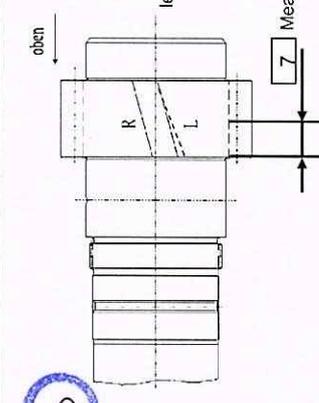


STIRNRAD GEAR		Toleranzen der Verzahnung (DIN 3961 vom Aug. 1978) gültig für Werte am Einzelzahn Tolerances of gearing (DIN 3961 of Aug. 1978) valid for values at individual tooth		(8)	
ausßenverzähnt external		linke Fl. left flank	rechte Fl. right flank		
Zähnezahl Number of teeth	z				
Modul Normal module	m_n		0.004	Eingriffsteilungs-Abweich. Normal pitch error	f_{pe} 0.014
Eingriffswinkel Normal pressure angle	α_n			Teilungs-Einzelabweichung Adjacent pitch error	f_p 0.014
Schrägungswinkel Helix angle	β		0.000	Teilungssprung Diff. bet. adjacent pitches	f_u 0.018
Steigungsrichtung Hand of helix	LINKS		± 0.012	Teilungs-Summenabweich. Cumulative circ. pitch error	F_{pk}
Profilverschiebungsfaktor Addendum modification coeff.	x		± 0.020	Rundlaufabweichung Radial run-out	F_r 0.040
Teilkreisradius Pitch diameter	d		± 0.013	Zahndickenschwankung Range of tooth thickn. error	R_s 5
Kopfkreisradius Outside diameter	d_a		0.004	Zweifl.-Wälzabweichung Radial composite error	F_r 0.045
Kopfkreisradius, theo. max. Tip diam. usable theo.	d_{a1}		0.050	Zweifl.-Wälzabweichung Radial composite error	F_r 0.045
Kopfkreisradius, theo. min. Tip diam. usable theo.	d_{a2}			Zweifl.-Wälzabweichung Radial composite error	f_r 0.018
Fußkreisradius Root diameter	d_f		33.98	Meßkreis Krümmungsradius Radius of curvature meas. diam.	$P_{\mu M}$ 10.12
Fußnutkreisradius Root diameter usable	d_{f1}				
Grundkreisradius Base circle radius	r_b				
Grundkreisradius Base diameter	d_b				
Normalzahnstärke Normal tooth thickness	max. s_n				
Normalzahnstärke Normal tooth thickness	min. s_n				
Meßzähnezahl Number of teeth spanned	k				
Zahnweite Base tangent length	max. W_k				
Zahnweite Base tangent length	min. W_k				
Meßkugeldurchmesser Ball diameter	D_M				
Diam. Zweikugelmäß Measurement o. balls	max. M_{kk}				
Diam. Zweikugelmäß Measurement o. balls	min. M_{kk}				
Verdrehtflankenspiel Circumferential backlash	theo.				



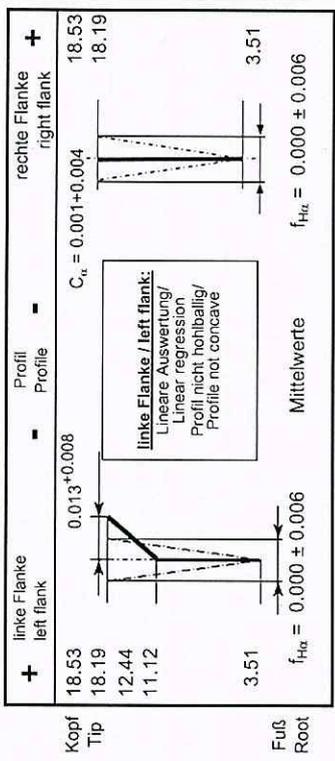
Hondurchmesser = $50.10_{-0.30}$ ≈ 1.42
honing diameter

#Waviness evaluation (fitted sine) in profile and helix direction until 4th gear order to be documented according to G_00_05_S_0012
Order referenced to the considered gear

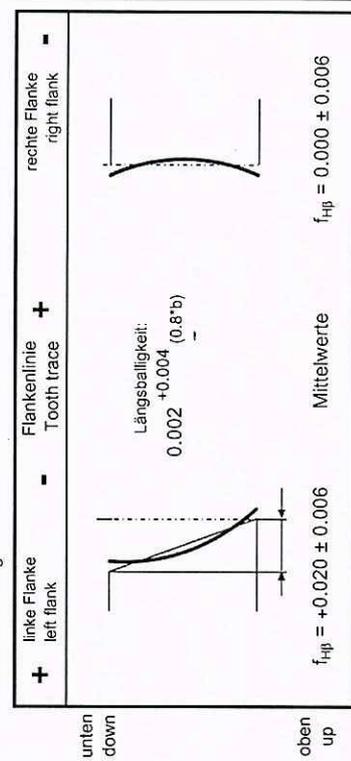


Vorbereitungsdaten siehe Verzahnungsblatt Vorbearbeitung gleicher Nr.
For pre-machining dimensions, see gear data sheet same number

Wkz-Profil siehe Werkzeugdatenblatt Nr. 251.6.1239.35
For Tooth profile, see tool data sheet number



* Schreibbeginn $\varnothing = 50.10_{-0.30} \approx 1.42$
* Start of checking

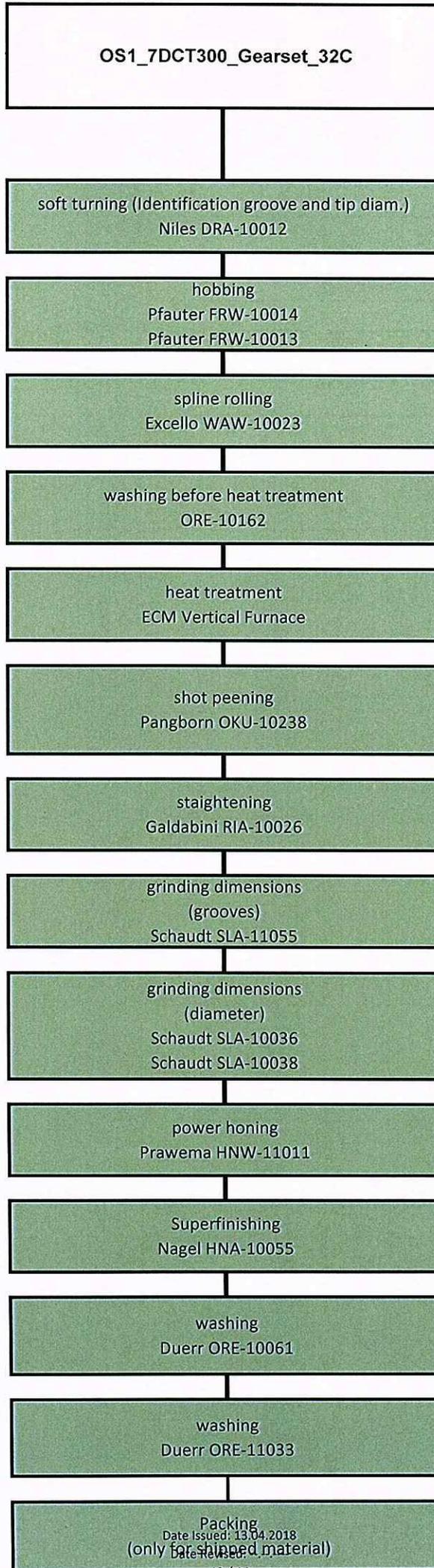


Mittelwerte $f_{Hk} = 0.000 \pm 0.006$
Mittelwerte $f_{Hl} = +0.020 \pm 0.006$
Mittelwerte $f_{Hk} = 0.000 \pm 0.006$

* f_{Hk} (zwischen dNF und dem Schreibbeginn ds) max $f_{Hk}/2$, jedoch 0.003 zulässig
* f_{Hl} (between dNF and start of checking ds) max $f_{Hl}/2$, 0.003 allowable.

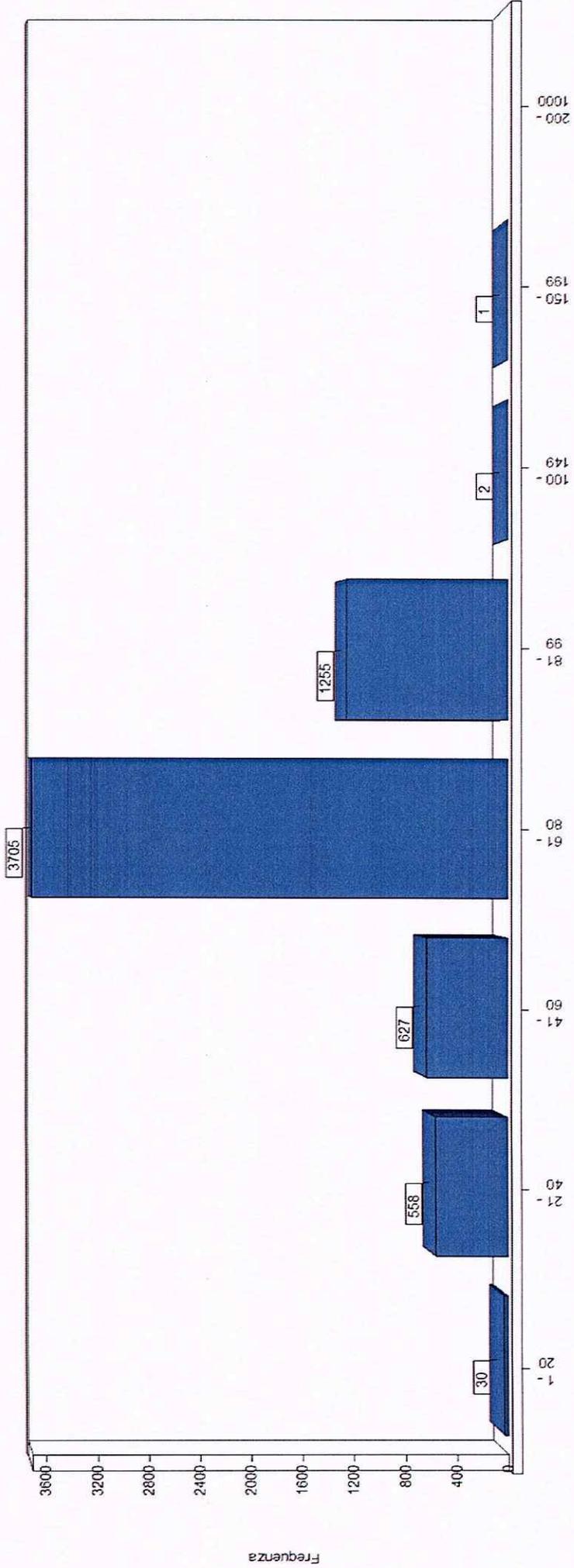
Profil- und Flankenliniennmessung nach G_808006 und VDI/VDE 2612
Flankenlinienprüfbereich $L_{\beta} = 0.8*b$ hochgerechnet auf $1.0*b$
Begriffe für Stirnräder nach DIN 868, 3960, 3998

Verteiler:		Schutzvermerk nach ISO 16016 beachten Protection per ISO 16016	
Buch.	Anz.	Datum	Name
a	1	2017108	Cricenti
Abbildungen sind unverändert. Diagrams not to scale.			
Ersatz für Erstverwendung bei Getriebestype:		251	
Datum		Name	
2016-08-04		Fabrizio, Cricenti	
gepr.		Final Check Gear Data	
Benennung:		Naming:	
OS1		251.6.1239.35	
Zeilenummer: Drawing number:			
251.6.1239.35			





GETRAG	FMEA Processo		Numero: Pagina: 1.2.1.1.1.1
Tipo/Modello/Produzione/Lotto: 7DCT300	Numero Disegno: Gearset 1A + 21A + 21H + 32C Stato modifica.	Responsabile: Getrag Ditta: Getrag	Emesso: 31/08/2015
FMEA/Elemento: GEARSET 7DCT300	Codice dell'operazione: Tutte Stato modifica.	Responsabile: Papagna, Oscuro, Nitti, Cicirelli, Tanzi T., Terlizze, Landriscina, Guerra, Sinibaldi, Caponio, Vicenti, Perno, Pierro, Cacciapaglia, Sisto. Ditta	Emesso: 13/01/2017 Modificato: 14/05/2018



Record Owner: Vicenti D.	Date Issued: 06.03.2017	GIS1 Item Number: 28.04	Page: 1 / 2
Dept.: WLP	Date Revised: 14.05.2018	GIS2 Classification: Confidential	Retention Start Date (Year): 2017

Actions ongoing for RPN > 100:

Chr. Classification	Project	Component	Operation	Chr. Description	Actual RPN			Action	Resp.	Due date	Min. RPN expected			
					S	O	D				S	O	D	
<M>	DCT300	SG1	Hard Turning	Clutch body Height	7	4	4	Final drawing tolerance review + Dogbody height review on EP	Pierro	31-May-18	7	2	5	(70)
<M>	DCT300	SGRv	Hard Turning	Clutch body Height	7	3	5	Final drawing tolerance review + Dogbody height review on EP (100% Check --> Sampling check)	Pierro	30-Jun-18	7	2	5	(70)
std	DCT300	IS2	Diam. Grinding	Spline Fr	8	6	4	New operation implementation in order to ground new clamping surface for Diam. grinding operation (100% Check --> Sampling check)	Cacciapaglia	31-Jul-18	8	3	5	(120)
								New machine Junker implementation for Diam. grinding operation		31-Aug-18	8	2	5	(80)

Record Owner: Vicenti D.

Date Issued: 06.03.2017

GIS1 Item Number: 28.04

Page: 2 / 2

Dept.: WLP

Date Revised: 14.05.2018

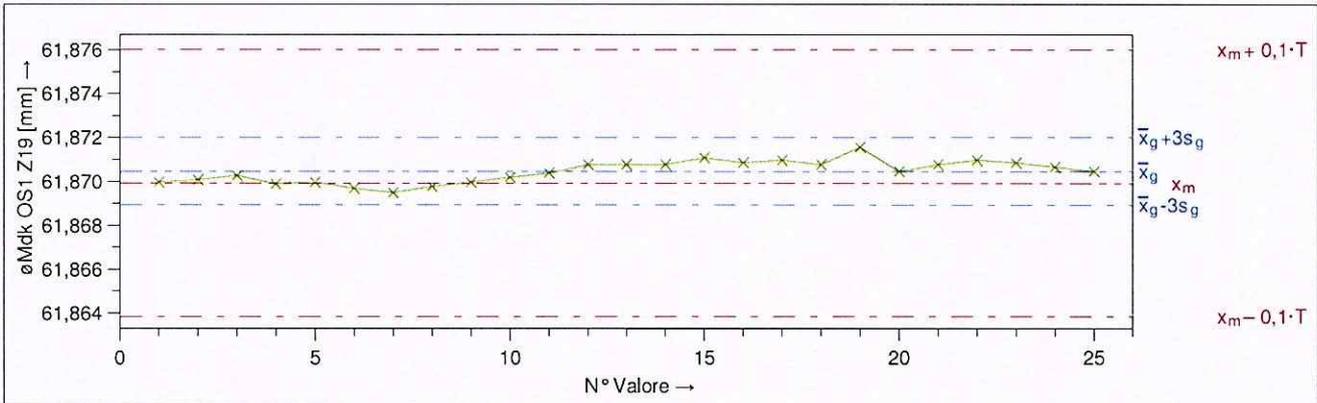
GIS2 Classification: Confidential

Retention Start Date (Year): 2017



Capacità strumenti di misura

Data/ora	19/05/2018	Nome oper.	mario.bozza	Reparto/Area/Prod.	WLQ	Posto di prova	Levigatura OS1
Calibro		Master			Caratteristica		
Desc. calibro	Calibro a forcina	Desc. mast.	Master OS1		Desc. Car.	øMdk OS1 Z19	
N° calibro	MAR 402090 049	N° master	MVZ 400666 002		N° Caratt.	2516123935	
Ris. calibro	0,0001	Valore reale mast.	61,87		Val. Nom.	61,8975 LSS	61,9280 $\hat{=}$ 0,0305
Caus. Pr.	Cg CgK	Unità di misura	mm		Unità di rr mm	LSI	61,8670 $\hat{=}$ -0,0305
Nota							



i	x _i	i	x _i	i	x _i	i	x _i	i	x _i
1	61,8700	6	61,8697	11	61,8704	16	61,8709	21	61,8708
2	61,8701	7	61,8695	12	61,8708	17	61,8710	22	61,8710
3	61,8703	8	61,8698	13	61,8708	18	61,8708	23	61,8709
4	61,8699	9	61,8700	14	61,8708	19	61,8716	24	61,8707
5	61,8700	10	61,8702	15	61,8711	20	61,8705	25	61,8705

Valori a disegno		Valori Calcolati		Statistiche	
$x_m + 0,1 \cdot T$	= 61,876100	x_{maxg}	= 61,8716	$\bar{x}_g + 3s_g$	= 61,872035
x_m	= 61,870000	x_{ming}	= 61,8695	\bar{x}_g	= 61,870484
$x_m - 0,1 \cdot T$	= 61,863900	R_g	= 0,0021	$\bar{x}_g - 3s_g$	= 61,868933
$0,2 \cdot T$	= 0,012200	n_{tot}	= 25	$6s_g$	= 0,003102
T	= 0,0610			s_g	= 0,000517
Unità di misura	= mm			$ Bi $	= 0,00048400
				n_{eff}	= 25
Test per Bias				Risultati del test : significativo ($\alpha \leq 0,1\%$)	
Bias		=	0,79%		
Minimo riferimento per sistema di misura capace					
Risoluzione	%RE =	0,16%		$T_{min} (\%RE)$	= 0,00200
$C_g = \frac{0,2 \cdot T}{4 \cdot s_g}$	=	$4,24 \leq 5,90 \leq 7,56$		$T_{min} (C_g)$	= 0,0138
$C_{gk} = \frac{0,1 \cdot T - \bar{x}_g - x_m }{2 \cdot s_g}$	=	$3,89 \leq 5,43 \leq 6,97$		$T_{min} (C_{gk})$	= 0,0186
Sistema di misura capace (%RE,min,C _g ,C _{gk})					
☐ GETRAG MSA 2017: Capability of measuring system (Type-1 Study)					

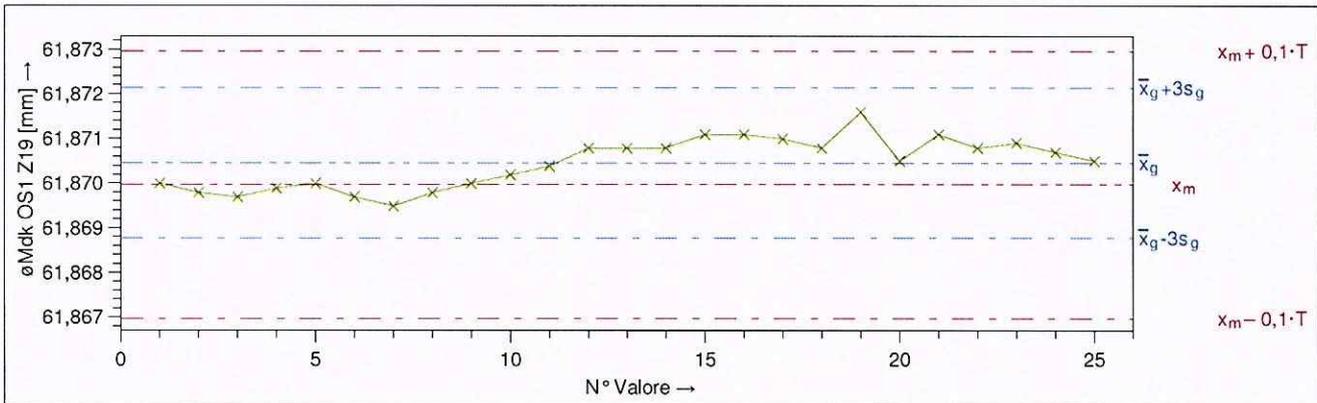
Data _____

Firma _____

Dipartimento _____



Data/ora	19/05/2018	Nome oper.	mario.bozza	Reparto/Area/Prod.	WLQ	Posto di prova	Dentatura OS1
Calibro		Master			Caratteristica		
Desc. calibro	Calibro a forcilla	Desc. mast.	Master OS1		Desc. Car.	øMdk OS1 Z19	
N° calibro	MAR 402090 046	N° master	MVZ 400666 001		N° Caratt.	2516123935_32C	
Ris. calibro	0,0001	Valore reale mast.	61,87		Val. Nom.	62,1200 LSS	62,1350 $\hat{=}$ 0,0150
Caus. Pr.	Cg CgK	Unità di misura	mm		Unità di rr mm	LSI	62,1050 $\hat{=}$ -0,0150
Nota							



i	x _i	i	x _i	i	x _i	i	x _i	i	x _i
1	61,8700	6	61,8697	11	61,8704	16	61,8711	21	61,8711
2	61,8698	7	61,8695	12	61,8708	17	61,8710	22	61,8708
3	61,8697	8	61,8698	13	61,8708	18	61,8708	23	61,8709
4	61,8699	9	61,8700	14	61,8708	19	61,8716	24	61,8707
5	61,8700	10	61,8702	15	61,8711	20	61,8705	25	61,8705

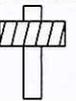
Valori a disegno		Valori Calcolati		Statistiche	
$x_m + 0,1 \cdot T$	= 61,873000	x_{maxg}	= 61,8716	$\bar{x}_g + 3s_g$	= 61,872150
x_m	= 61,870000	x_{ming}	= 61,8695	\bar{x}_g	= 61,870460
$x_m - 0,1 \cdot T$	= 61,867000	R_g	= 0,0021	$\bar{x}_g - 3s_g$	= 61,868770
$0,2 \cdot T$	= 0,006000	n_{tot}	= 25	$6s_g$	= 0,003381
T	= 0,0300			s_g	= 0,000563
Unità di misura	= mm			$ Bi $	= 0,00046000
				n_{eff}	= 25
Test per Bias				Risultati del test : significativo ($\alpha \leq 0,1\%$)	
Bias		=	1,53%	Minimo riferimento per sistema di misura capace	
Risoluzione	%RE = 0,33%			$T_{min} (\%RE)$	= 0,00200
$C_g = \frac{0,2 \cdot T}{4 \cdot s_g}$	= 1,91 \leq 2,66 \leq 3,41			$T_{min} (C_g)$	= 0,0150
$C_{gk} = \frac{0,1 \cdot T - \bar{x}_g - x_m }{2 \cdot s_g}$	= 1,60 \leq 2,25 \leq 2,90			$T_{min} (C_{gk})$	= 0,0196
Sistema di misura capace (%RE,min,C _g ,C _{gk})					
<input type="checkbox"/> GETRAG MSA 2017: Capability of measuring system (Type-1 Study)					

Data _____

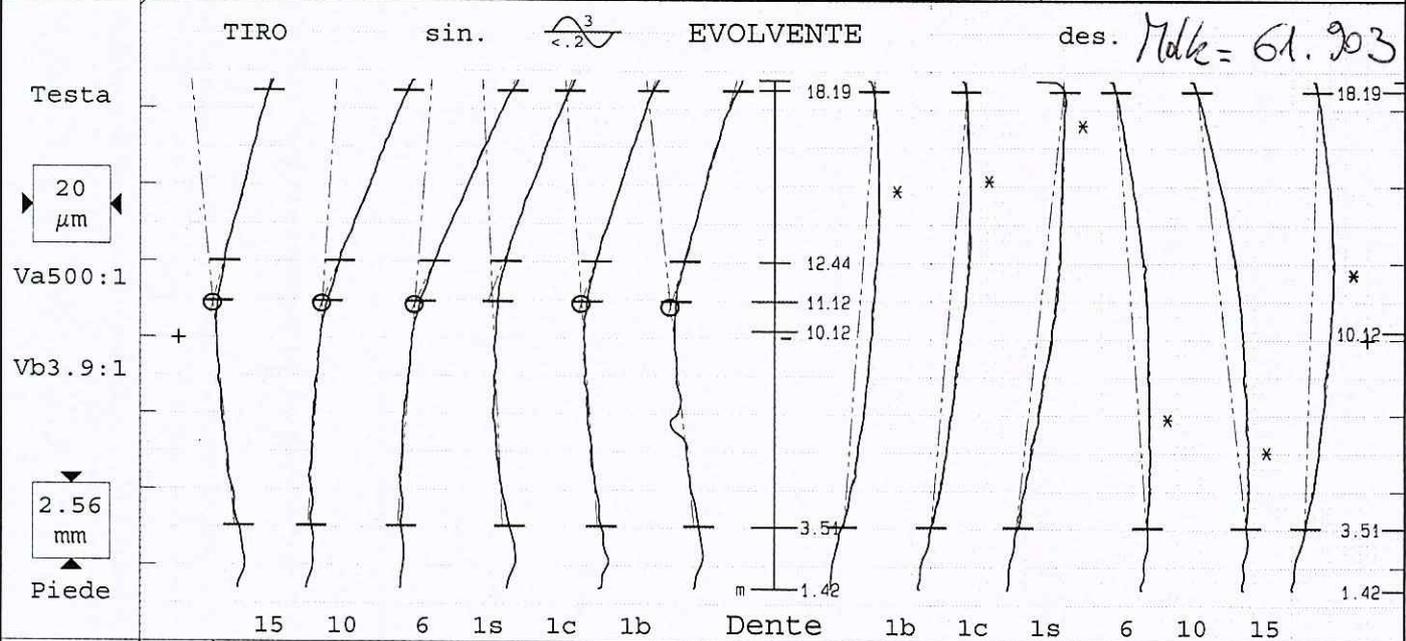
Firma _____

Dipartimento _____

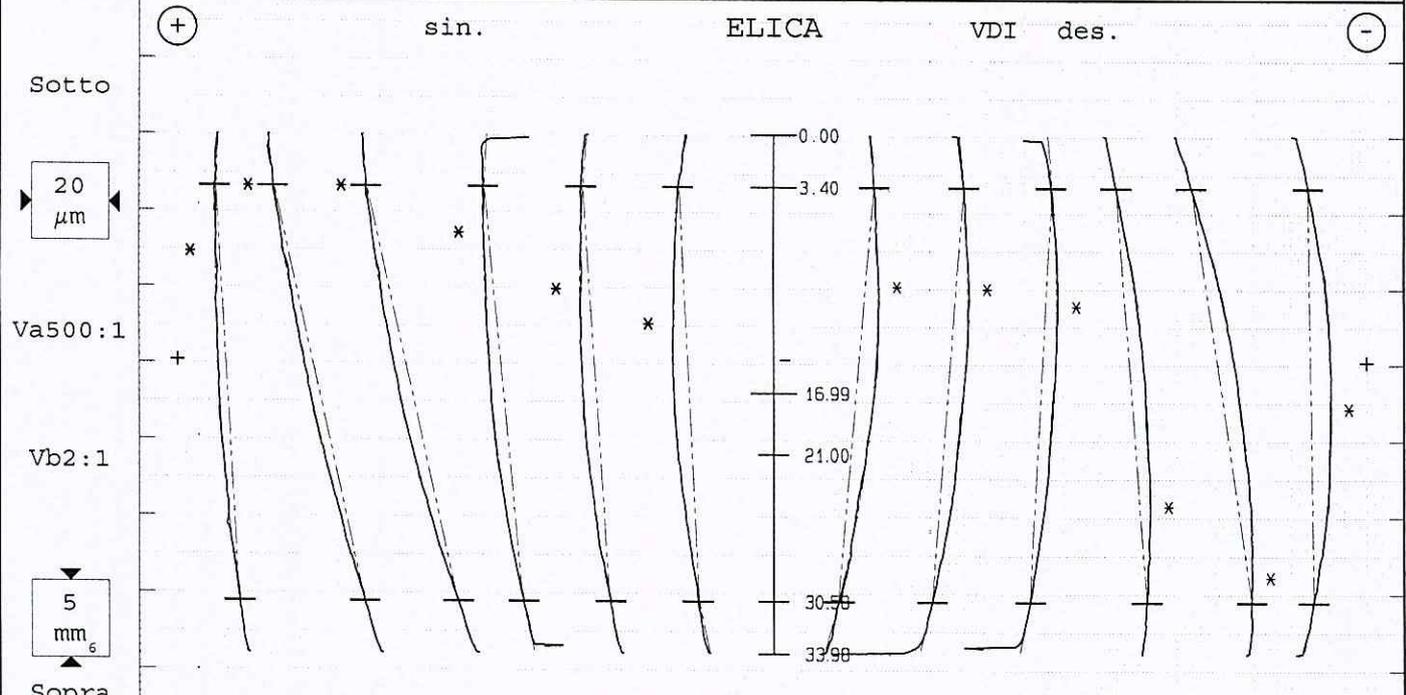
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601265	Controllore: Turno c	Data: 21.04.2018 23:00
Denominazione: Output Shaft 1		Numero denti z 19	Largh.fasc.dent. b 33.98mm
Numero disegno.: D51.6.1239.35-IF		Modulo m 2.6mm	Tratto evolv. La 7.61/14.68mm
Commissa/serie nr.: 1		Angolo pressione 20°00'00"	Tratto elica L _B 27.18mm
Masch.Nr.: M001	Spindel: Formmest	Angolo elica -23°21'00"	Inizio elab. M1 3.51mm
Untersuchungszweck: Laufende Messung		Ø Base db 50.0195mm	Palpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base -21°51'59"	Fat.scor.pr. x .5



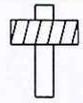
Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual
fH _{am} ±6	0.8	Var a 19.8								±6	Var a 22.4							-2.0	
fH _a ±12	0.8	11.0	-7.3	-8.8	5.0	8.1	12.1		±12	8.2	9.5	12.5	-8.1	-12.9	3.6	-2.0			
F _a	5.2	6.0	4.8	5.4	4.4	4.5	7.4			9.2	9.7	12.5	8.7	13.4	6.6	9.6			
ffa 4	2.1	1.9	1.9	2.2	3.1	2.2	4.9		4	1.1	1.2	1.3	1.3	1.0	1.1	1.2			
ca									1/5	3.8	4.0	3.7	4.0	4.9	5.4	4.6			
Ca -21/-13	-20.5	-19.8	-18.9	-21.0	-22.1	-22.3	-22.5												
ffa _f 3	0.5	0.8	0.0	0.0	0.0	1.1	1.9		3	0.2	1.0	1.8	0.7	0.8	0.9	0.8			
P/T-Ø [mm]	46.908	[46.6/46.95]									62.630	[62.5/62.7]							



N:Z	15	10	6	1t	1c	1p	Ø Dente	1p	1c	1t	6	10	15			
fH _{Sm} 20±6	19.0		FV 6. Var β	22.2			±6	FV 4. Var β	30.2				5.2			
fH _B 20±13	19.0	7.6	29.7	29.8	12.6	8.7	6.5	±13	-11.8	-10.6	-7.5	9.9	19.6	1.9	5.2	
F _B	9.3	10.4	9.0	8.6	5.4	9.0	11.5		9.5	8.5	6.0	8.2	16.4	4.2	9.3	
ffa _B 4	1.1	1.4	0.9	1.0	0.8	1.1	0.7		4	1.0	1.0	0.8	0.7	0.6	0.9	0.8
c _B 2/6	2.9	2.3	2.4	3.4	3.3	3.5	3.9		2/6	4.6	4.2	3.5	3.7	4.4	5.4	4.4



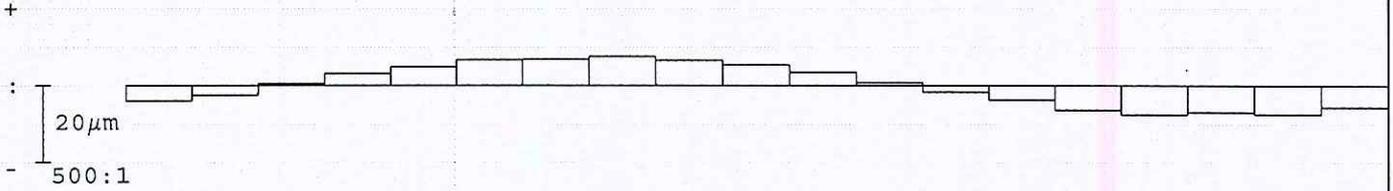
Ruota cilindrica Divisione



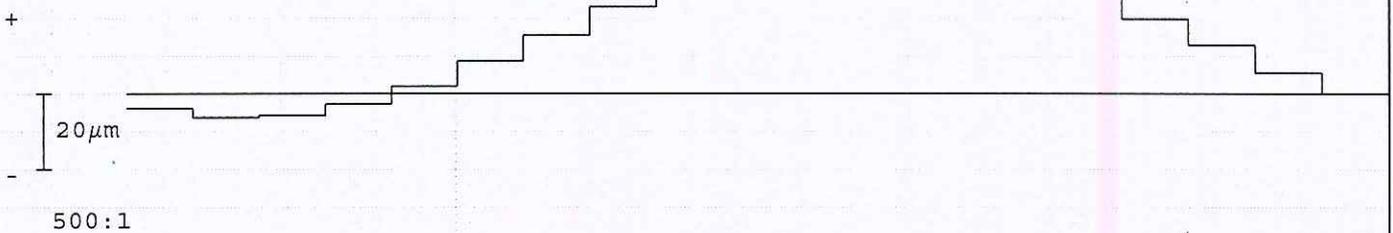
Nr. prog.: STI0416b04 0	P26 601265	Controllore: Turno c	Data: 21.04.2018 23:00
Denominazione: Output Shaft 1		Numero denti z 19	Angolo pressione 20°00'00"
Numero disegno: D51.6.1239.35-IF		Modulo m 2.6mm	Angolo elica -23°21'00"
Comessa/serie nr.: 1		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formozedg	Charge:	



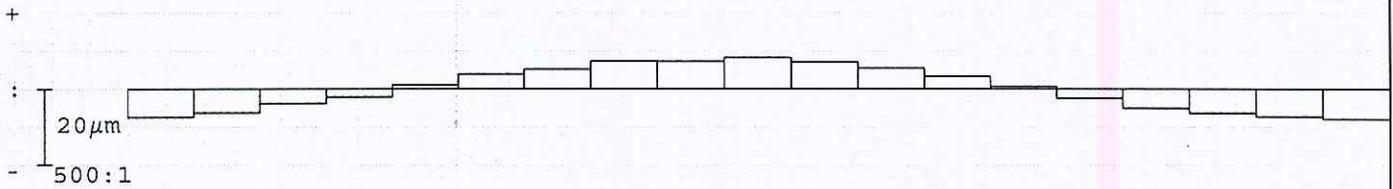
Errori singoli di divisione fp fianco sinistro



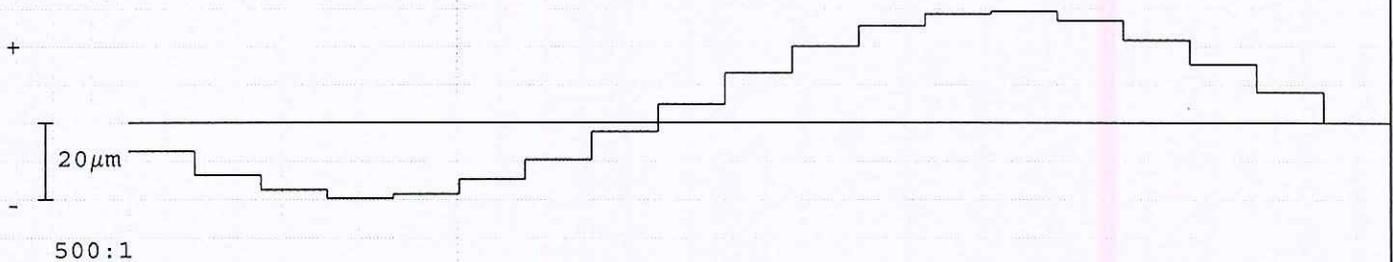
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



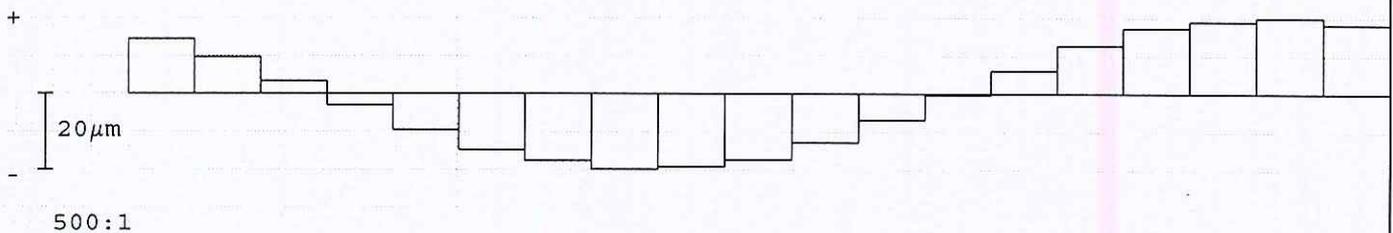
Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 53.959 z=21mm		fianco sinistro / TIRO				fianco destro			
		Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione	fp max	7.6		14.0		8.2		14.0	
Gr. salto di passo	fu max	3.0		18.0		3.2		18.0	
Scarto di divisione	Rp	15.1				16.2			
Err. globale di divisione	Fp	45.1		50.0		48.9		50.0	
Err. cordale di divisione	Fpz/8	14.4				15.5			

Centricità Fr (Ø-sfera =4.5mm)

⊙ : 39.9µm



Err. di concentricità	Fr	39.7	40.0	
Variation thickness tooth	Rs			

Docum.archiviato elettronicamente.Archiviazione cartacea non necessaria

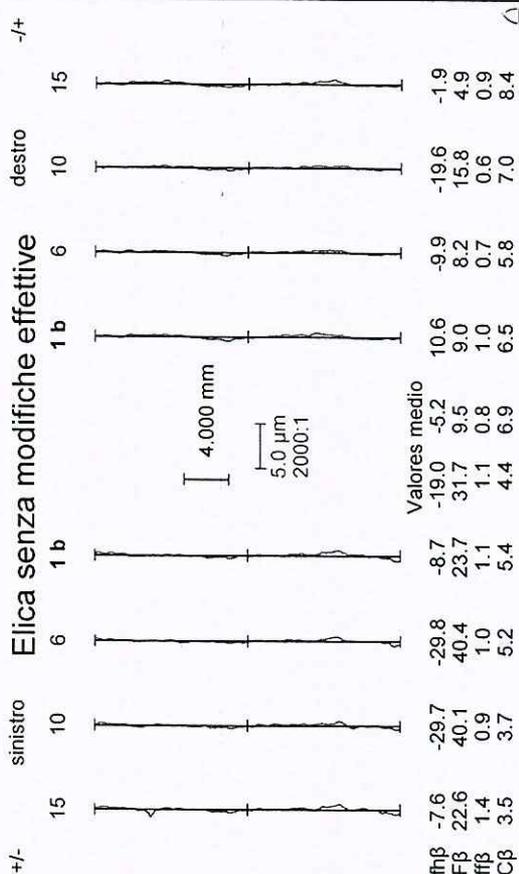
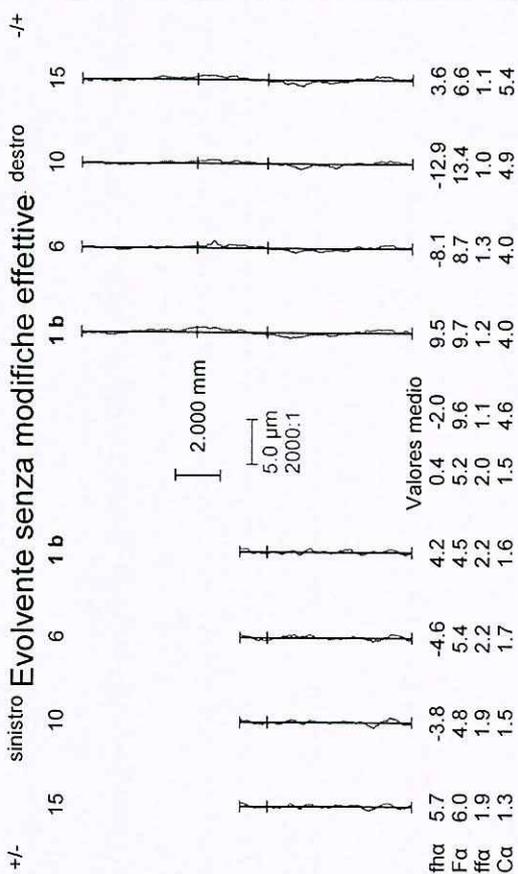
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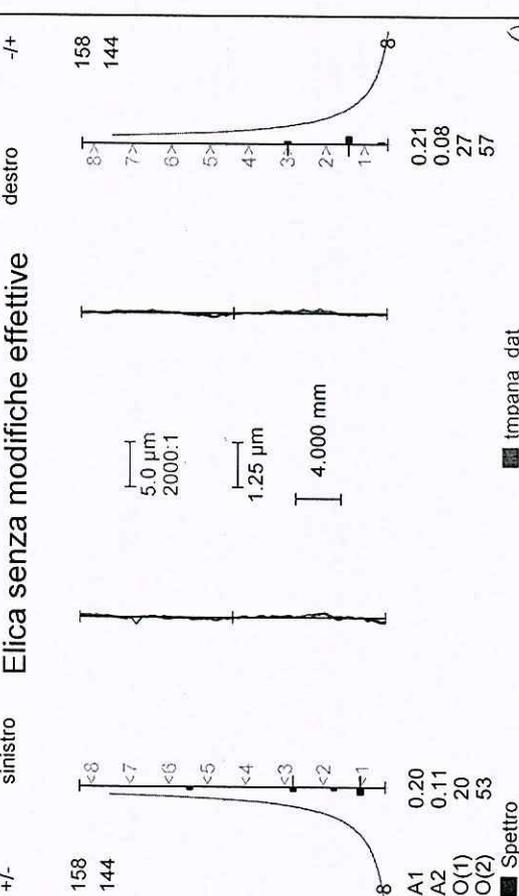
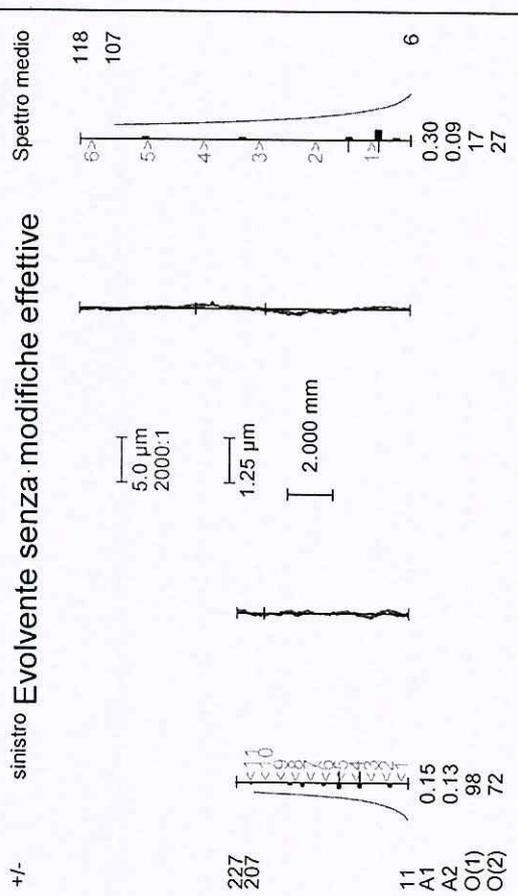
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 Serie nr: 1
 Macchina: M001

Scopo: Laufende Messung / 23:05
 Mandrino: Formnest 1
 Z= 19



Numero di disegno: D51.6.1239.35-IFDenominazione: Output Sha1104.18
 Serie nr: 1
 Macchina: M001

Scopo: Laufende Messung / 23:05
 Mandrino: Formnest 1
 Z= 19

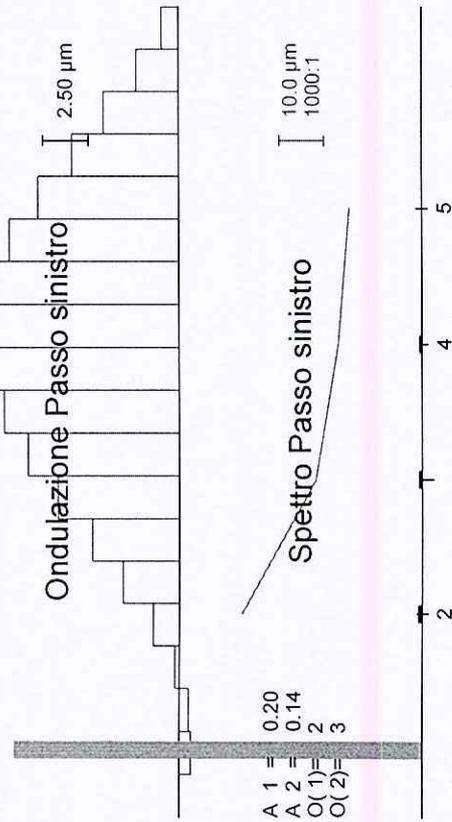
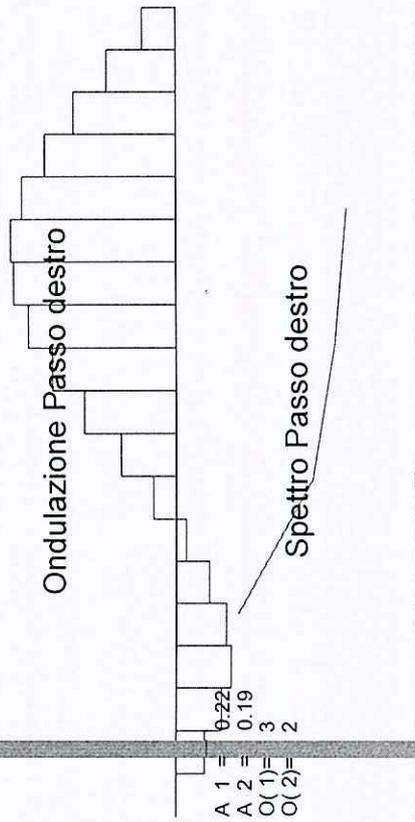


■ tmpna_dat

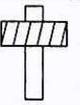
■ Spettro



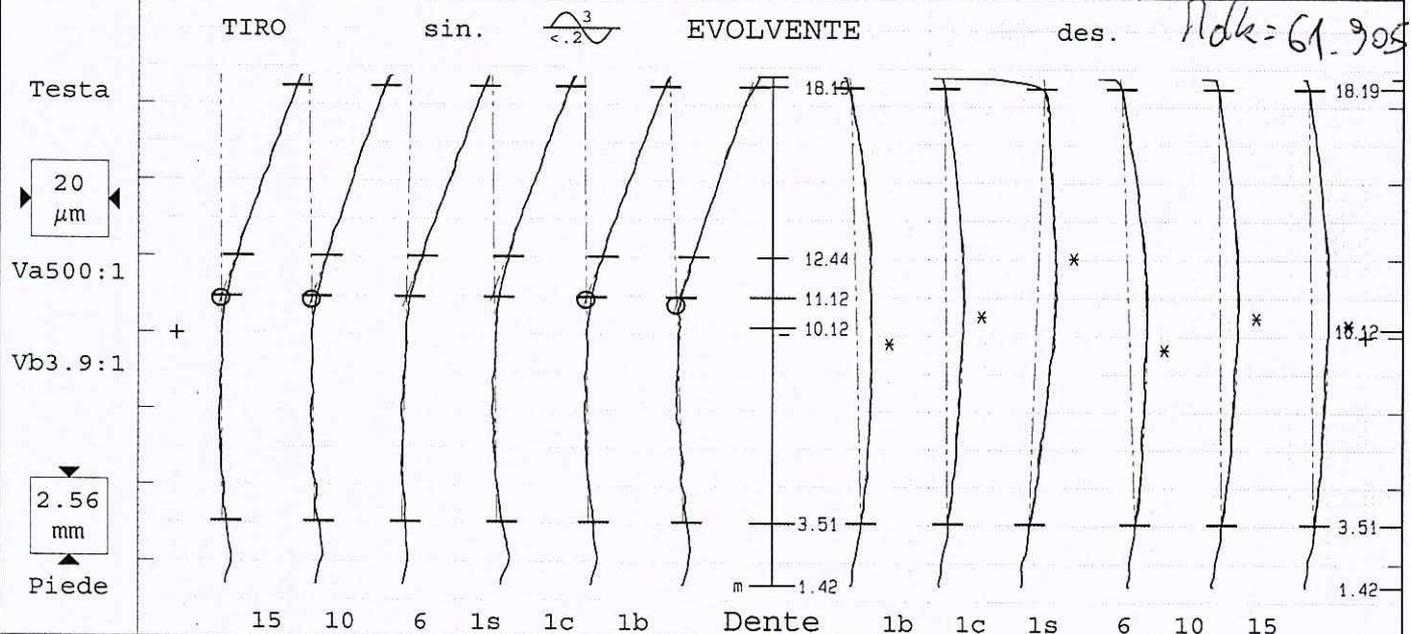
Numero di disegno: D51.6.1239.35-IFDenominazione: Output Shaft 1104.18
Serie nr: 1
Macchina: M001
Scopo: Laufende Messung / 23:05
Mandrino: Formnest 1
Z= 19



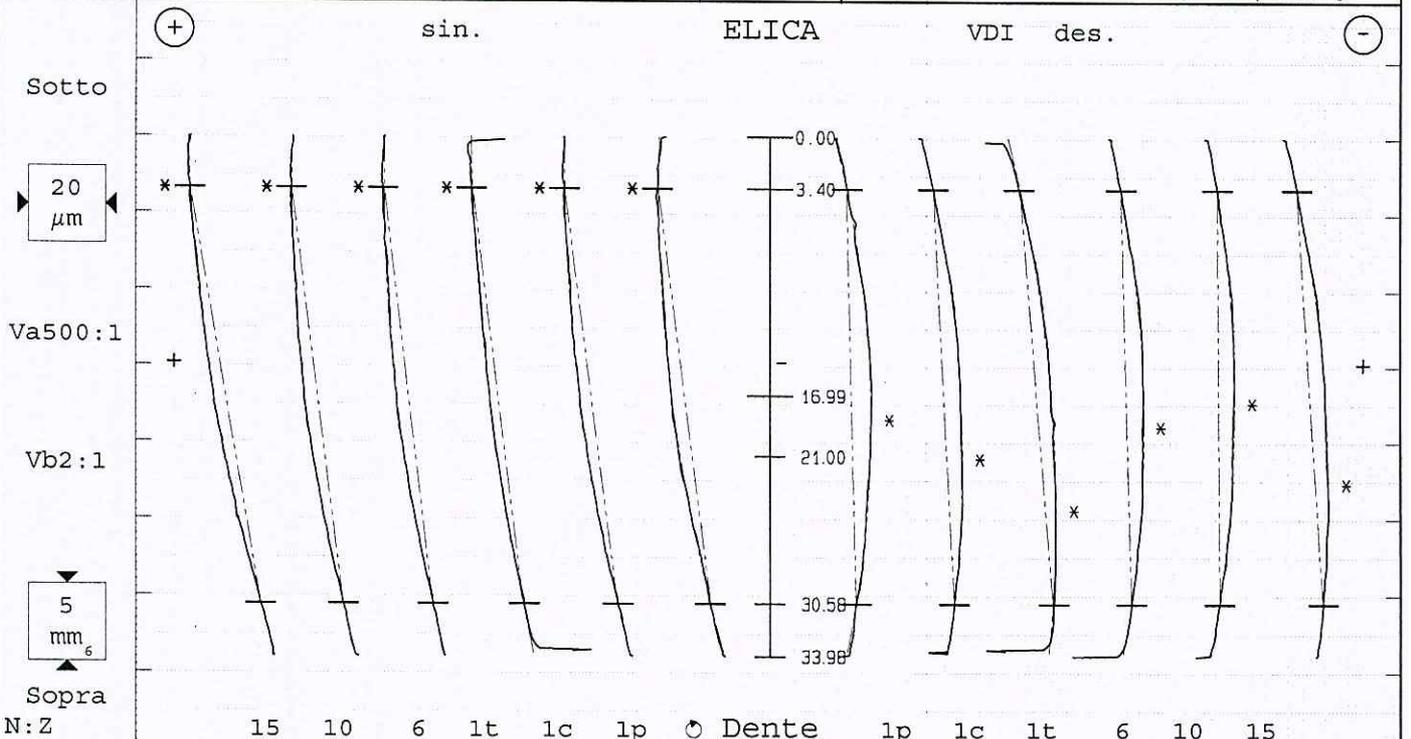
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601265	Controllore: Turno c	Data: 21.04.2018 22:55
Denominazione: Output Shaft 1		Numero denti z 19	Largh. fasc. dent. b 33.98mm
Numero disegno.: D51.6.1239.35-IF		Modulo m 2.6mm	Tratto evolv. La 7.61/14.68mm
Comessa/serie nr.: 2		Angolo pressione 20°00'00"	Tratto elica Ls 27.18mm
Masch. Nr.: M001	Spindel: Formner	Angolo elica -23°21'00"	Inizio elab. M1 3.51mm
Untersuchungszweck: Laufende Messung		Ø Base db 50.0195mm	Palpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base -21°51'59"	Fat. scor. pr. x .5



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual	
fHsm ±6	0.3	Var a 3.8								±6	Var a 2.8							-1.7		
fHa ±12	0.3	0.6	1.6	-2.2	1.4	1.3	3.7		±12	-2.8	-0.8	3.9	-3.6	-0.9	-1.4	-1.7				
Fa	2.3	2.0	2.2	2.3	2.8	2.5	2.8			5.2	4.4	6.0	5.9	4.6	4.3	4.8				
ffa 4	2.0	2.1	1.9	1.7	2.4	2.1	2.2		4	1.2	1.0	1.4	1.2	1.1	1.2	1.1				
ca									1/5	4.1	4.5	4.5	4.6	4.7	4.4	4.6				
Ca -21/-13	20.1	20.0	20.0	19.4	20.2	20.8	21.2													
ffaF 3	0.0	0.0	0.1	0.0	0.0	0.0	1.0		3	0.1	1.0	1.4	0.9	0.8	0.6	0.9				
P/T-Ø [mm]	46.922	[46.6/46.95]									62.635	[62.5/62.7]								



N:Z	fHsm 20±6	18.2	FV -0.5	Var β	6.9			±6	FV 7.5	Var β	7.9			4.9	
fHs 20±13	18.2	22.9	16.8	16.0	16.5	17.1	17.0	±13	3.1	6.9	10.7	3.4	0.7	8.6	4.9
Fβ	2.9	2.9	3.0	3.1	2.3	2.6	3.1		4.5	6.3	9.3	4.2	2.6	7.1	5.1
ffaβ 4	0.8	0.8	0.8	0.9	0.7	0.8	1.1	4	1.2	0.7	0.8	0.9	0.8	0.6	0.8
cβ 2/6	3.2	3.1	3.4	3.1	2.2	3.0	3.4	2/6	5.1	4.5	3.9	4.6	4.2	4.0	4.3



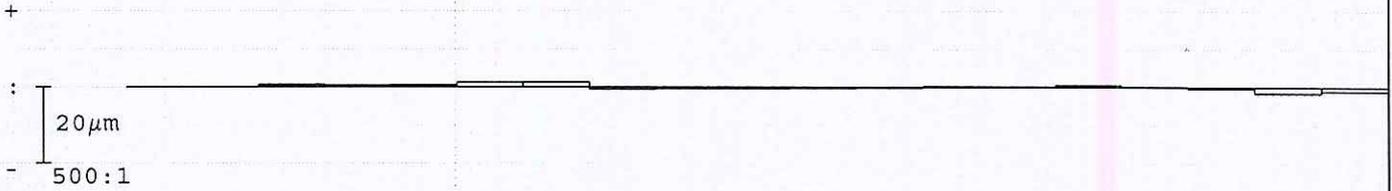
Ruota cilindrica Divisione



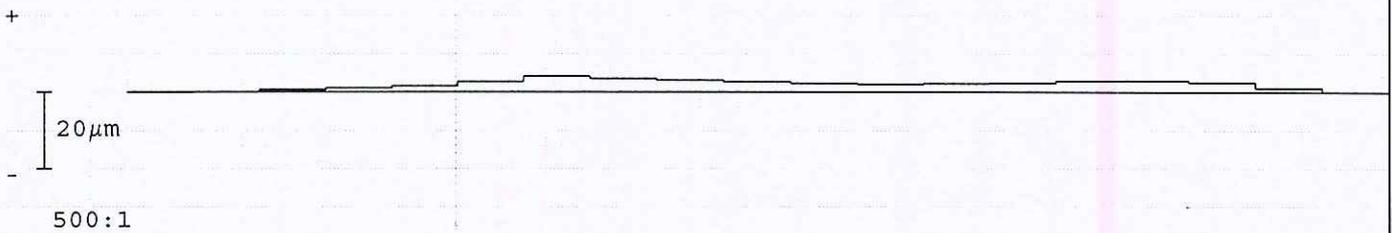
Nr. prog.: STI0416b04 0	P26 601265	Controllore: Turno c	Data: 21.04.2018 22:55
Denominazione: Output Shaft 1		Numero denti z 19	Angolo pressione 20°00'00"
Numero disegno.: D51.6.1239.35-IF		Modulo m 2.6mm	Angolo elica -23°21'00"
Commessa/serie nr.: 2		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formozweck	Erzeug:	Charge:



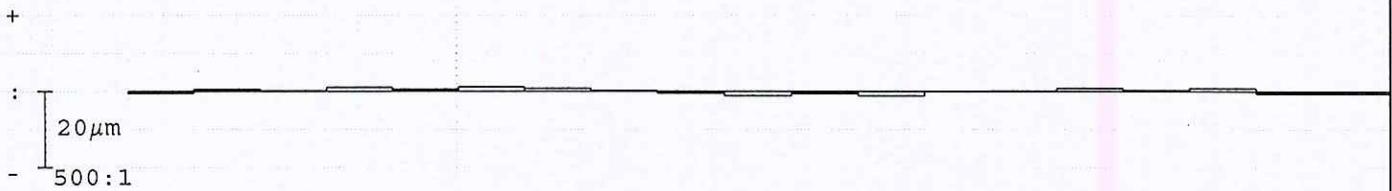
Errori singoli di divisione fp fianco sinistro



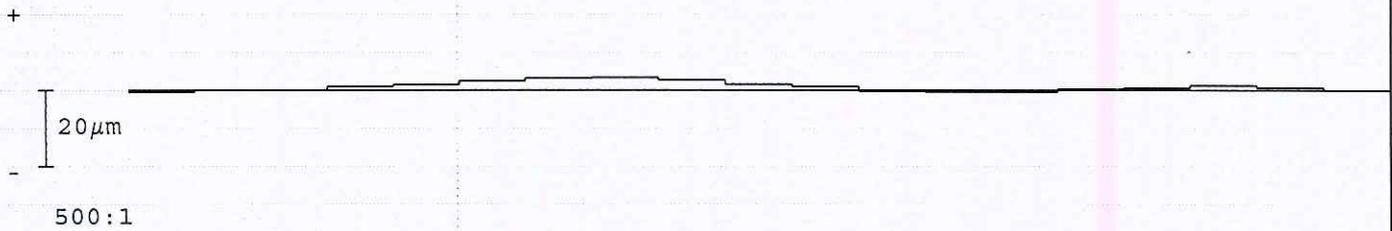
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



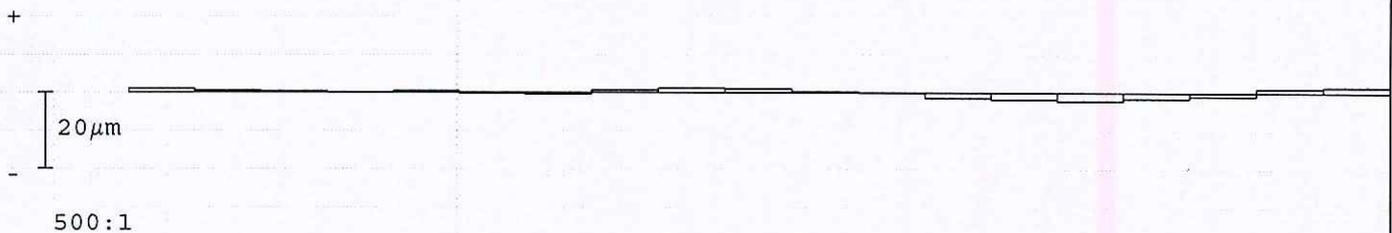
Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 53.959 z=21mm	fianco sinistro / TIRO				fianco destro			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	1.5		14.0		1.3		14.0	
Gr. salto di passo fu max	1.8		18.0		1.4		18.0	
Scarto di divisione Rp	2.8				2.3			
Err. globale di divisione Fp	4.1		50.0		3.8		50.0	
Err. cordale di divisione Fpz/8	2.5				1.9			

Centricità Fr (Ø-sfera =4.5mm)

⊙ : 1.6µm



Err. di concentricità Fr	3.7	40.0	
Variab. spessore dente Rs			

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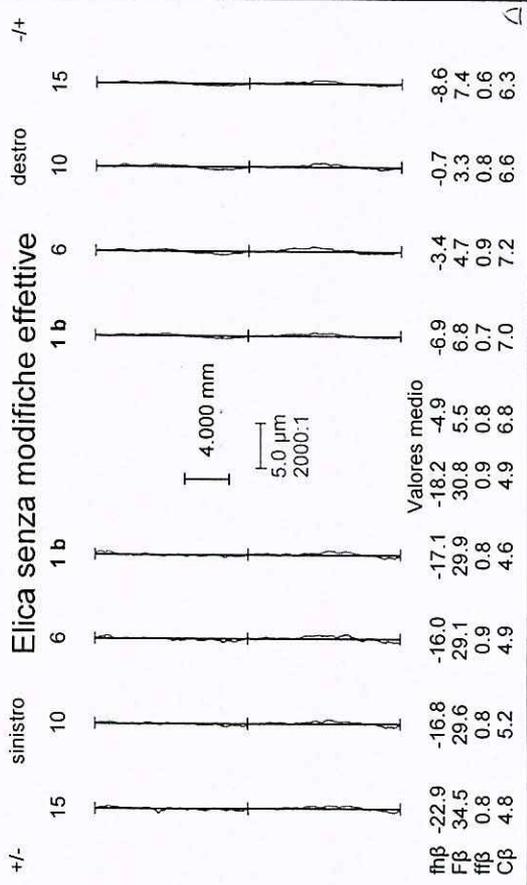
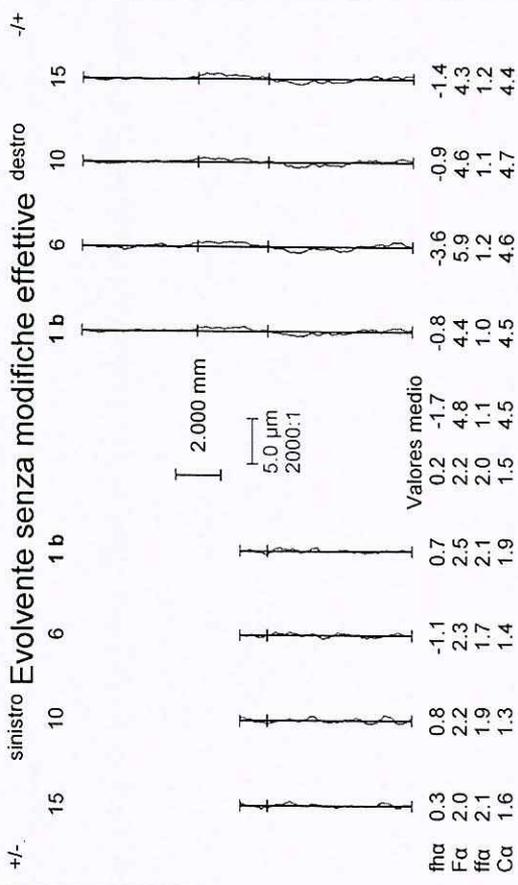
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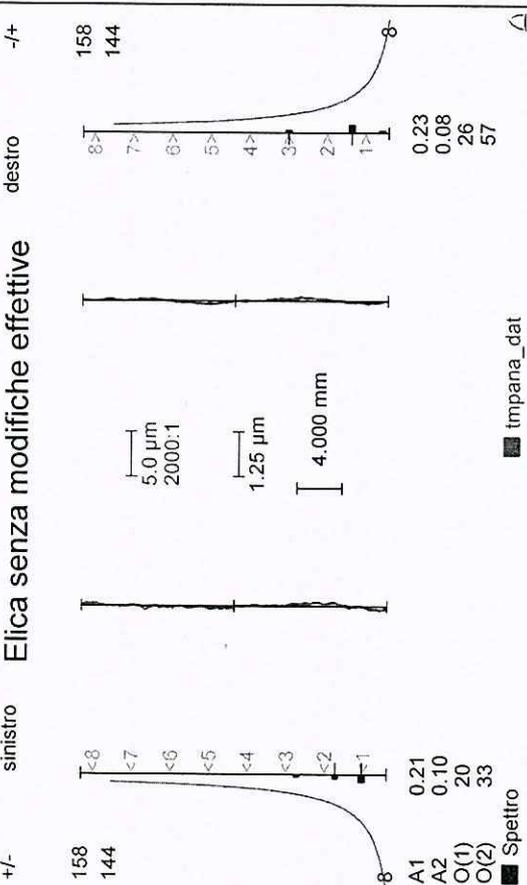
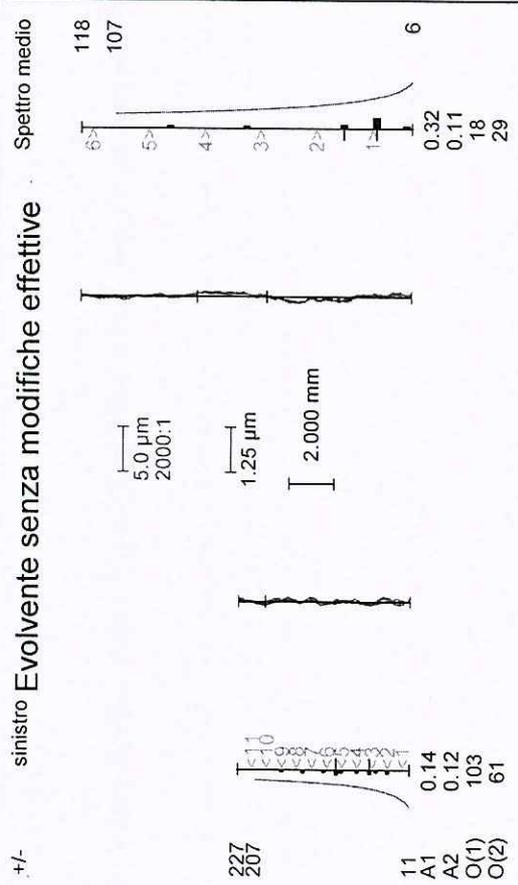
Numero di disegno: D51.6.1239.35-IPDenominazione: Output Sha1104.18
 Serie nr: 2
 Macchina: M001

Scopo: Laufende Messung / Z= 19
 Mandrino: Formnest 1



Numero di disegno: D51.6.1239.35-IPDenominazione: Output Sha1104.18
 Serie nr: 2
 Macchina: M001

Scopo: Laufende Messung / Z= 19
 Mandrino: Formnest 1



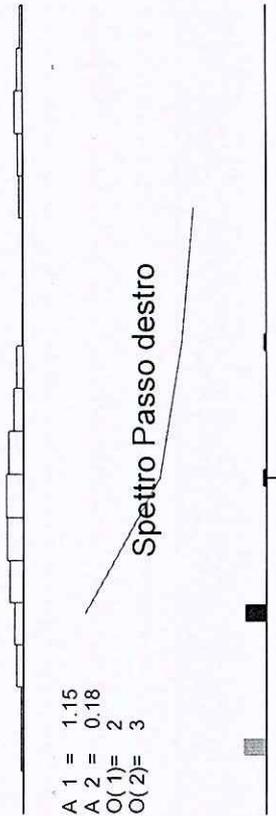
■ tmpana_dat

■ Spettro



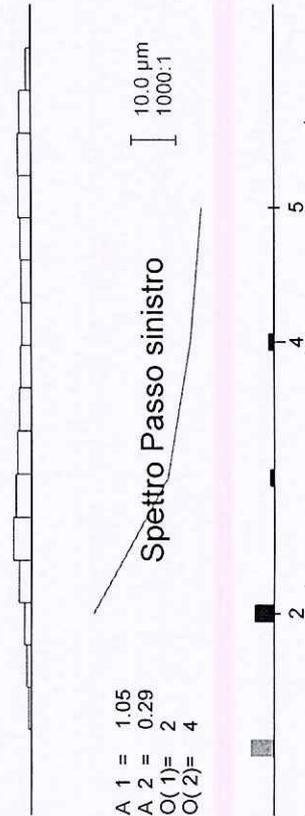
Numero di disegno: D51.6.1239.35-IFDenominazione: Output Shaft 1104.18
Serie nr: 2
Macchina: M001
Scopo: Laufende Messung / 23:00
Mandrino: Formnest 1
Z= 19

Ondulazione Passo destro



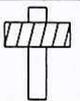
Ondulazione Passo sinistro

2.50 µm

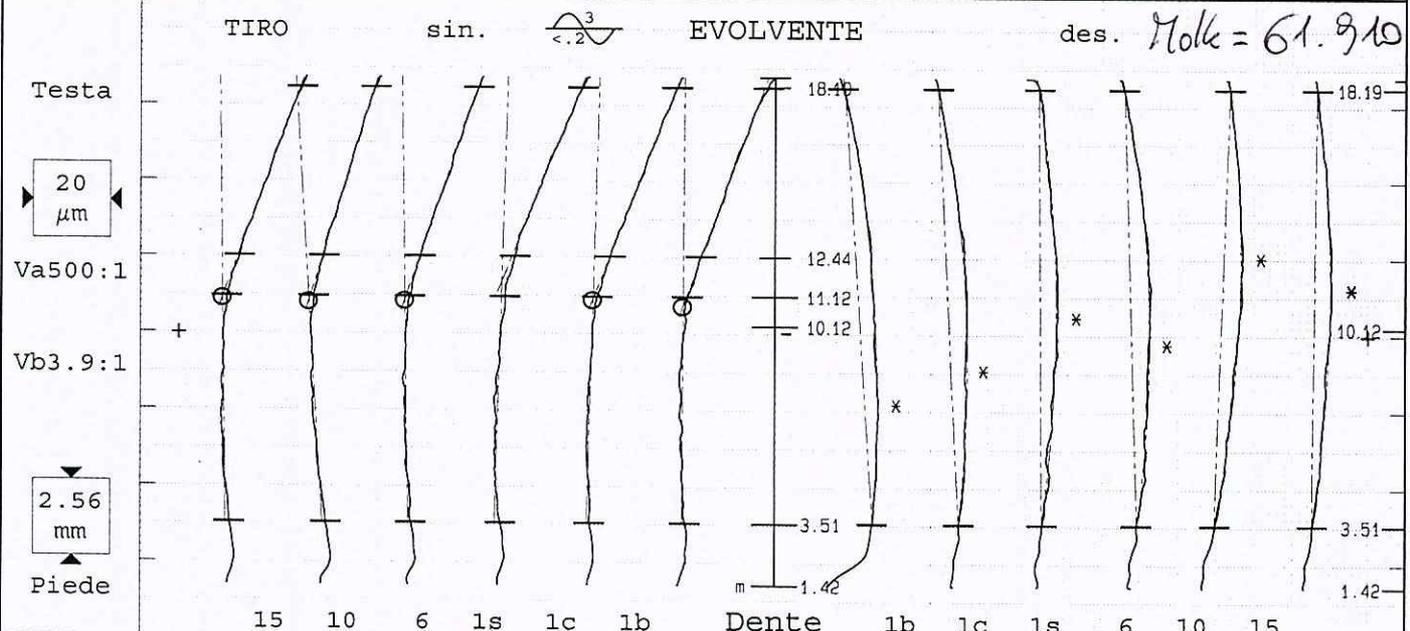


Docum. archiviato elettronicamente. Archiviazione cartacea non necessaria

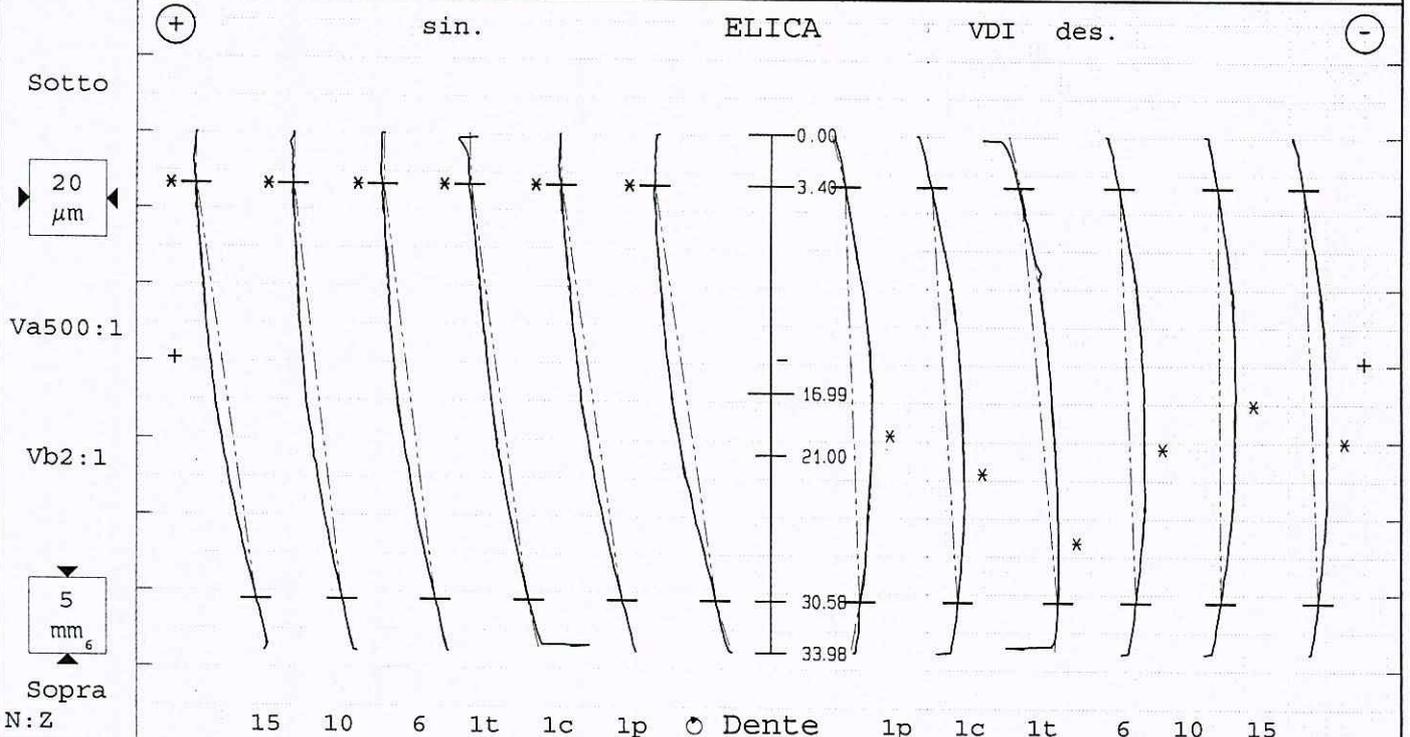
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601265	Controllore: Turno C	Data: 21.04.2018 22:47
Denominazione: Output Shaft 1	Numero denti z 19	Largh. fasc. dent. b 33.98mm	
Numero disegno.: D51.6.1239.35-IF	Modulo m 2.6mm	Tratto evol. La 7.61/14.68mm	
Commissa/serie nr.: 3	Angolo pressione 20°00'00"	Tratto elica L ₈ 27.18mm	
Masch. Nr.: M001	Spindel: Form. set. Elica	-23°21'00"	Inizio elab. M1 3.51mm
Untersuchungszweck: Laufende Messung	Ø Base db 50.0195mm	Palpatore Ø (#2) 1mm	
Werkzeug:	Charge:	Ang. Base -21°51'59"	Fat. scor. pr. x .5



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual	
fH _{am} ±6	1.7	Var a 9.9								±6	Var a 9.7							-0.9		
fH _a ±12	1.7	1.5	6.8	1.7	-3.3	-3.1	-0.7		±12	-7.4	-5.6	-0.9	-3.4	4.1	1.3	-0.9				
F _a	2.8	2.2	4.1	2.1	2.8	2.8	2.1			8.8	6.8	4.0	6.1	6.3	4.1	5.8				
ff _a 4	2.0	1.9	2.0	2.2	2.6	1.7	2.0		4	1.0	1.3	1.4	1.5	1.2	1.2	1.3				
ca									1/5	4.1	4.7	4.2	4.9	4.7	4.2	4.6				
Ca -21/-13	-20.5	-21.2	-20.7	-20.0	-19.3	-20.2	-20.8													
ff _{af} 3	0.5	0.0	1.4	0.5	0.0	0.0	1.0		3	0.0	0.9	1.7	1.2	0.8	1.1	1.0				
P/T-Ø [mm]	46.939	[46.6/46.95]									62.577	[62.5/62.7]								



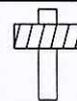
N:Z	15	10	6	1t	1c	1p	Ø Dente	1p	1c	1t	6	10	15		
fH _{βm} 20±6	18.0	FV -1. Var β 3.8						±6	FV '7. Var β 7.5						5.0
fH _β 20±13	18.0	19.5	15.8	16.9	18.4	19.6	±13	5.0	8.6	12.1	5.6	1.1	4.8	5.0	
F _β	2.1	1.4	3.3	2.6	2.6	1.2		5.1	7.3	10.6	5.5	2.9	4.9	5.2	
ff _β 4	0.9	0.9	0.8	1.0	1.2	1.0	4	0.9	0.8	1.8	0.9	1.0	0.9	0.9	
c _β 2/6	3.1	3.1	3.2	3.2	2.4	2.9	2/6	5.0	4.5	3.4	4.3	4.3	4.1	4.3	

GCG 808006

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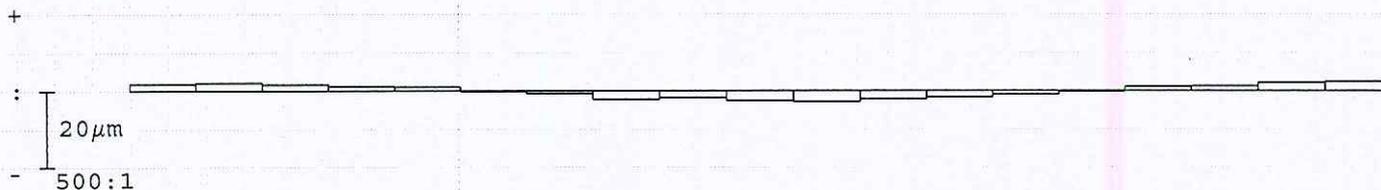
Ruota cilindrica Divisione



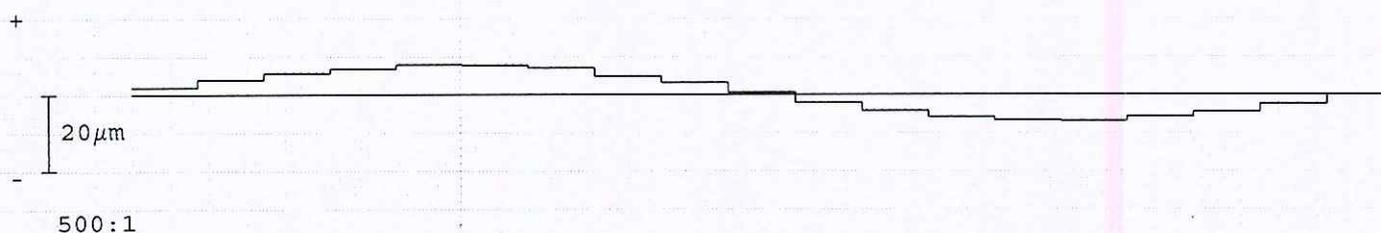
Nr. prog.: STI0416b04 0	P26 601265	Controllore: Turno c	Data: 21.04.2018 22:47
Denominazione: Output Shaft 1'		Numero denti z 19	Angolo pressione 20°00'00"
Numero disegno.: D51.6.1239.35-IF		Modulo m 2.6mm	Angolo elica -23°21'00"
Commessa/serie nr.: 3		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formozedelg	Charge:	



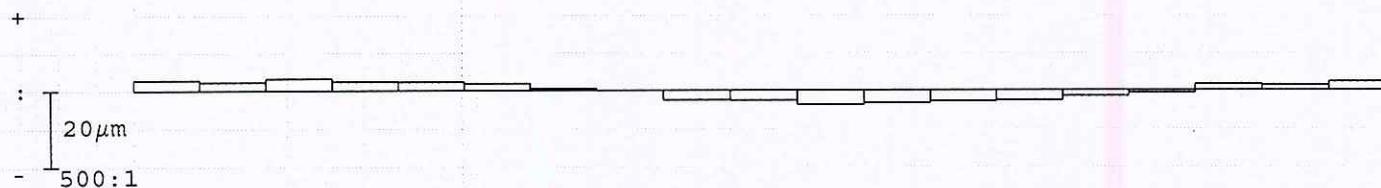
Errori singoli di divisione fp fianco sinistro



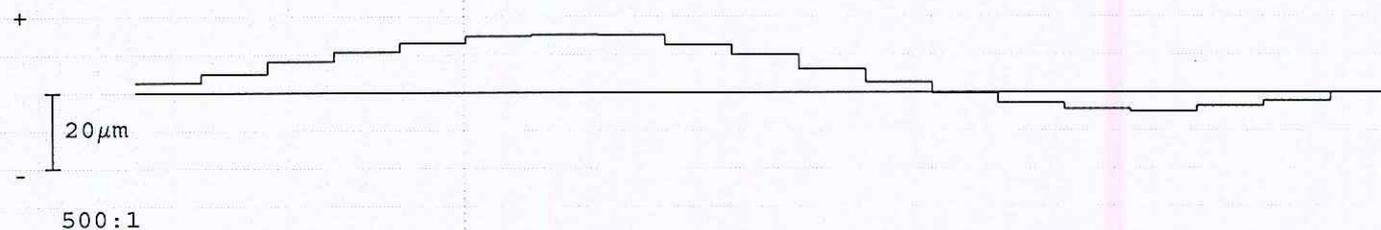
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



Errore somma di divisione Fp fianco destro

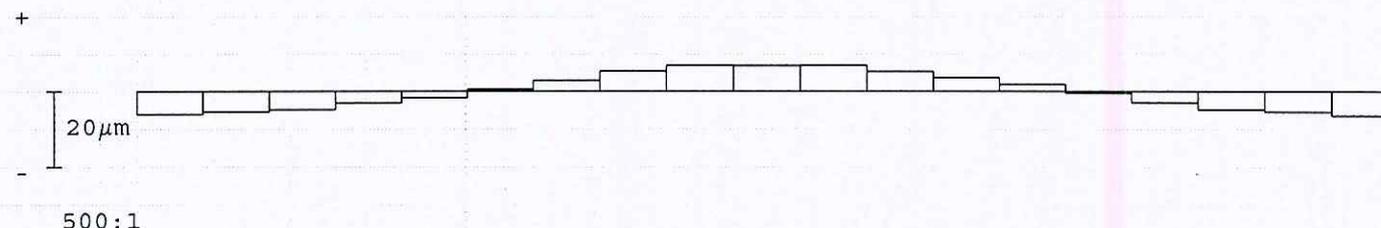


Corsa per misura divis.: 53.959 z=21mm

	fianco sinistro / TIRO				fianco destro			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	2.8		14.0		3.8		14.0	
Gr. salto di passo fu max	1.6		18.0		2.5		18.0	
Scarto di divisione Rp	5.3				7.0			
Err. globale di divisione Fp	14.8		50.0		20.4		50.0	
Err. cordale di divisione Fpz/8	5.3				7.2			

Centricità Fr (Ø-sfera =4.5mm)

⊙ : 13.4µm



Err. di concentricità Fr	13.4	40.0	
Variab. spessore dente Rs			

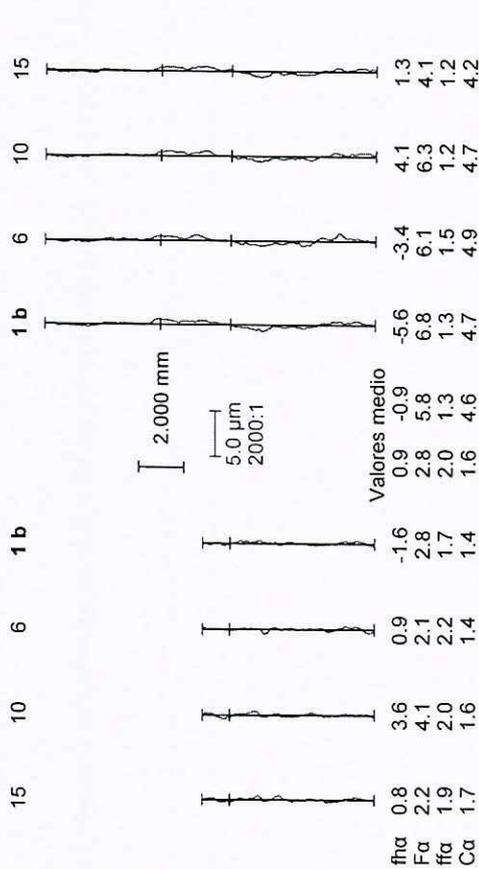
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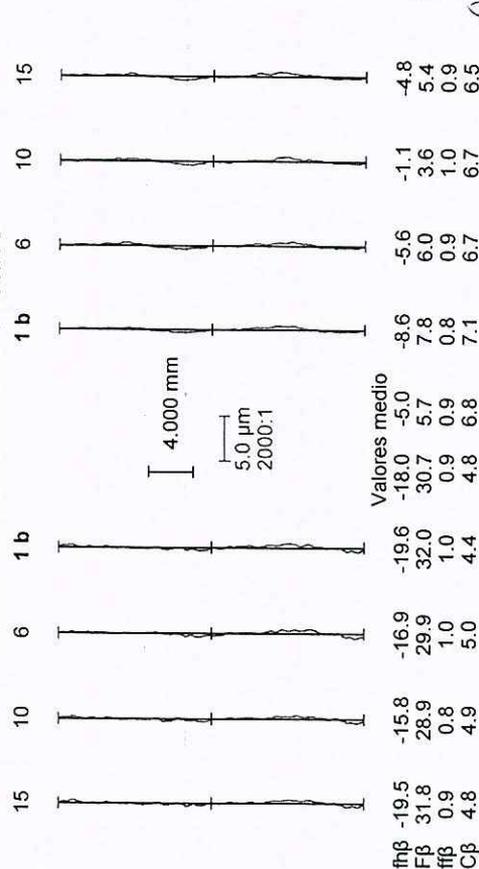
Numero di disegno: D51.6.1239.35-IFDenominazione: Output Shaft 1104.18
 Serie nr: 3
 Macchina: M001

Scopo: Laufende Messung / 22:51
 Mandrino: Formnest 1
 Z= 19

+/- **Evolute senza modifiche effettive** +/-



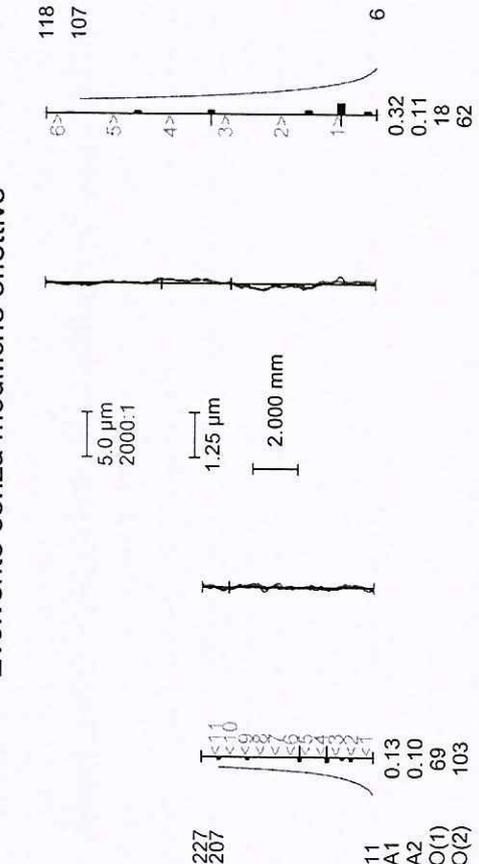
+/- **Elica senza modifiche effettive** +/-



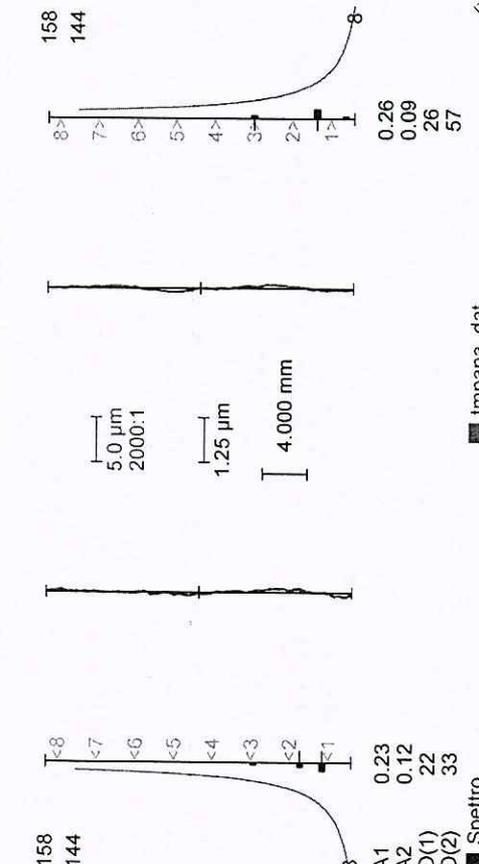
Numero di disegno: D51.6.1239.35-IFDenominazione: Output Shaft 1104.18
 Serie nr: 3
 Macchina: M001

Scopo: Laufende Messung / 22:51
 Mandrino: Formnest 1
 Z= 19

+/- **Evolute senza modifiche effettive** +/-



+/- **Elica senza modifiche effettive** +/-

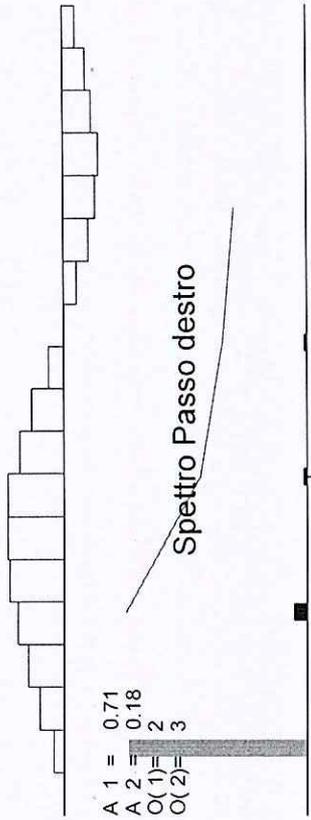


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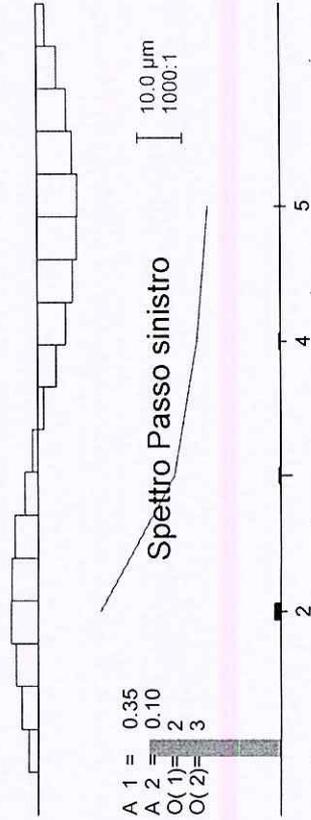
Numero di disegno: D51.6.1239.35-1
Denominazione: Output Shaft 104.18
Serie nr: 3
Scopo: Laufende Messung / 22:51
Macchina: M001
Mandrino: Formnest 1
Z= 19

Ondulazione Passo destro

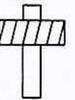


Ondulazione Passo sinistro

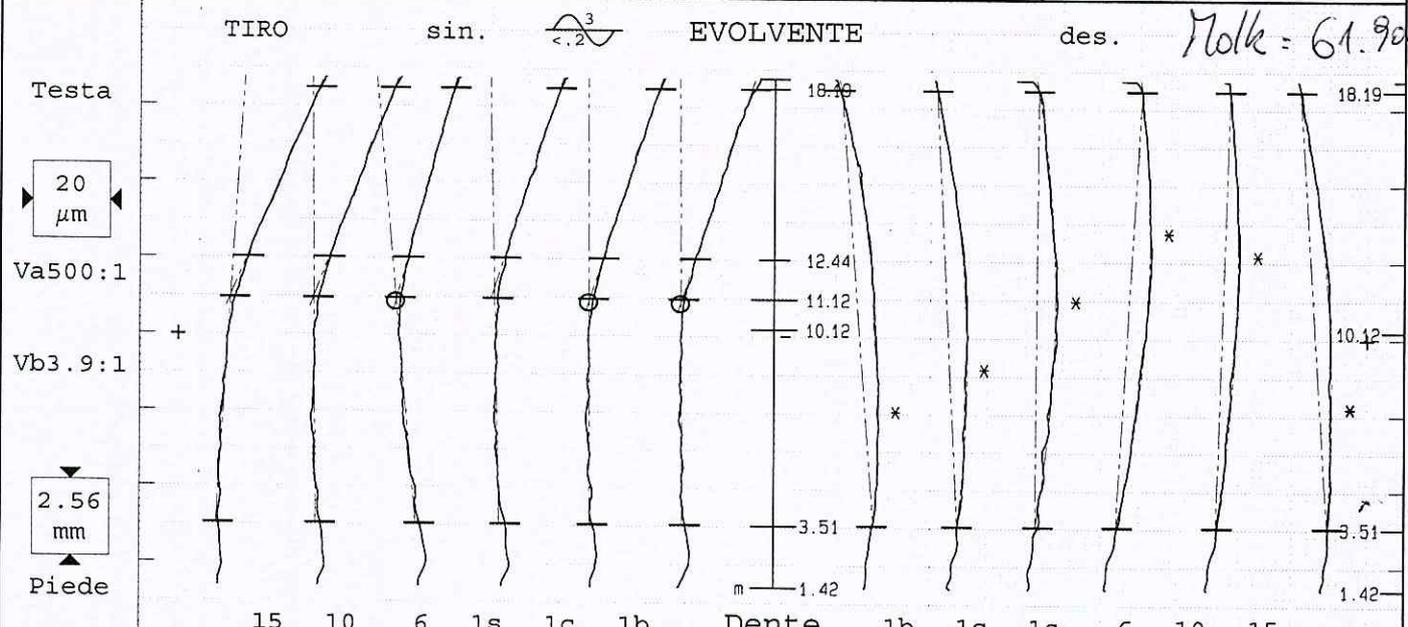
2.50 μm



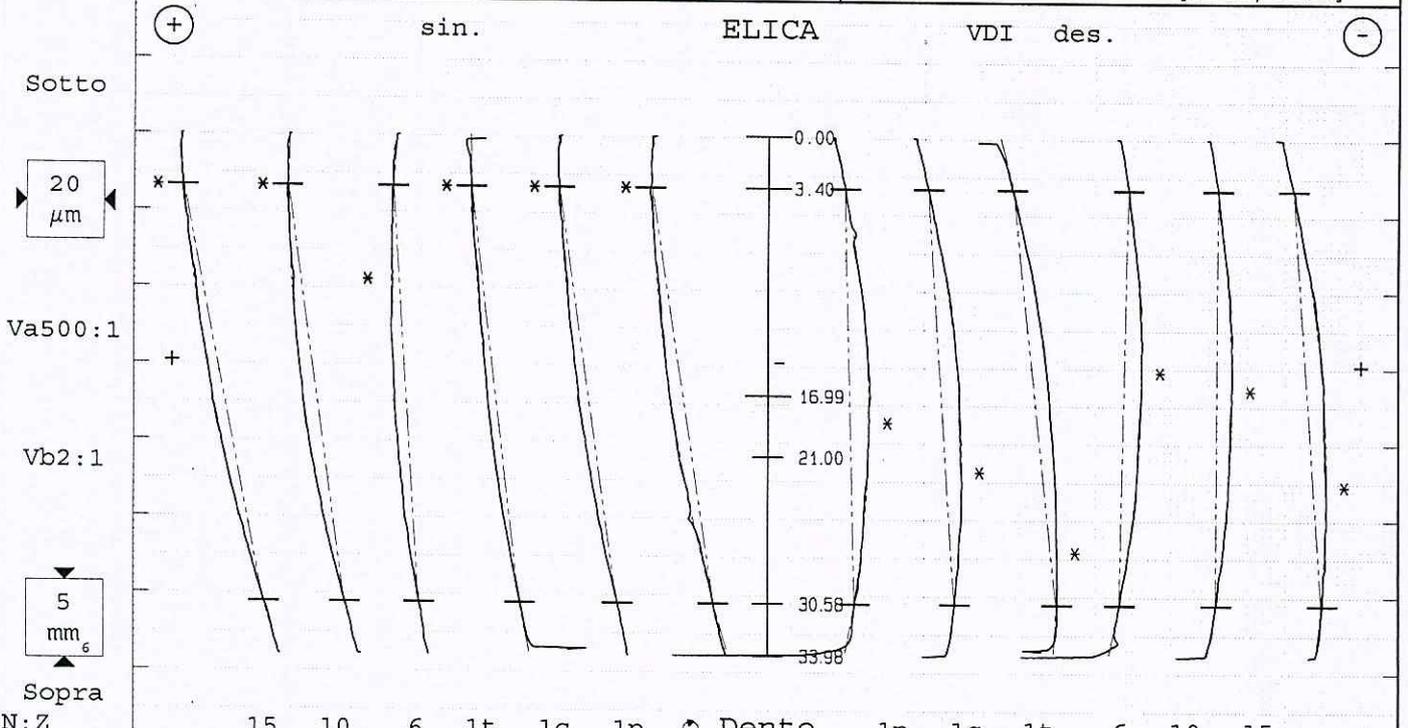
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601265	Controllore: Turno C	Data: 21.04.2018 22:33
Denominazione: Output Shaft 1		Numero denti z 19	Largh.fasc.dent. b 33.98mm
Numero disegno.: D51.6.1239.35-IF		Modulo m 2.6mm	Tratto evol. La 7.61/14.68mm
Comessa/serie nr.: 4		Angolo pressione 20°00'00"	Tratto elica Ls 27.18mm
Masch.Nr.: M001	Spindel: Form. est. elicoidale	Angolo elic. -23°21'00"	Inizio elab. M1 3.51mm
Untersuchungszweck: Laufende Messung		Ø Base db 50.0195mm	Palpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base -21°51'59"	Fat.scor.pr. x .5



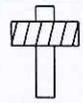
	Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual
			Var a 17.4									Var a 14.0								
fHm	±6	1.1									±6								-0.7	
fHa	±12	1.1	-7.2	1.0	10.2	2.5	0.5	0.7		±12	-8.7	-5.6	0.7	6.7	3.5	-7.3	-0.7			
Fa		3.6	4.3	2.6	5.6	3.0	1.9	1.7			9.9	7.2	4.3	7.9	4.9	7.8	7.0			
ffa	4	2.0	1.9	2.3	1.9	2.4	2.0	1.5		4	1.3	1.1	2.0	1.1	1.2	1.4	1.2			
ca										1/5	4.6	5.0	4.8	4.8	3.6	4.1	4.4			
Ca	-21/-13	20.0	19.9	21.6	20.1	18.1	18.4	18.6												
ffaf	3	0.1	0.0	0.0	0.6	0.0	0.0	1.2		3	0.0	0.9	1.7	1.6	0.7	0.7	0.9			
P/T-Ø [mm]		46.921	[46.6/46.95]									62.648	[62.5/62.7]							



	Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual
			Var β 17.7									FV 10. Var β 12.1								
fHsm	20±6	18.0									±6								3.6	
fHs	20±13	18.0	26.1	18.5	8.4	15.7	18.8	20.2		±13	3.2	8.7	14.1	-2.9	-0.6	9.2	3.6			
Fβ		4.7	5.5	2.1	9.7	3.2	1.3	2.0			4.6	7.5	12.2	4.0	2.3	7.8	5.4			
ffβ	4	0.9	0.9	1.0	0.8	0.8	0.9	1.6		4	1.2	0.7	0.6	0.7	0.7	0.8	0.7			
cβ	2/6	3.1	3.0	3.6	3.1	2.1	2.5	3.3		2/6	5.1	4.8	3.7	4.6	4.0	4.3	4.4			



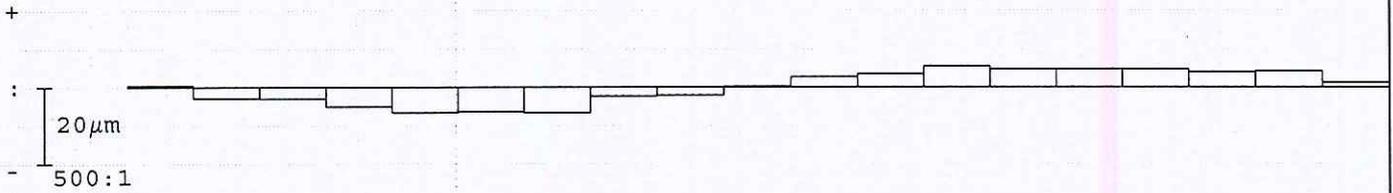
Ruota cilindrica Divisione



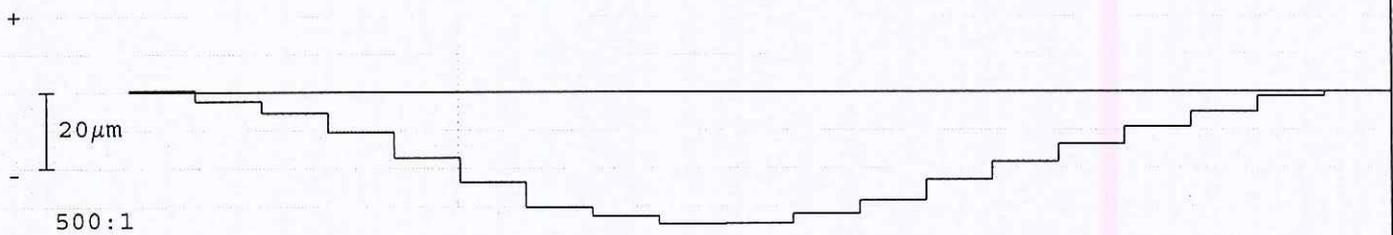
Nr. prog.: STI0416b04 0	P26 601265	Controllore: Turno c	Data: 21.04.2018 22:33
Denominazione: Output Shaft 1	Numero denti z 19	Angolo pressione 20°00'00"	
Numero disegno: D51.6.1239.35-IF	Modulo m 2.6mm	Angolo elica -23°21'00"	
Comessa/serie nr.: 4	Untersuchungszweck: Laufende Messung		
Masch.Nr.: M001	Spindel: Formnest	Kzedg:	Charge:



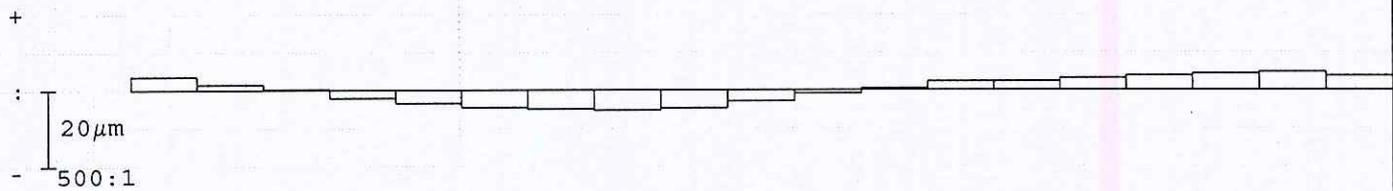
Errori singoli di divisione fp fianco sinistro



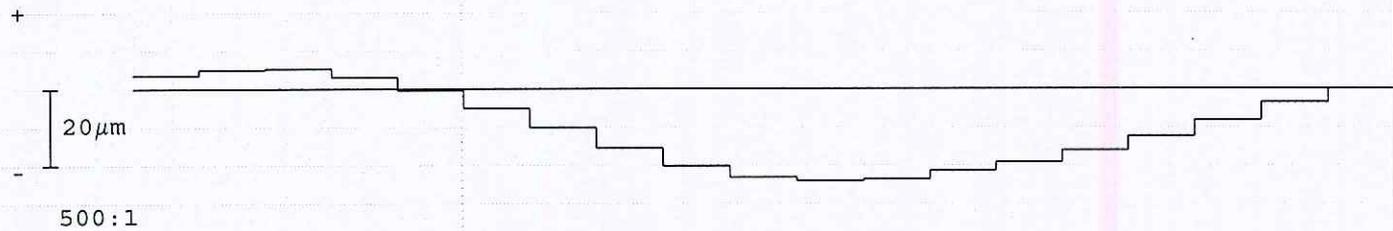
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



Errore somma di divisione Fp fianco destro

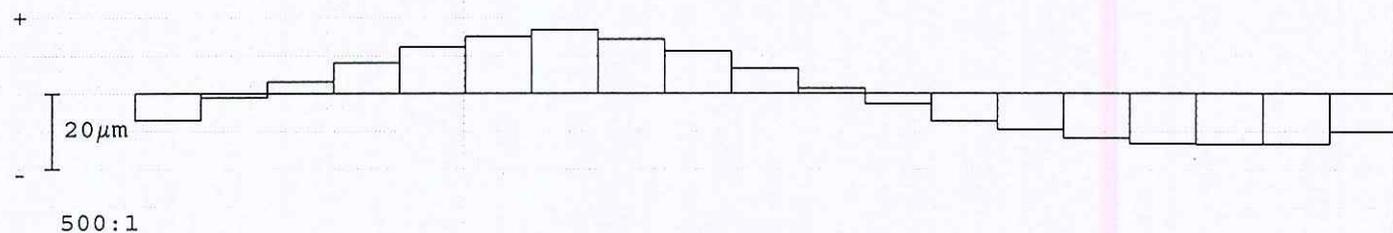


Corsa per misura divis.: 53.959 z=21mm

	fianco sinistro / TIRO				fianco destro			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	6.6		14.0		5.4		14.0	
Gr. salto di passo fu max	4.3		18.0		2.4		18.0	
Scarto di divisione Rp	12.0				10.0			
Err. globale di divisione Fp	35.0		50.0		29.4		50.0	
Err. cordale di divisione Fpz/8	13.0				10.4			

Centricità Fr (\emptyset -sfera = 4.5mm)

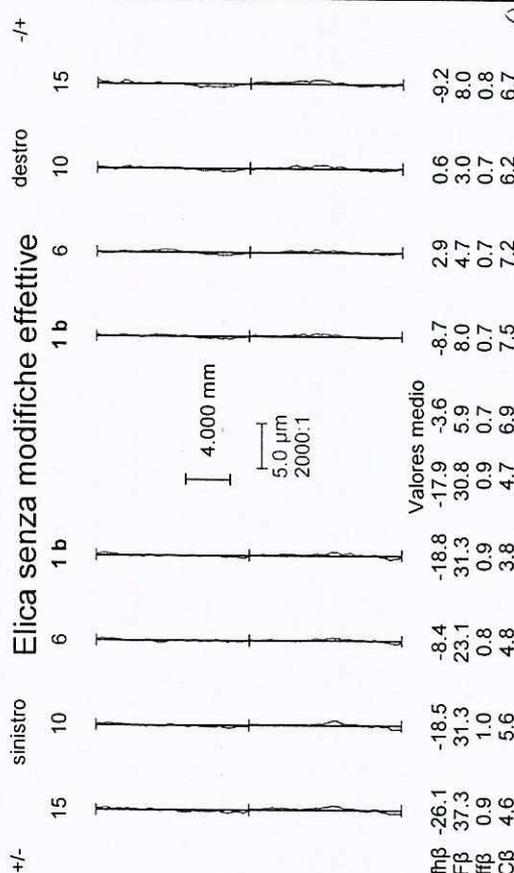
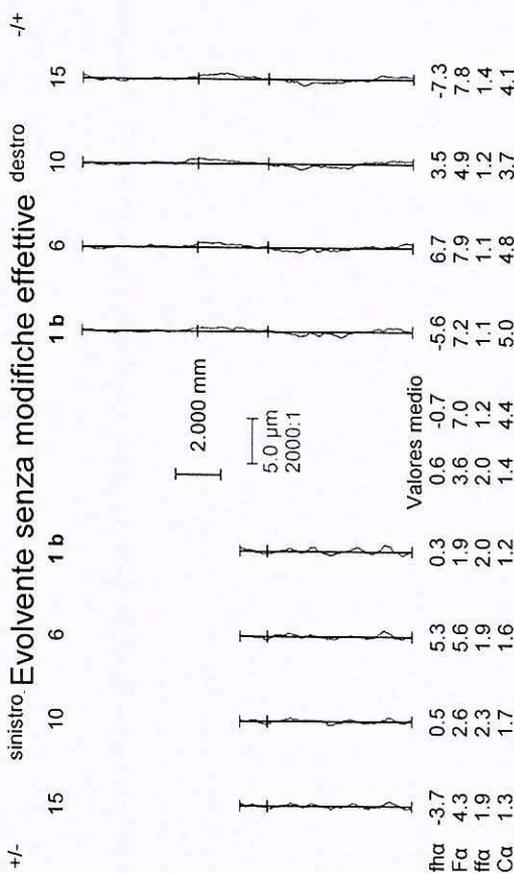
⊙ : 29.5μm



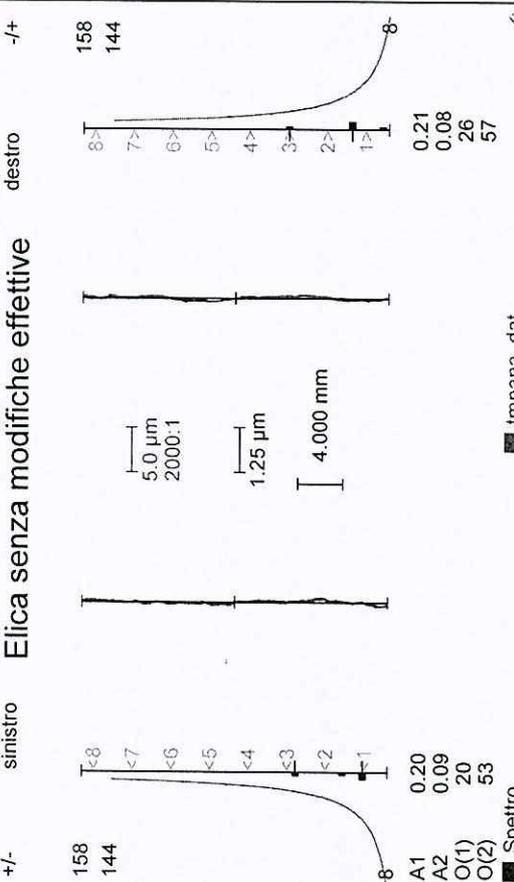
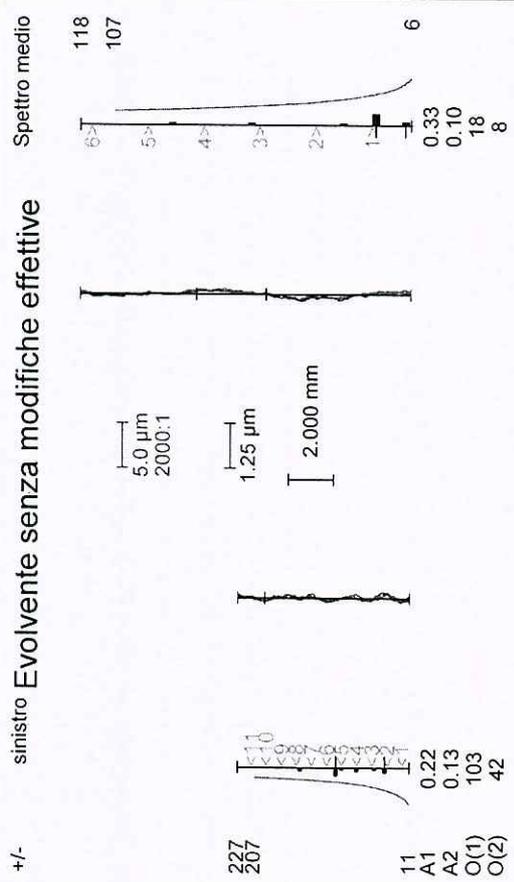
Err. di concentricità Fr	30.2	40.0	
Variab. spessore dente Rs			



Numero di disegno: D51.6.1239.35-IFDenominazione: Output Shaft 1104.18
 Serie nr. 4 Scopo: Laufende Messung / 22:38
 Macchina: M001 Mandrino: Formnest 1 z= 19



Numero di disegno: D51.6.1239.35-IFDenominazione: Output Shaft 1104.18
 Serie nr. 4 Scopo: Laufende Messung / 22:38
 Macchina: M001 Mandrino: Formnest 1 z= 19



trpana_dat

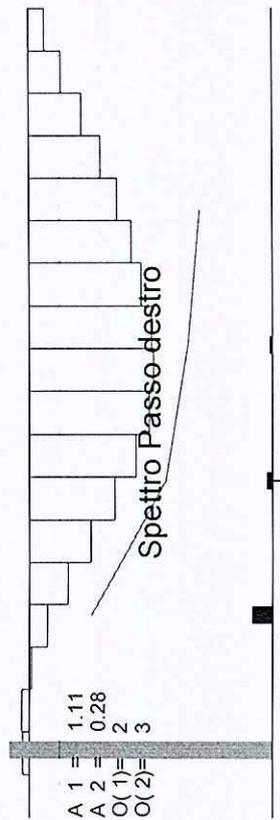
Spettro



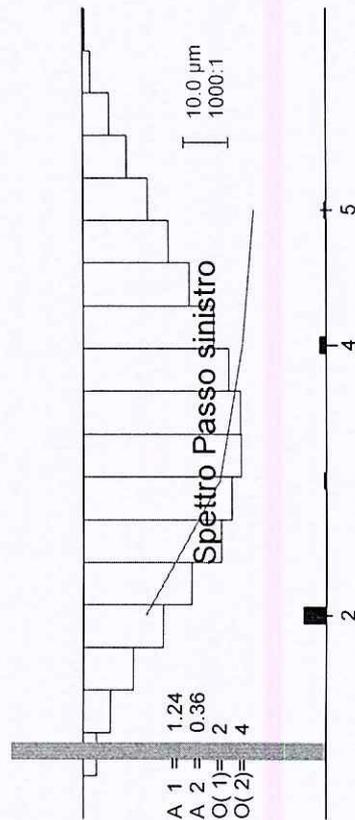
KLINGENBERG

Numero di disegno: D51.6.1239.35-IFdenominazione: Output Shaft 1104.18
Serie nr: 4
Macchina: M001
Scopo: Laufende Messung / 22:38
Mandrino: Formnest 1
Z= 19

Ondulazione Passo destro

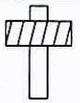


Ondulazione Passo sinistro

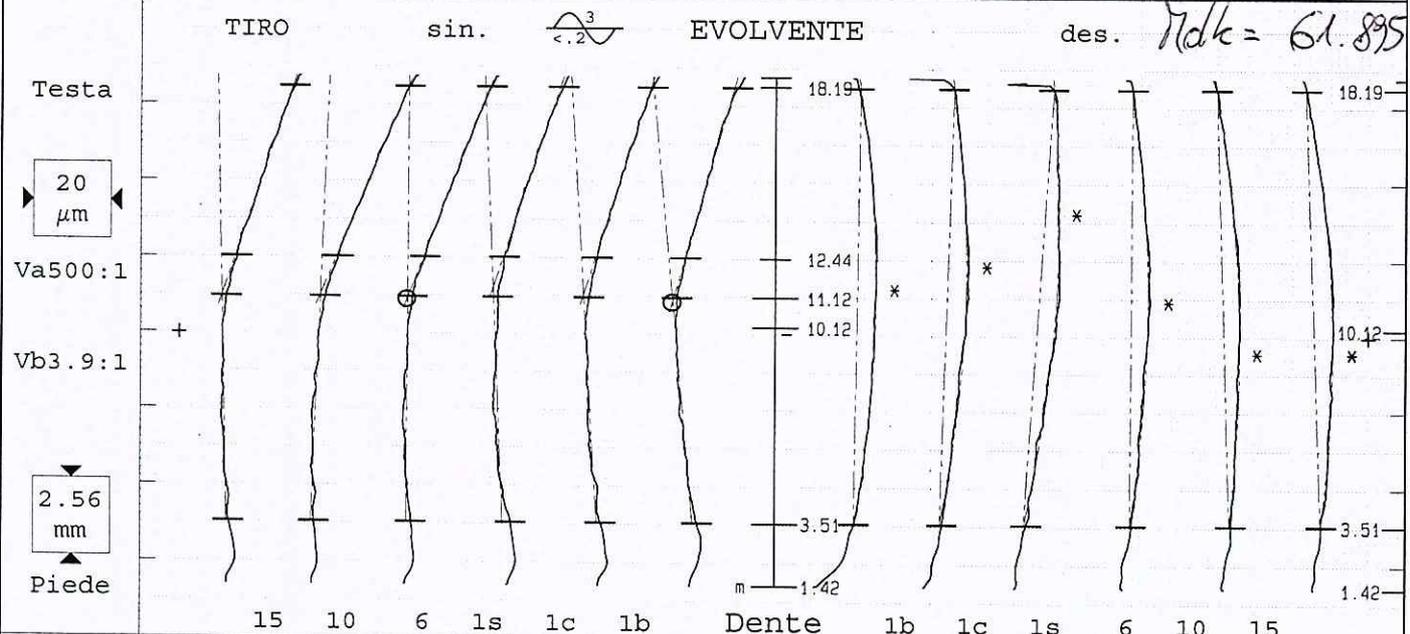


Docum. archiviato elettronicamente. Archiviazione cartacea non necessaria

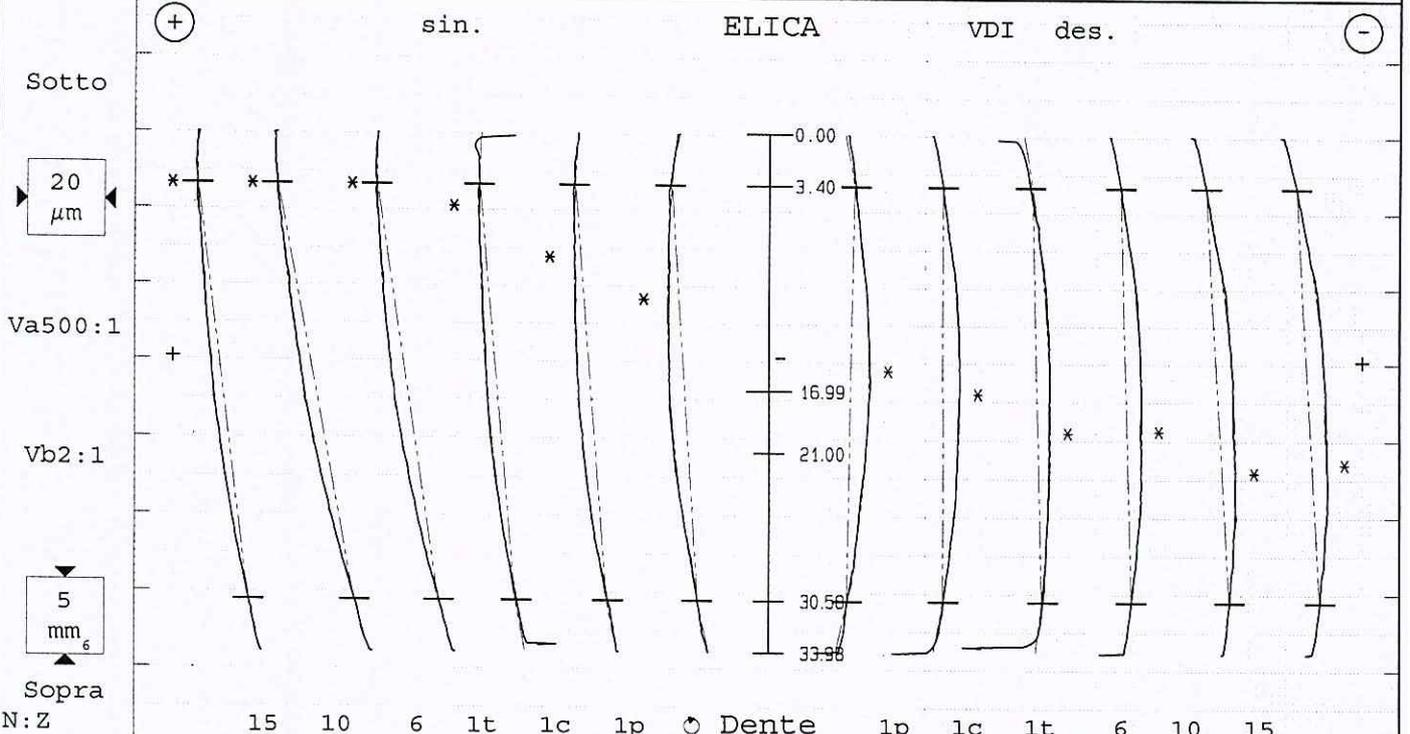
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601265	Controllore: Turno c	Data: 21.04.2018 22:27
Denominazione: Output Shaft 1	Numero denti z 19	Largh. fasc. dent. b 33.98mm	
Numero disegno.: D51.6.1239.35-IF	Modulo m 2.6mm	Tratto evolv. La 7.61/14.68mm	
Comessa/serie nr.: 5	Angolo pressione 20°00'00"	Tratto elica Ls 27.18mm	
Masch.Nr.: M001	Spindel: Formel 1	Angolo elica -23°21'00"	Inizio elab. M1 3.51mm
Untersuchungszweck: Laufende Messung	Ø Base db 50.0195mm	Palpatore Ø (#2) 1mm	
Werkzeug:	Charge:	Ang. Base -21°51'59"	Fat. scor. pr. x .5



Tolerance	Medio	Val. misur [µm]						Qual	Tolerance	Val. misur [µm]						Medio	Qual	
		Var a								Var a								
fHm	±6	1.0	11.2							±6	7.9						-0.9	
fHa	±12	1.0	2.4	-4.6	-0.5	4.7	6.6	10.3	±12	1.5	3.7	7.7	0.5	-3.5	-4.2	-0.9		
Fa		3.1	2.1	3.5	2.5	4.7	4.1	5.7		5.0	6.0	7.8	3.9	5.2	6.3	5.4		
ffa	4	2.1	1.9	2.2	2.3	3.4	2.1	2.1	4	1.0	1.3	1.7	1.2	1.1	1.2	1.2		
ca									1/5	4.8	4.9	4.5	4.4	4.2	5.0	4.6		
Ca	-21/-13	-20.7	-19.7	-21.0	-21.5	-19.7	-20.6	-21.0										
ffaF	3	0.3	0.2	0.0	0.5	0.0	0.6	2.2	3	0.0	0.9	1.9	1.2	1.0	0.8	1.0		
P/T-Ø [mm]		46.914						[46.6/46.95]		62.578						[62.5/62.7]		

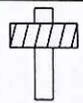


N:Z		15	10	6	1t	1c	1p	Ø Dente	1p	1c	1t	6	10	15		
fHβm	20±6	18.0	FV 3. Var β 14.8						±6	FV 5. Var β 7.8						4.9
fHβ	20±13	18.0	16.4	25.1	20.3	11.8	10.3	8.5	±13	-2.4	0.1	3.2	3.7	7.9	7.8	4.9
Fβ		4.4	2.7	4.7	2.1	6.2	7.9	9.4		4.1	2.6	3.6	4.0	6.7	6.9	5.1
ffβ	4	0.9	0.9	0.9	0.8	0.9	1.0	1.2	4	0.8	0.6	1.0	0.8	1.0	0.9	0.8
cβ	2/6	3.1	2.4	3.1	3.6	2.7	3.2	3.8	2/6	4.8	4.5	3.4	4.1	4.1	4.6	4.3

GCG 808006
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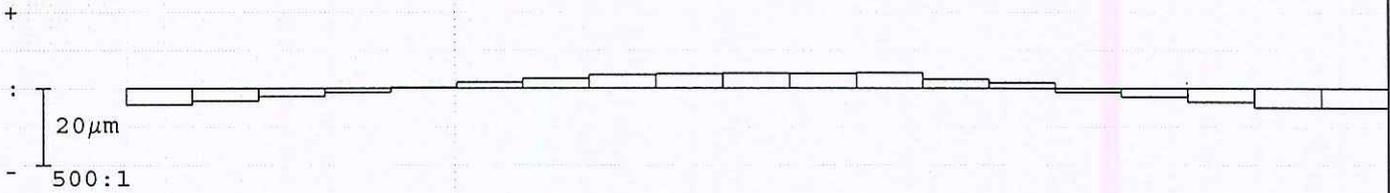
Ruota cilindrica Divisione



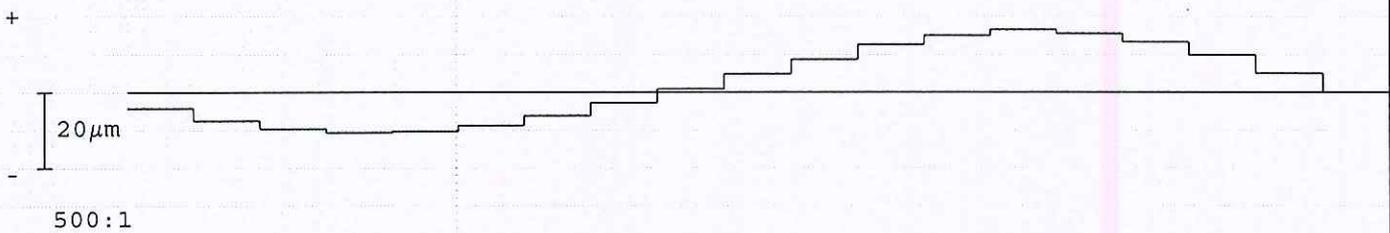
Nr. prog.: STI0416b04 0	P26 601265	Controllore: Turno c	Data: 21.04.2018 22:27
Denominazione: Output Shaft 1		Numero denti z 19	Angolo pressione 20°00'00"
Numero disegno.: D51.6.1239.35-IF		Modulo m 2.6mm	Angolo elica -23°21'00"
Comessa/serie nr.: 5		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formn	etzelg:	Charge:



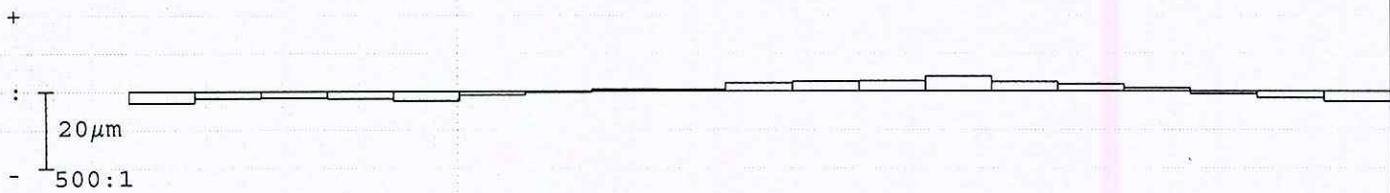
Errori singoli di divisione fp fianco sinistro



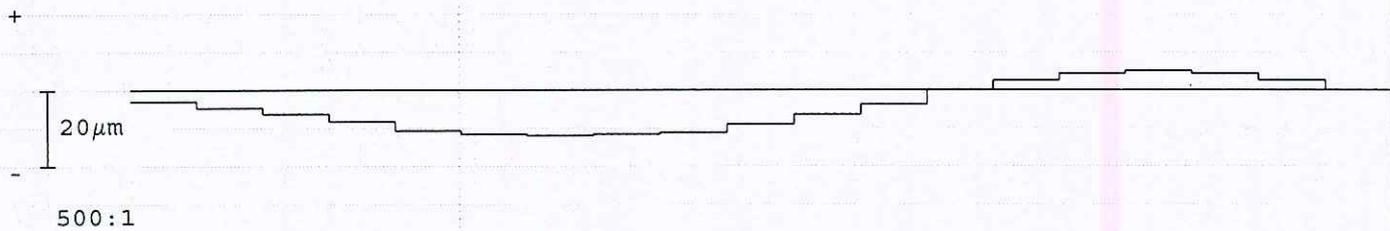
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



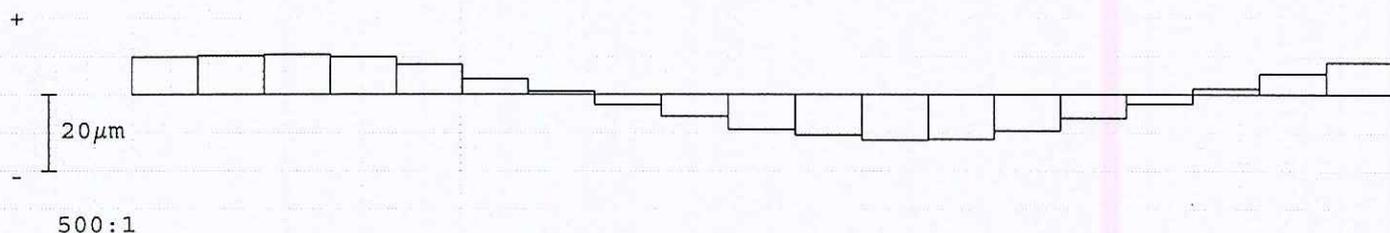
Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 53.959 z=21mm	fianco sinistro / TIRO				fianco destro			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	4.9		14.0		3.9		14.0	
Gr. salto di passo fu max	2.5		18.0		1.8		18.0	
Scarto di divisione Rp	8.9				6.9			
Err. globale di divisione Fp	27.2		50.0		17.2		50.0	
Err. cordale di divisione Fpz/8	9.8				6.5			

Centricità Fr (Ø-sfera =4.5mm)

⊙ : 22.8µm



Err. di concentricità Fr	22.5	40.0	
Variab. spessore dente Rs			

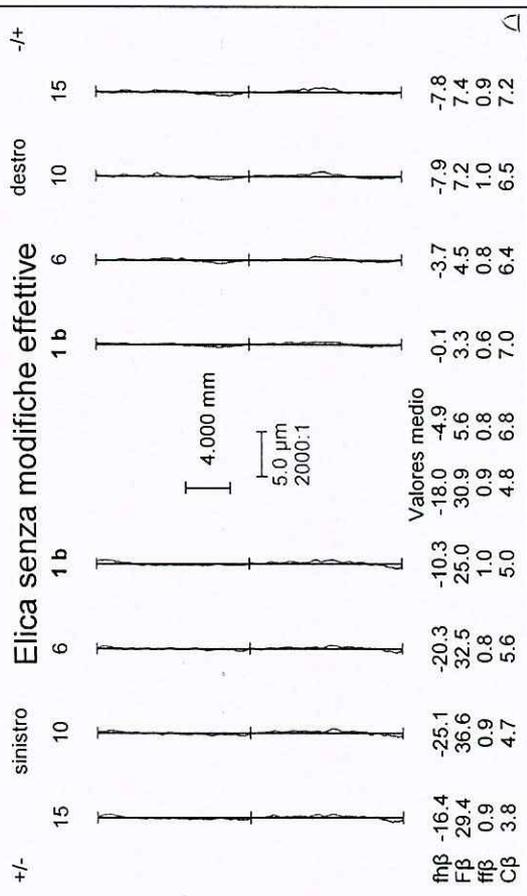
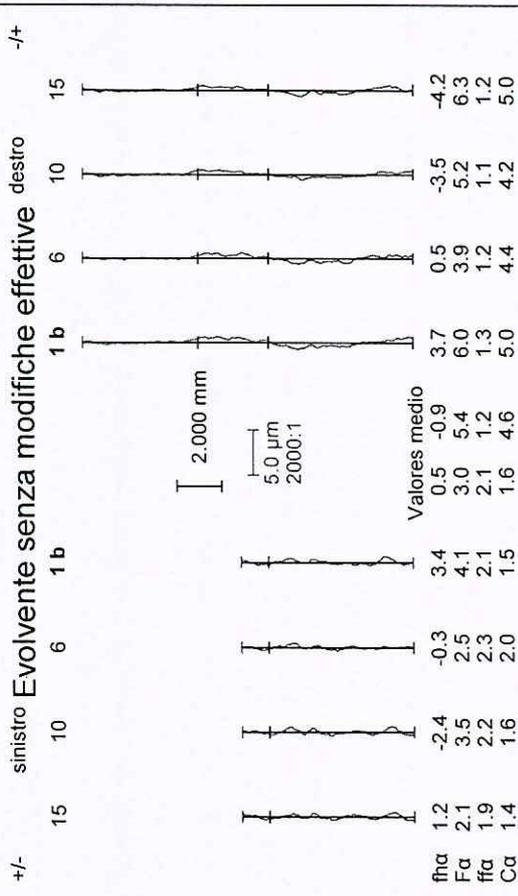
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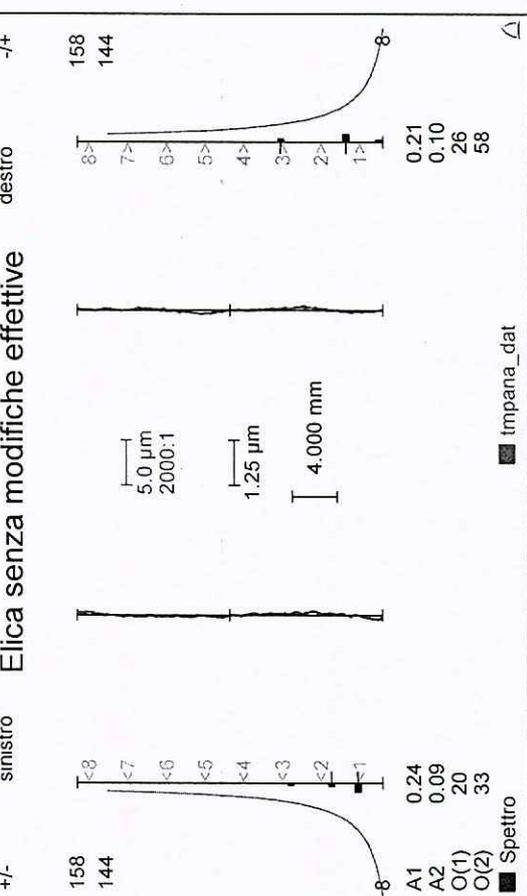
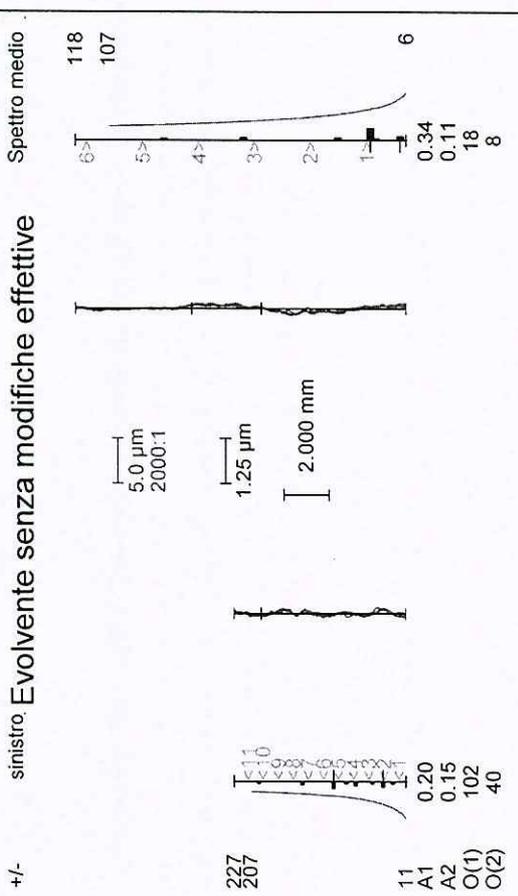




Numero di disegno: D51.6.1239.35-IFDenominazione: Output Shaft 1104.18
 Serie nr: 5
 Macchina: M001
 Scopo: Laufende Messung / 22:32
 Mandrino: Formnest 1
 Z= 19



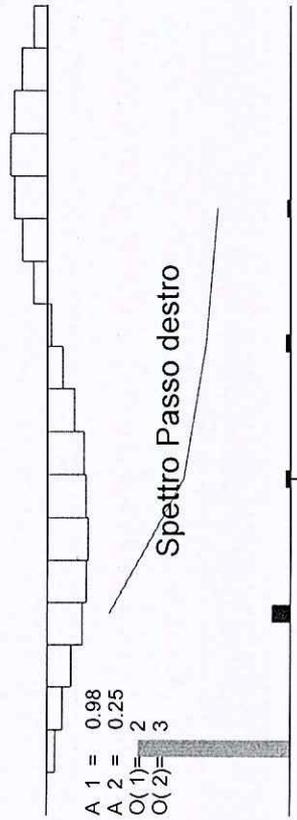
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 Serie nr: 5
 Macchina: M001
 Scopo: Laufende Messung / 22:32
 Mandrino: Formnest 1
 Z= 19



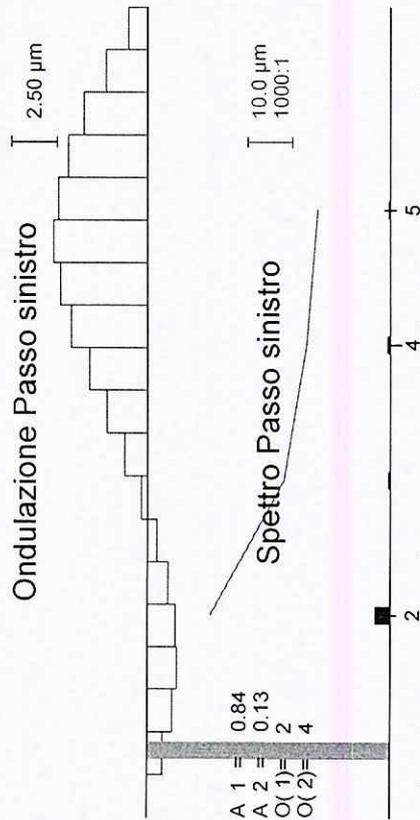
Numero di disegno: D51.6.1239.35-IFDenominazione: Output Shaft 1104.18
 Serie nr: 5
 Macchina: M001
 Scopo: Laufende Messung / 22:32
 Mandrino: Formnest 1
 z = 19



Ondulazione Passo destro



Ondulazione Passo sinistro



REPORT 18/072

Date: 09/05/2018
Author: V.BUONAROTA

Reason for analysis: PPAP
Motivo dell'indagine:

Requester: ME - M. Vicenti
Richiedente:

Part Name: OS1
Nome particolare:
Material: GCG_805000 Part 2
Materiale:
State of part: Finito
Stato del particolare:

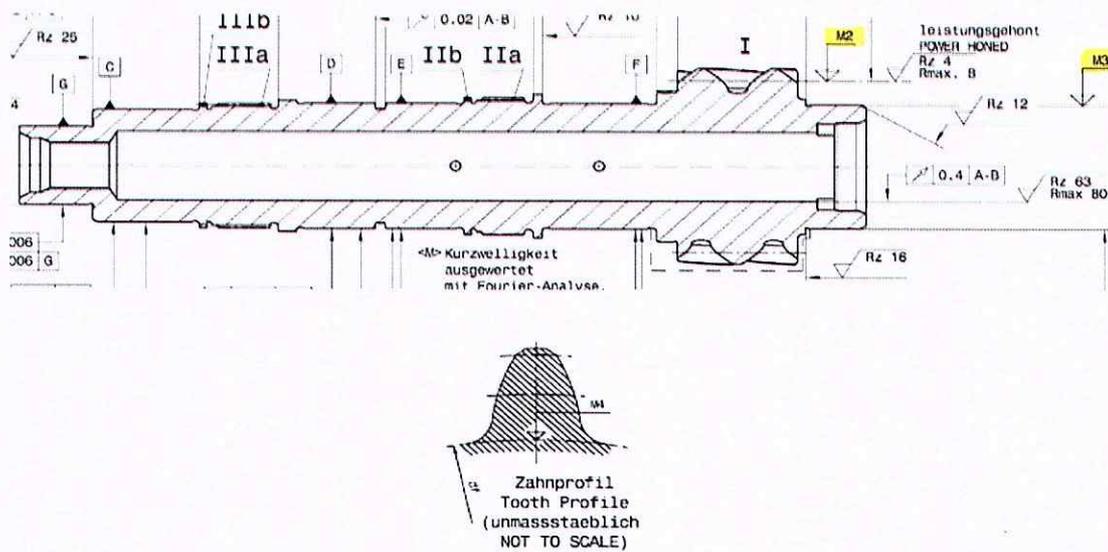
P/N: 251.6.1239.35
S/N: -
Customer: Renault
Cliente:

Result: OK
Risultato:

Distribution list: ME - M. Vicenti
Lista di distribuzione:

Notes: Gearset 32C
Note:

Drawing (disegno)



Picture 1: posizioni di misura a disegno.

Surface hardness verification (verifica durezza superficiale)

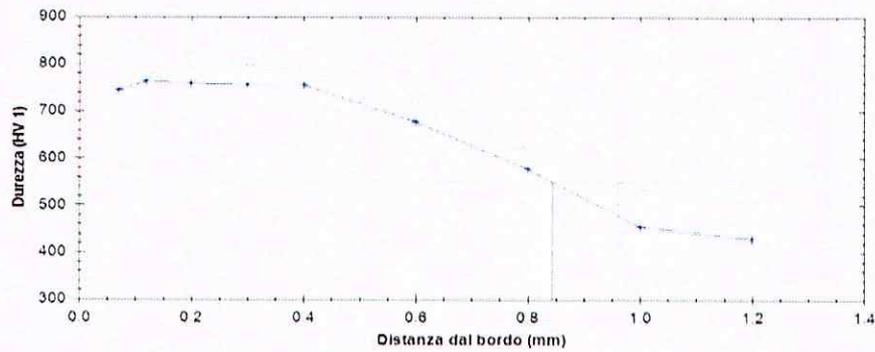
Component	Scale	Position	Measured Value	Range
SHAFT	HRC	M1	61.7	-
SHAFT	HRA	M1	82.0	80.5 + 2.5

REPORT 18/072

Date: 09/05/2018
Author: V.BUONAROTA

CHD and core hardness verification (verifica CHD e durezza a cuore)

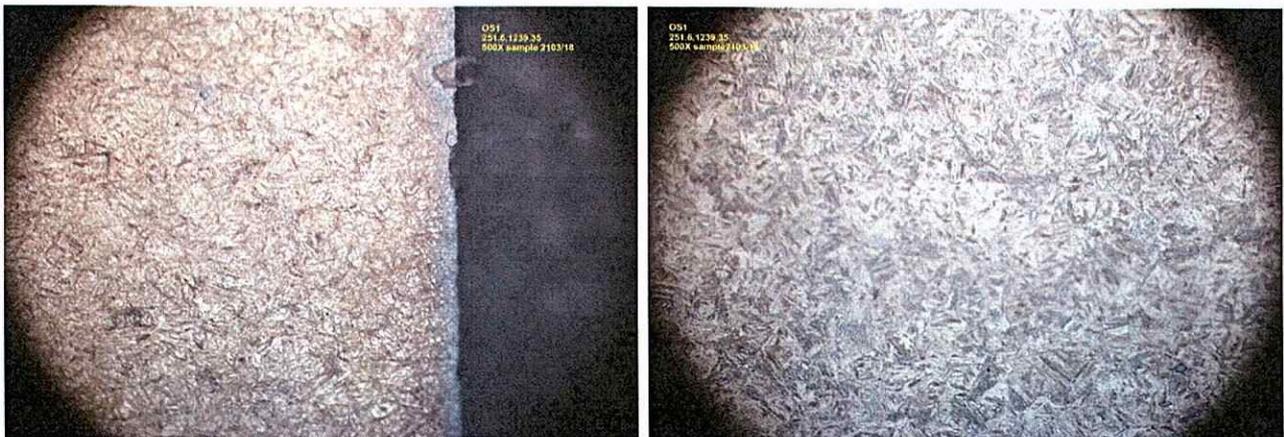
Scale	Sample #	Position	Measured Value	Range
CHD 550 HV1	2103/18	M2 (tooth flank)	0.96	0,7+0,5
CHD 550 HV1	2103/18	M3	0.84	>0,5
Core hardness HV10	2103/18	M4 (tooth core)	429	>300



Picture 2: profili di durezza

Microstructure analysis (analisi della microstruttura)

Sample #	2103/18
Gear - Tooth flank surface structure:	Martensite e austenite residua (5÷10%)
Gear - Tooth base core structure:	Martensite, bainite



Picture 3: Microstruttura sul fianco dente (a sinistra) ed a cuore sulla base dente (a destra).

**FORNITURE TECNICHE MERIDIONALI
F.T.M. SRL
ACCOUNT DEPARTMENT
VIA DI SAN GIULIANO 47
71121 FOGGIA
ITALY**

delivery address: Sophie-Henschel-Haus
Mönchebergstraße 3
D-34125 Kassel

phone: 0049-561/804-3657

telefax: 0049-561/804-3662

our reference
MPT-I011_rep

person in charge
Dr.-Ing. Django Baunack

phone: 0049561/804-
3657

date:
28-Jun-18

Order-No. 4500513243

Test Report

Object of examination:

One specimen of each part number has been examined. Residual stress measurements have been performed in according to the test standard of G_804010. Position A has measuring area of approximately 0.5 mm to 1.5 mm above the root form diameter d_{FF} in a zone of ± 3 mm from the centre of the tooth width (means in active profile of the tooth flank). Position B has a measuring area of approximately 0.5 mm to 1.5 mm below the root form diameter d_{FF} and in a zone of ± 3 mm from the gear centre means in tooth root area of the gear). The tilt of Ψ -angle occurs in the height of the tooth. The residual stress state is carried out in the distances to the surface shown in table 1.

No.	Part Name	Part/Drawing No.	gear teeth	Measuring Pos.			Depth Profile
				A	B	MP	in μm
1	OS1 (Variante 32C)	2516123935	I		X		5 μm , 20 μm , 40 μm , 60 μm , 80 μm .
2	OS1 (Variante 32C)	2516123935	I			X	5 μm , 20 μm , 40 μm , 60 μm , 80 μm .
3	RG (Variante 32C)	2511124350	I		X		5 μm , 20 μm , 40 μm , 60 μm , 80 μm .
4	RG (Variante 32C)	2511124350	I			X	5 μm , 20 μm , 40 μm , 60 μm , 80 μm .
5	IS2 (Variante 32C)	2516123335	I		X		5 μm , 20 μm , 40 μm , 60 μm , 80 μm .
6	IS2 (Variante 32C)	2516123335	II		X		5 μm , 20 μm , 40 μm , 60 μm , 80 μm .

Table I: Part list of samples

The residual stress measurements were carried out on a stationary X-ray diffractometer (Manufacturer: Siemens; Type F2). The following list contains the most important measuring parameters.

Measurement details:

<u>Diffractometer:</u>	F1
Radiation:	Cr $k\alpha$
Crystal lattice:	{211}
Crystal orientation (ψ -angle):	0°; ± 18°; ± 27°; ± 33°; ± 39°; ± 45°
Diffraction angle range (2θ):	148° - 164°
Step-feeding:	0.1°
Primary aperture:	Ø1.0 mm for measuring point A, F and MP 0.5 x 4.0 mm ² for measuring point B
Detector aperture:	symmetrizing slit

Evaluation parameter:

Determination of peak position:	gravitational line method
Calculation of residual stresses:	sin ² Ψ -method
Diffraction angle of stress free crystal lattice:	$\Theta_0 = 78.035^\circ$
X-ray elastic constant:	$\frac{1}{2}S_2 = 6.09 \cdot 10^{-6} \text{ mm}^2/\text{N}$

Results:

The residual stress values in the tables are rounded by 5 MPa. Standard deviation assigned to the residual stress values is a measure of the reliability of the measurement procedure. The integral width of the interference lines indicates hardening or softening effects, respectively.

Distance from the surface in mm	Residual stresses σ^{ES} in MPa	Integral width IW in degree
0,004	-845 ± 45	5,98
0,019	-1075 ± 55	5,88
0,041	1140 ± 55	5,90
0,059	-1235 ± 60	5,90
0,079	-1210 ± 60	6,04

Table 1: Residual stresses and integral width; **Pos. 1**

Distance from the surface in mm	Residual stresses σ^{ES} in MPa	Integral width IW in degree
0,006	-915 \pm 45	5,89
0,022	-1200 \pm 60	5,62
0,042	-1165 \pm 60	5,62
0,061	-1090 \pm 55	5,89
0,081	-915 \pm 50	5,53

Table 2: Residual stresses and integral width; **Pos. 2**

Distance from the surface in mm	Residual stresses σ^{ES} in MPa	Integral width IW in degree
0,004	-730 \pm 40	5,70
0,022	-1045 \pm 55	5,58
0,038	-1200 \pm 60	5,71
0,060	-1250 \pm 65	5,63
0,079	-1125 \pm 55	5,69

Table 3: Residual stresses and integral width; **Pos. 3**

Distance from the surface in mm	Residual stresses σ^{ES} in MPa	Integral width IW in degree
0,004	-970 \pm 45	5,67
0,019	-1170 \pm 55	5,61
0,039	-1140 \pm 60	5,63
0,059	-905 \pm 45	5,93
0,082	-505 \pm 25	6,11

Table 4: Residual stresses and integral width; **Pos. 4**

Distance from the surface in mm	Residual stresses σ^{ES} in MPa	Integral width IW in degree
0,004	-545 ± 30	6,12
0,021	-1315 ± 65	5,85
0,039	-1425 ± 70	5,70
0,060	-1370 ± 60	5,81
0,080	-1320 ± 65	5,85

Table 5: Residual stresses and integral width; **Pos. 5**

Distance from the surface in mm	Residual stresses σ^{ES} in MPa	Integral width IW in degree
0,006	-640 ± 40	5,81
0,020	-1095 ± 55	5,67
0,040	-1380 ± 70	5,68
0,060	-1320 ± 10	5,89
0,079	-1020 ± 55	6,10

Table 6: Residual stresses and integral width; **Pos. 6**

As agreed with the customer the residual values are marked with (*), if the shear stress indicator is higher than 80 MPa.

Yours sincerely

Django Baunack

Django Baunack
Person in charge



Zentrum für
Randschichtanalytik
und -Technik

Annotations:

ZerTech is accredited to *DIN EN ISO/IEC 17025* referring to procedures of residual stress analysis by X-ray diffraction (XRD) as well as the Hole Drilling Method (HDM). The X-ray diffraction method is described in *DIN EN 15305 Non-destructive testing - Test Method for Residual Stress Analysis by X-ray Diffraction*. The proceedings of the Hole Drilling Method are ruled in *ASTM-Designation E837-13a Standard Test Method for Determining Residual Stress by the Hole-drilling Strain Gage Method*.

The experimental data are only valid for the investigated specimen. The work pieces and specimen of disposition will be stored for persistence of 6 month. After that time they will supply to material recycling, if there is no explicit desire by client. A send back is possible. Therefore the client has to take over the postage costs. This procedure is necessary because of our limited stock keeping capacity.

Analisi di similitudine Ppk

Formular Nr:
Datum:
Status: Entwurf
Formular Eigner / Fachbereich:
Prozess-/VA-verweis:

Processo da confrontare: **HNW11006**
Analisi preliminare da confrontare Nr.: **08/03/2017**

Data: **18/05/2018**
Owner: **G.Sette**
Abt.: **WLQ1**

Codice Pezzo di riferimento: **251.6.1076.35**

Partnumber in esame: **251.6.1239.35**

Esito Correlazione: **Il processo è paragonabile
capacità di processo confermata**

	Si	No	
Il grezzo è uguale?	X		Stesso grezzo
Stesso processo di TT?	X		Stesso processo di trattamento termico
Stesso clamping system?	X		Stesso sistema di serraggio
Gli uomini sono gli stessi?	X		Stessi uomini
Il metodo è uguale?	X		Stesso metodo applicato
MSA eseguita e ok?	X		MSA eseguita e ok
Condizioni ambientali ok?	X		Condizioni ambientali adeguate

Deviazione Std. Ammessa: ± 25 %

Componente di riferimento					Componente in esame						
DIMENSIONI					DIMENSIONI						
Caratteristiche	Unità	Nominale		Deviazione ammessa in %	Nominale		Deviazione %	i.O./n.i.O.			
numero denti Z	---	17			19			i.O.			
diam.primitivo - Ø	mm	46.330			50.019			i.O.			
Altezza dentatura	mm	16.150			16.600			i.O.			
diam.testa - Ø (da)	mm	59.200			62.700			i.O.			

Studio delle specifiche					Studio delle specifiche						
Caratteristiche	Unità	Nominale	Tolleranza T ₁	P _p	P _{pk} (solo per caratteristiche unilaterali)	Nominale	Tolleranza T ₂	Target (1,00/1,33/1,67)	i.O./n.i.O.	Min. P _p	Min. P _{pk}
Mdk - Ø	mm	58.014	0.060	3.55		61.8975	0.061	1.67	i.O	3.61	
Fr (Eccentricità)	µm	0	32	2.21		0	40	1.67	i.O	2.76	
	µm								---		
	µm								---		
	µm								---		
	µm								---		
	µm								---		
...									---		

