	1	12±13	19	17	12	2	4	15	10
Fß		6	7	4	8	2	5	8		6	6	3	9	7	5	7
ffß	4	1	1	1	1	1	1	1	4	1	2	1	1	2	1	2
Cß	0/5	3	3	3	3	1	2	2	0/5	2	4	3	4	3	4	4
Bd	10±8	9							10±8							7

GETRAG

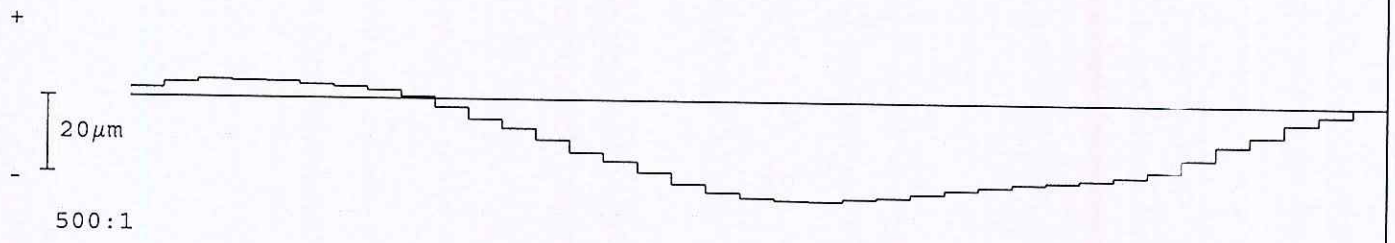
Ruota cilindrica Divisione

Nr. prog.:	STI0410o05 0 PNC35 B4784	Controllore:	TURNO C	Data:	13.01.2015 09:51
Denominazione:	SR5	Numero denti z	37	Angolo pressione	17.5°
Numero disegno.:	250.1.3779.35-ICA	Modulo m	1.65mm	Angolo elica	-29°
Commessa/serie nr.:	PPAP 4	Untersuchungszweck:	Laufende Messung		
Masch.Nr.:	M001 Spindel: Formnea	Werkzeug:		Charge:	

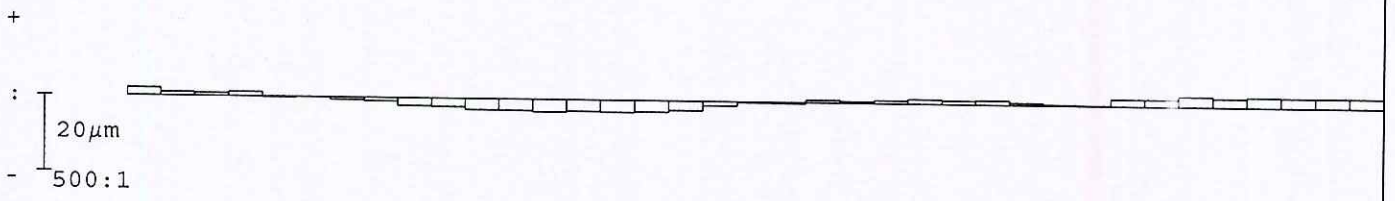
Errori singoli di divisione fp fianco sinistro



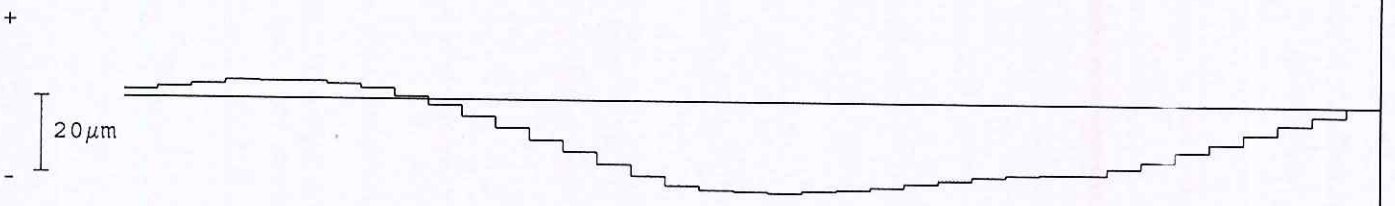
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



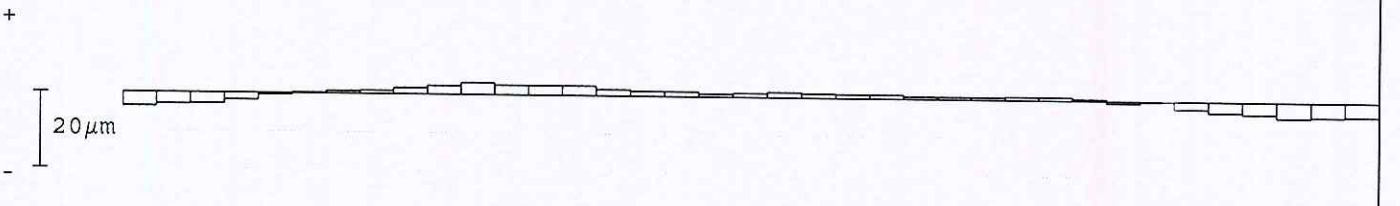
Errore somma di divisione Fp fianco destro



Corsa per misura divis.:71.076 z=6.8mm

		fianco sinistro			fianco destro / TIRO		
		Val.misur	Qual.	Val. amm Qual.	Val.misur	Qual.	Val. amm Qual.
Gr. err. singoli divisione	fp max	4		14	3		14
Gr. salto di passo	fu max	2		18	2		18
Scarto di divisione	Rp	7			6		
Err. globale di divisione	Fp	31		50	29		50
Err. cordale di divisione	Fpz/8	15			15		

Centricità Fr (Ø-sfera =2.75mm) ◎ : 5µm



Err. di concentricitá	Fr	7	32	
Variaz. spessore dente	Rs			

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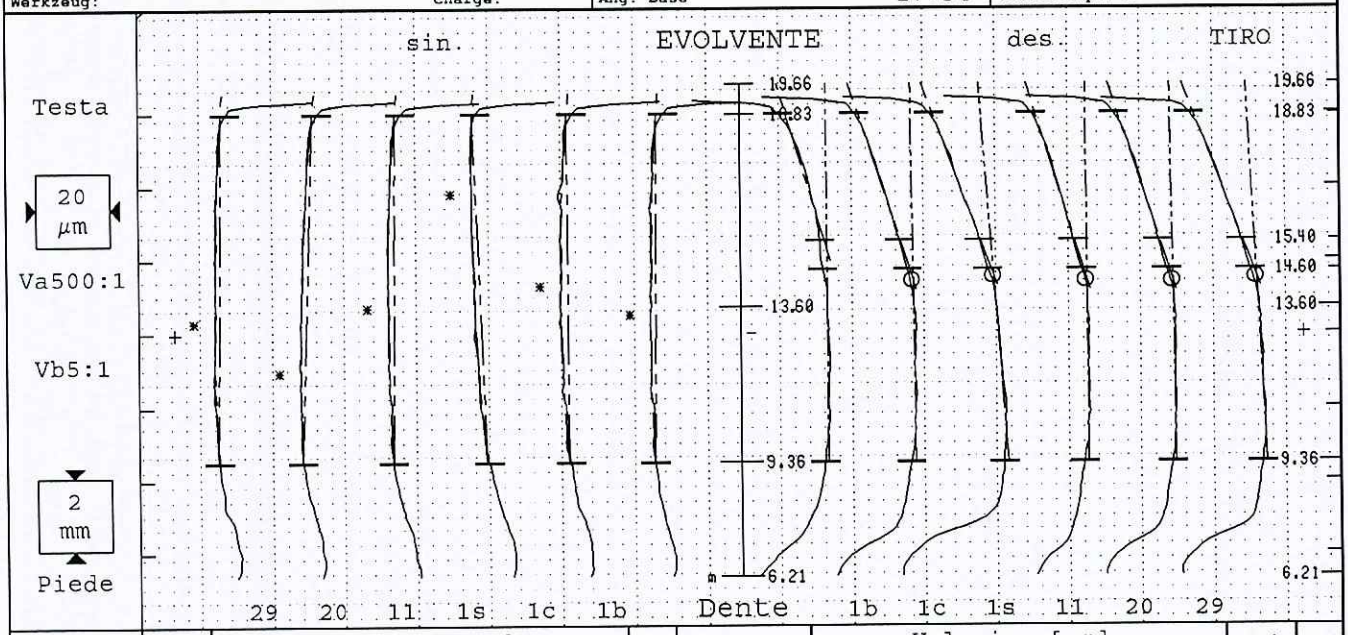
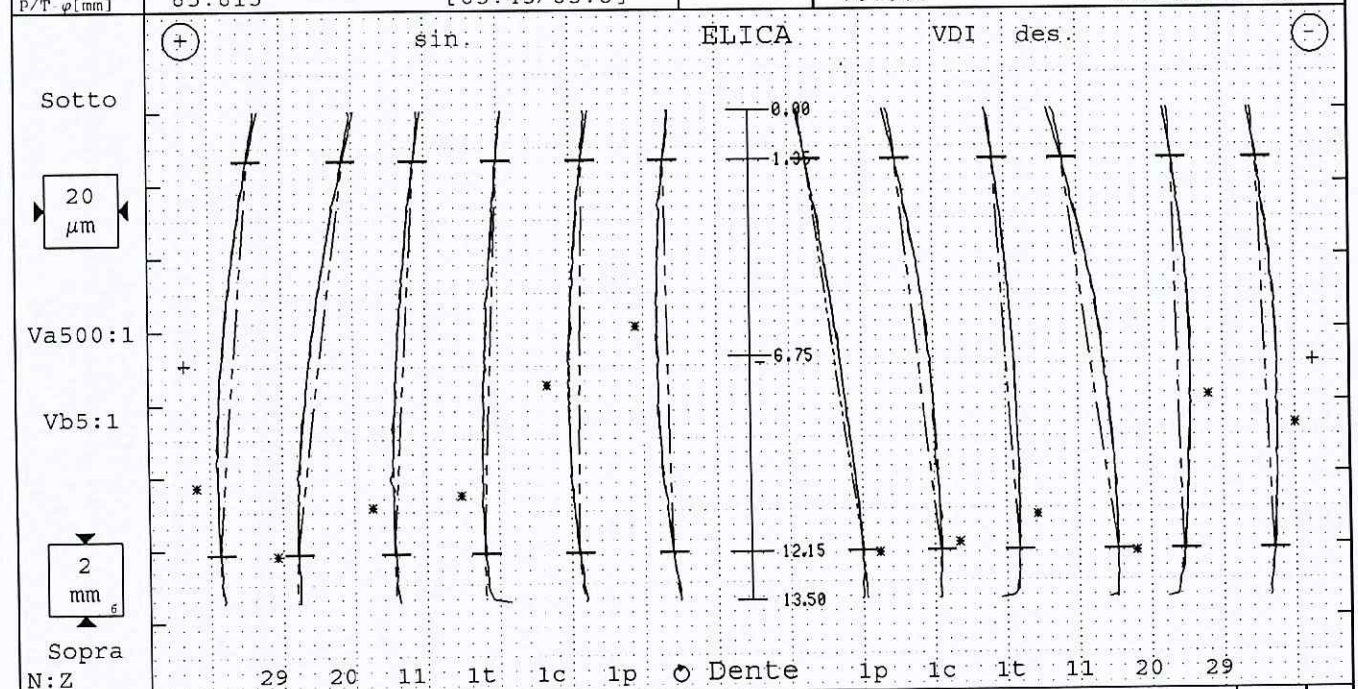
GETRAG — Ruota cilindrica Evolvente/Elica

Nr. prog.:	STI0410o05 0 PNC35 B4784	Controllore:	TURNO c	Data:	13.01.2015 09:57
Denominazione:	SR5	Numero denti z	37	Largh.fasc.dent. b	13.5mm
Numero disegno.:	250.1.3779.35-ICA	Modulo m	1.65mm	Tratto evolv. La	9.47/5.24mm
Commessa/serie nr.:	PPAP 5	Angolo pressione	17.5°	Tratto elica Lß	10.8mm
Masch.Nr.:	M001 Spindel: Formr	Angolo elica	-29°	Inizio elab. M1	9.36mm
Untersuchungszweck:	Laufende Messung	ø Base db	65.6652mm	Palpatore ø	(#1)1mm
Werkzeug:	Charge:	Ang. Base	-27.54°	Fat.scor.pr. x	.667



Tolerance	Medio	Val.misur[µm]						Qual
fHαm ±6	-1	Var 3						
fHα ±10	-1	-1	-3	-1	4	0	-1	
Fα	3	2	4	3	4	2	3	
ffα 4	2	2	2	2	1	2	2	
Cα 2/6	2	2	2	2	2	2	1	
fKo	0	0	0	0	0	0	0	
fKo								
P/T φ[mm]	65.615	[65.45/65.8]						

Tolerance	Val.misur[µm]						Medio	Qual
±6	Var 3						-1	
±10	0	-1	-4	0	-1	-3	-1	
	2	3	5	2	3	4	3	
4	2	2	2	2	2	2	2	
-22/-14	-11	-15	-13	-14	-14	-15	-15	
	76.306	[76.24/76.5]						



fHßm -8±6	-9	Var 15							12±6	Var 16						11	
fHß -8±13	-9	-10	-17	-8	-5	-2	2		12±13	19	15	8	19	3	5	11	
Fß	5	4	8	3	4	6	9			6	5	4	7	7	7	7	
ffß 4	1	1	1	1	1	1	1		4	1	1	0	1	1	1	1	
Cß 0/5	3	3	3	2	1	3	3		0/5	1	3	2	4	3	3	3	
Bd 10±8	7								10±8							11	

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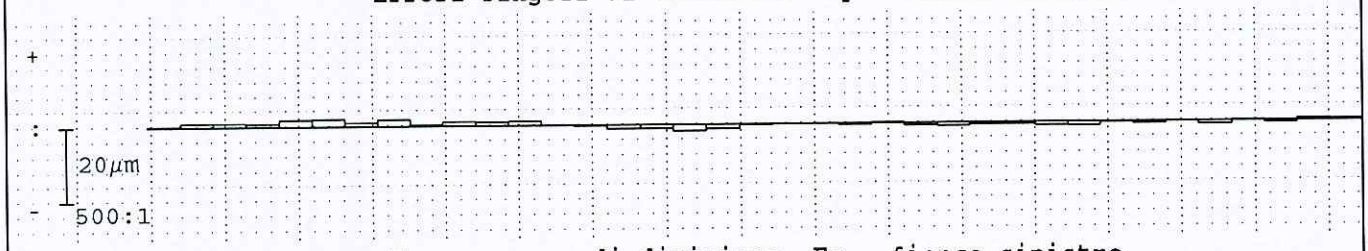
GETRAG

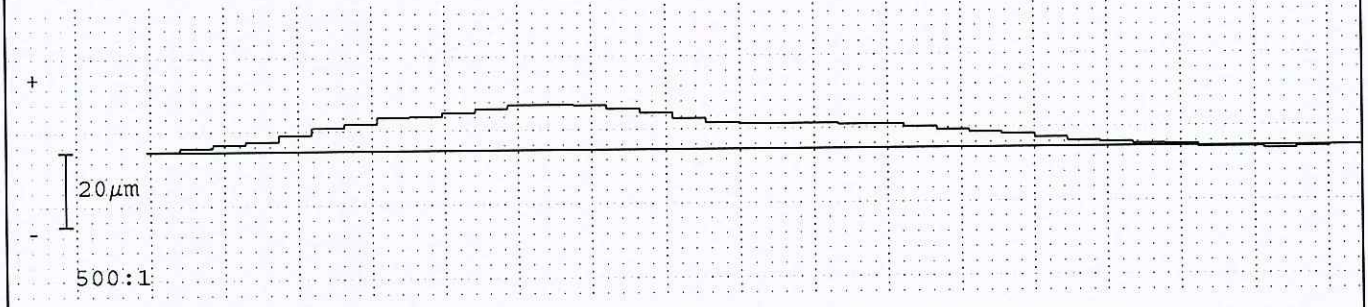
Ruota cilindrica Divisione

Nr. prog.: STI0410o05 0 PNC35 B4784	Controllore: TURNO c	Data: 13.01.2015 09:57	
Denominazione: SR5	Numero denti z 37	Angolo pressione 17.5°	
Numero disegno.: 250.1.3779.35-ICA	Modulo m 1.65mm	Angolo elica -29°	
Commessa/serie nr.: PPAP 5	Untersuchungszweck: Laufende Messung		
Masch.Nr.: M001 Spindel: Formr[illegible]	[illegible]:	Charge:	

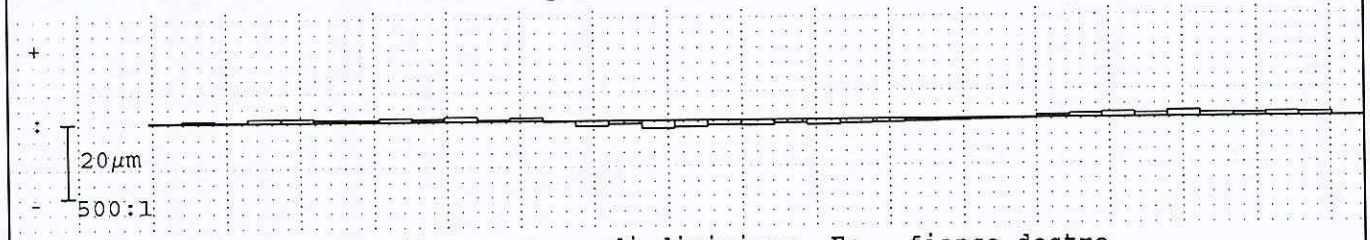
Errori singoli di divisione fp fianco sinistro



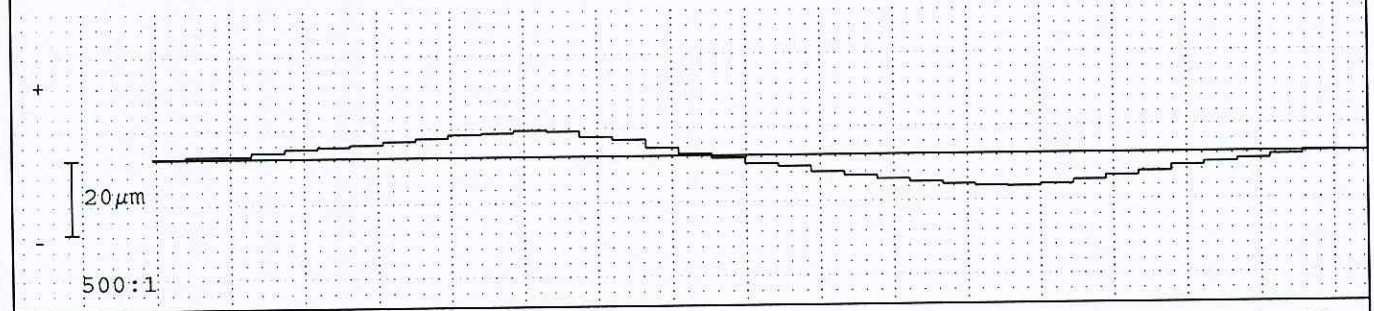
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



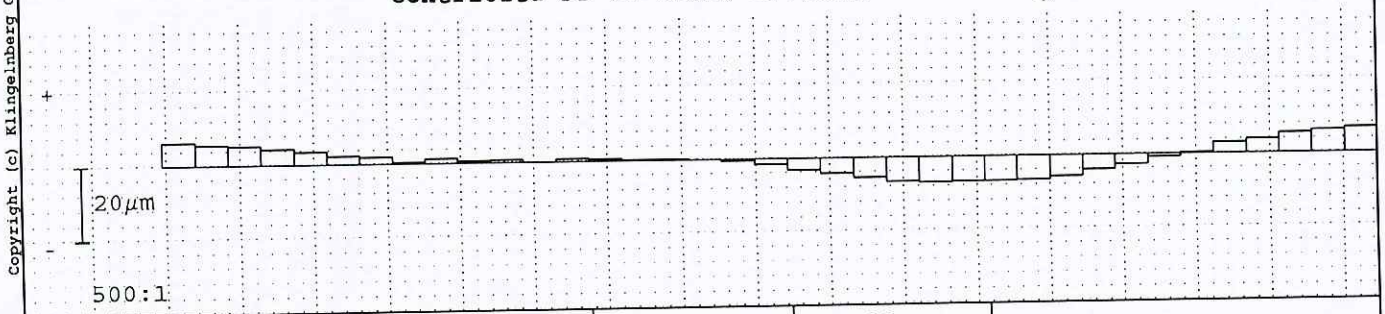
Errore somma di divisione Fp fianco destro



Corsa per misura divis.:71.076 z=6.8mm

		fianco sinistro		fianco destro / TIRO	
		Val.misur Qual.	Val. amm Qual.	Val.misur Qual.	Val. amm Qual.
Gr. err. singoli divisione	fp max	2	14	2	14
Gr. salto di passo	fu max	2	18	1	18
Scarto di divisione	Rp	4		4	
Err. globale di divisione	Fp	13	50	16	50
Err. cordale di divisione	Fpz/8	7		8	

Centricità Fr (Ø-sfera =2.75mm) ◎ : 10µm



Err. di concentricitá	Fr	14	32	
Variaz. spessore dente	Rs			

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Point	Caractheristic	Tolerance	Part 1	Part 2	Part 3	Part 4	Part 5
4	MDK	74,314/74,235	74,275	74,285	74,276	74,281	74,282

Manual measures by Marposs

SR5 2501 3778 36

07,Jan ,2015

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