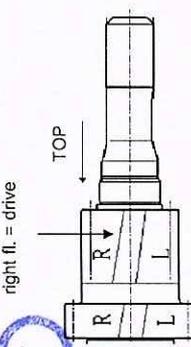


STIRNRAD GEAR		Toleranzen der Verzahnung (DIN 3961 vom Aug. 1978) gültig für Werte am Einzelzahn Tolerances of gearing (DIN 3961 of Aug. 1978) valid for values at individual tooth				(8)	
ausßenverzahnt external	z	linke Fl. left flank	rechte Fl. right flank	Eingriffsteilungs-Abweich. Normal pitch error	f_{p0}	0.014	
Zähnezahl Number of teeth	19		0.004	Teilungs-Einzelabweichung Adjacent pitch error	f_p	0.014	
Modul Normal module	2.300000			Teilungs-Summenabweichung Cumulative circ. pitch error	F_p	0.018	
Eingriffswinkel Normal pressure angle	20° 0' 0"			Rundlaufabweichung Radial run-out	F_r	0.032	
Schrägungswinkel Helix angle	24° 0' 0"			Zahndickenschwankung Range of tooth thckn. error	R_s	0.036	
Steigungsrichtung Hand of helix	RECHTS			Zweifl.-Wälzabweichung Radial composite error	F_r	0.036	
Profilverchiebungsfaktor Addendum modification coef.	0.606			Zweifl.-Wälzsprung Radial tooth to tooth comp. err.	f_r	0.014	
Teilkreisdurchmesser Pitch diameter	47.836			Meißkreis Krümmungsradius Radius of curvature meas. diam.	$R_{\alpha m}$	11.36	
Kopfkreisdurchmesser Outside diameter	55.60 -0.26						
Kopfnutzkreis. theo. max. d_{ha} Tip diam. useable theo.	55.15						
Kopfnutzkreis. theo. min. d_{ha} Tip diam. useable theo.	54.77						
Fußkreisdurchmesser Root diameter	43.15 -0.30						
Fußnutzkreisdurchmesser Root diameter usable	45.85						
Grundkreisradius Base circle radius	22.219						
Grundkreisdurchmesser Base diameter	44.438						
Normalzahnstärke Normal tooth thickness	4.627						
Normalzahnstärke min. s_n	4.597						
Normalzahnstärke max. s_n	4						
Meßzahnzahl Number of teeth spanned	4						
Zahnweite max. W_k	25.509						
Zahnweite min. W_k	25.481						
Meißkugeldurchmesser Ball diameter	4.0000						
Diam. Zweikugelmaß max. M_{ik}	55.442						
Diam. Zweikugelmaß min. M_{ik}	55.382						
Verdrehflankenspiel Circumferential backlash	0.064 0.174						



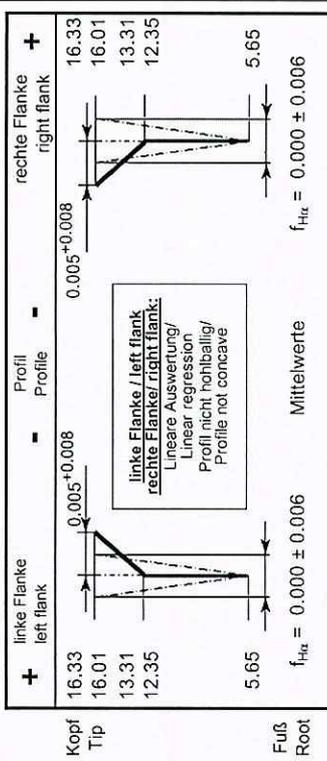
Hondurchmesser = 44.87 -0.30 \approx 3.11
honing diameter

#Waviness evaluation (fitted sine) in profile and helix direction until 4th gear order to be documented according to G_00_05_5_0012
Order referenced to the considered gear

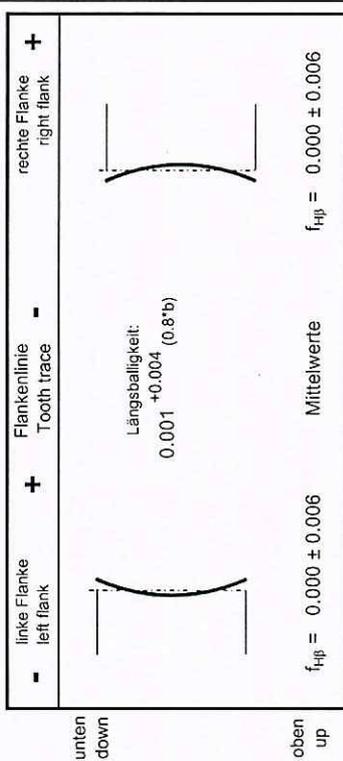
(a)

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

Wkz-Profil siehe Werkzeugdatenblatt Nr. 251.6.1233.35
For Tooth profile, see tool data sheet number



* Schreibbeginn $\varnothing = 44.87 -0.30 \approx 3.11$
* Start of checking



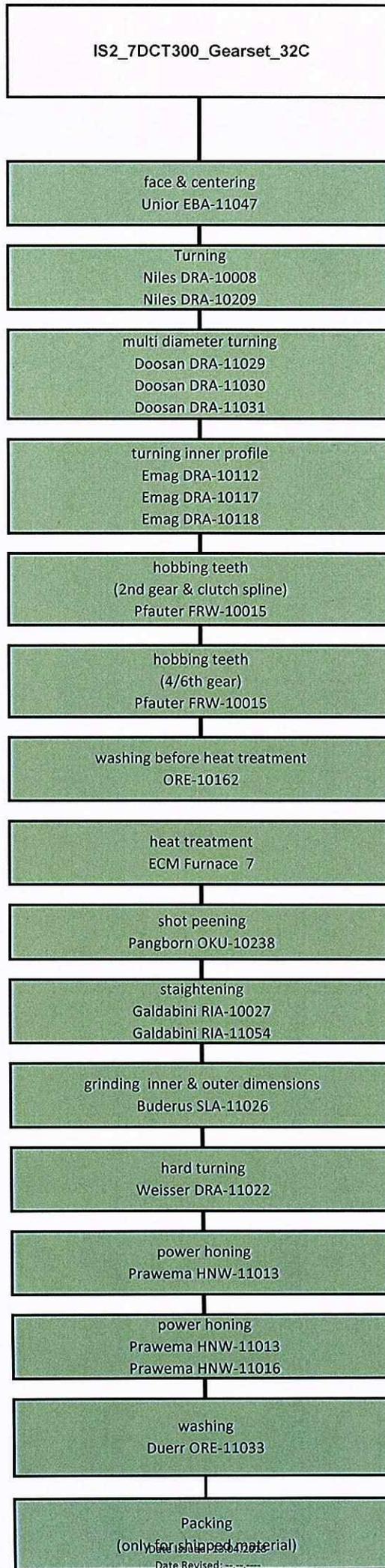
$f_{Hp} = 0.000 \pm 0.006$ Mittelwerte $f_{Hp} = 0.000 \pm 0.006$
 $f_{Hk} = 0.000 \pm 0.006$ Mittelwerte $f_{Hk} = 0.000 \pm 0.006$

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

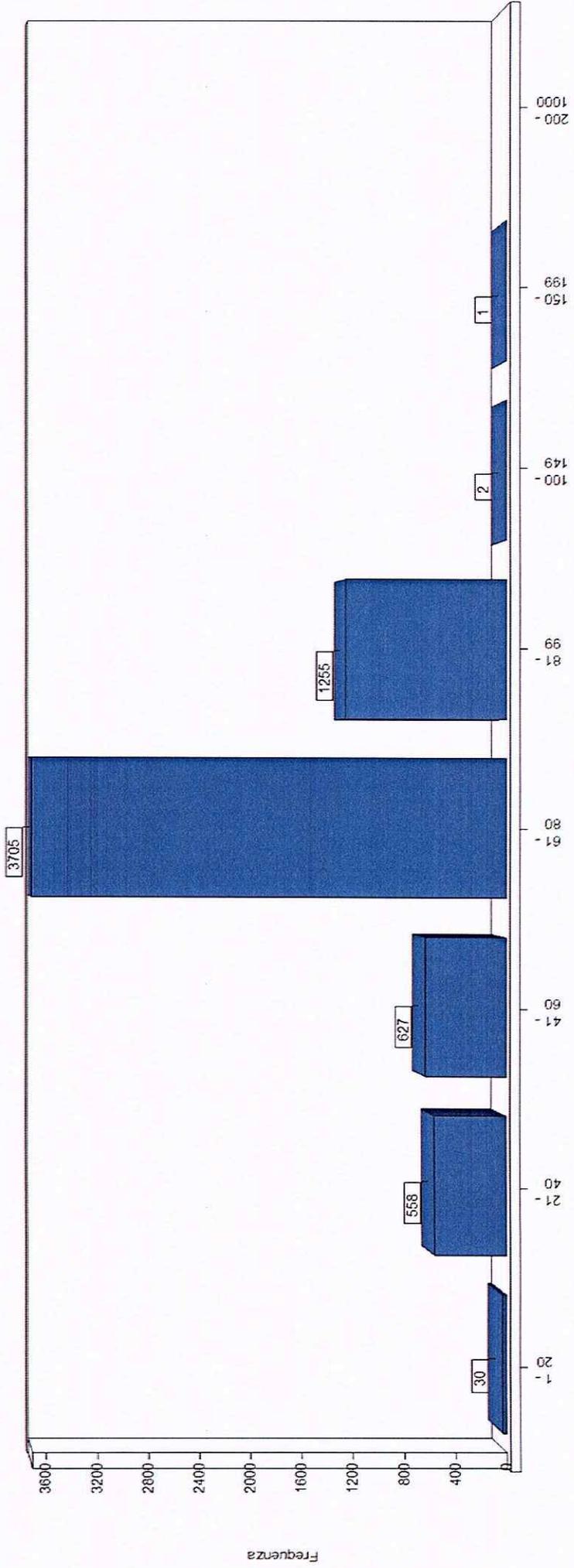
Profil- und Flankenliniennormung nach G_808006 und VDI/VDE 2612
Flankenliniennormung L β = 0.8*b hochgerechnet auf 1.0*b
Begriffe für Stirnräder nach DIN 888, 3960, 3998

Profile and helix checking according to G_808006 and VDI/VDE 2612
Tooth trace testing area L β = 0.8*b calculated to 1.0*b
Terms of the tooth system according to DIN (German Industrial Standards) No. 888, 3960, 3998

Verteiler:		Schutzvermerk nach ISO 16016 beachten Protection per ISO 16016	
Buch.	1	Änd.Nr.	2017108
anz.	1	Datum	2017108
Abbildungen sind unverändert. Diagrams not to scale.		Ersatz für Erstverwendung bei Getriebetypen:	
Datum	23.03.2017	Name	251/
gez.		Verzahnungsblatt Endkontrolle Final Check Gear Data	
gepr.		Benennung: Naming:	
Antrw.aussen 2.Gg.		251.6.1233.35	



		F M E A 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., Terlizzone, Landriscina, Guerra, Sinibaldi, Caponio, Vicenti, Picerno, Pierro, Cacciapaglia, Sisto. Ditta:	Emesso: Modificato: 13/01/2017 14/05/2018	



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

Actions ongoing for RPN > 100:

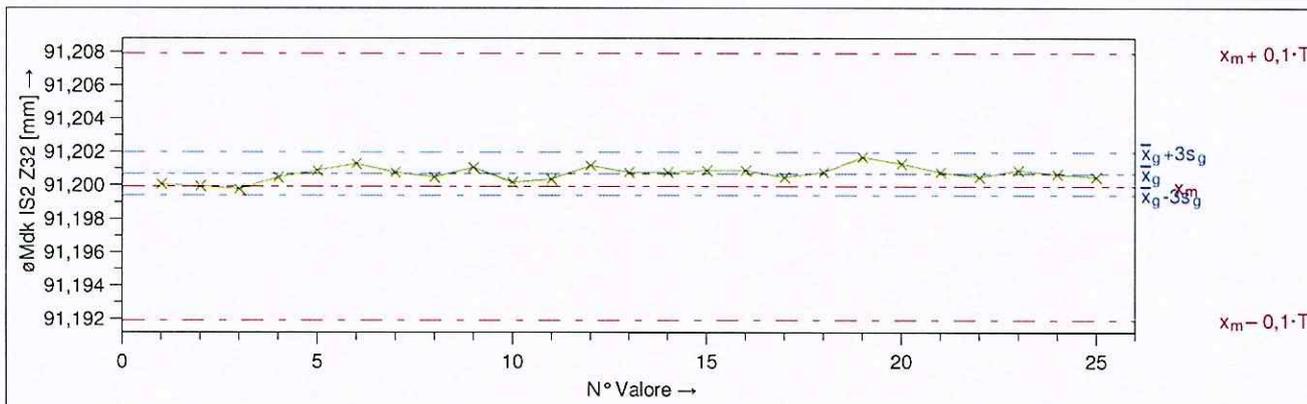
Chr. Classification	Project	Component	Operation	Chr. Description	Actual RPN			Action	Resp.	Due date	Min. RPN expected				
					S	O	D				S	O	D	RPN	
<M>	DCT300	SG1	Hard Turning	Clutch body Height	7	4	4	112	Final drawing tolerance review + Dogbody height review on EP	Pierro	31-May-18	7	2	5	(70)
<M>	DCT300	SGRv	Hard Turning	Clutch body Height	7	3	5	105	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	192	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)



Capacità strumenti di misura

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Data/ora	26/05/2018	Nome oper.	mario.bozza	Reparto/Area/Prod.	W L Q	Posto di prova	Levigatura IS2
Calibro		Master			Caratteristica		
Desc. calibro	Calibro a forcella	Desc. mast.	Master IS2	Desc. Car.	øMdk IS2 Z32		
N° calibro	MAR 402091 007	N° master	MVZ 400665 002	N° Caratt.	2516123335_32C		
Ris. calibro	0,0001	Valore reale mast.	91,2	Val. Nom.	91,1920	LSS	91,2320 $\hat{=} 0,0400$
Caus. Pr.	Cg CgK	Unità di misura	mm	Unità di r	mm	LSI	91,1520 $\hat{=} -0,0400$
Nota							

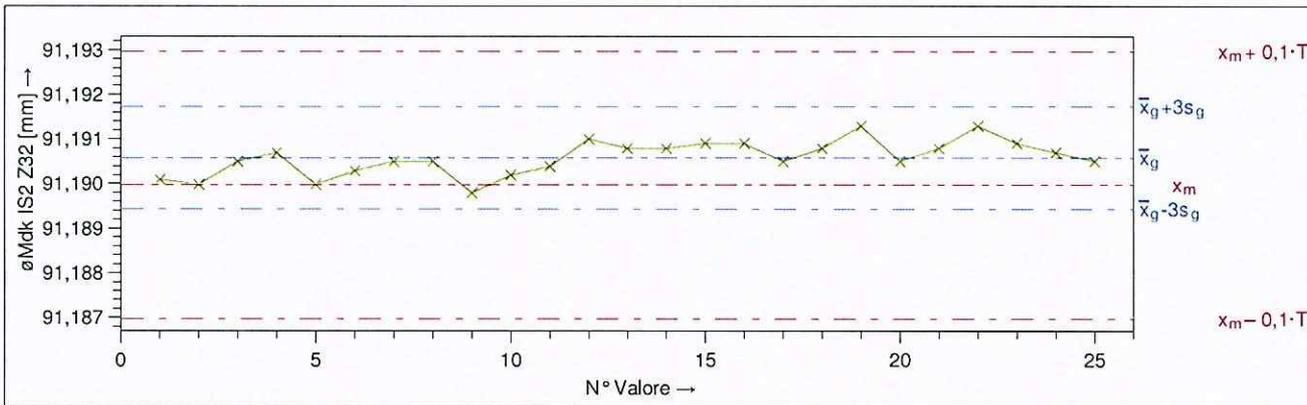


i	x _i	i	x _i	i	x _i	i	x _i	i	x _i
1	91,2001	6	91,2013	11	91,2004	16	91,2009	21	91,2008
2	91,2000	7	91,2008	12	91,2012	17	91,2005	22	91,2005
3	91,1998	8	91,2005	13	91,2008	18	91,2008	23	91,2009
4	91,2005	9	91,2011	14	91,2008	19	91,2017	24	91,2007
5	91,2009	10	91,2002	15	91,2009	20	91,2013	25	91,2005

Valori a disegno		Valori Calcolati		Statistiche	
$x_m + 0,1 \cdot T$	= 91,208000	x_{maxg}	= 91,2017	$\bar{x}_g + 3s_g$	= 91,202020
x_m	= 91,200000	x_{ming}	= 91,1998	\bar{x}_g	= 91,200716
$x_m - 0,1 \cdot T$	= 91,192000	R_g	= 0,0019	$\bar{x}_g - 3s_g$	= 91,199412
$0,2 \cdot T$	= 0,016000	n_{tot}	= 25	$6s_g$	= 0,002608
T	= 0,0800			s_g	= 0,000435
Unità di misura	= mm			$ Bi $	= 0,00071600
				n_{eff}	= 25
Test per Bias				Risultati del test : significativo ($\alpha \leq 0,1\%$)	
Bias		=	0,89%		
Minimo riferimento per sistema di misura capace					
Risoluzione	%RE =	0,13%		$T_{min} (\%RE)$	= 0,00200
$C_g = \frac{0,2 \cdot T}{4 \cdot s_g}$	=	$6,62 \leq 9,20 \leq 11,79$		$T_{min} (C_g)$	= 0,0116
$C_{gk} = \frac{0,1 \cdot T - \bar{x}_g - x_m }{2 \cdot s_g}$	=	$6,01 \leq 8,38 \leq 10,75$		$T_{min} (C_{gk})$	= 0,0187
Sistema di misura capace (%RE,min,C _g ,C _{gk})					
<input type="checkbox"/> GETRAG MSA 2017: Capability of measuring system (Type-1 Study)					



Data/ora	26/05/2018	Nome oper.	mario.bozza	Reparto/Area/Prod.	WLQ	Posto di prova	Dentatura IS2
Calibro		Master			Caratteristica		
Desc. calibro	Calibro a forcilla	Desc. mast.	Master IS2		Desc. Car.	øMdk IS2 Z32	
N° calibro	MAR 402091 006	N° master	MVZ 400665 001		N° Caratt.	2516123335_32C	
Ris. calibro	0,0001	Valore reale mast.	91,19		Val. Nom.	91,5000	LSS 91,5150 $\hat{=} 0,0150$
Caus. Pr.	Cg CgK	Unità di misura	mm		Unità di rr mm	LSI	91,4850 $\hat{=} -0,0150$
Nota							



i	x _i	i	x _i	i	x _i	i	x _i	i	x _i
1	91,1901	6	91,1903	11	91,1904	16	91,1909	21	91,1908
2	91,1900	7	91,1905	12	91,1910	17	91,1905	22	91,1913
3	91,1905	8	91,1905	13	91,1908	18	91,1908	23	91,1909
4	91,1907	9	91,1898	14	91,1908	19	91,1913	24	91,1907
5	91,1900	10	91,1902	15	91,1909	20	91,1905	25	91,1905

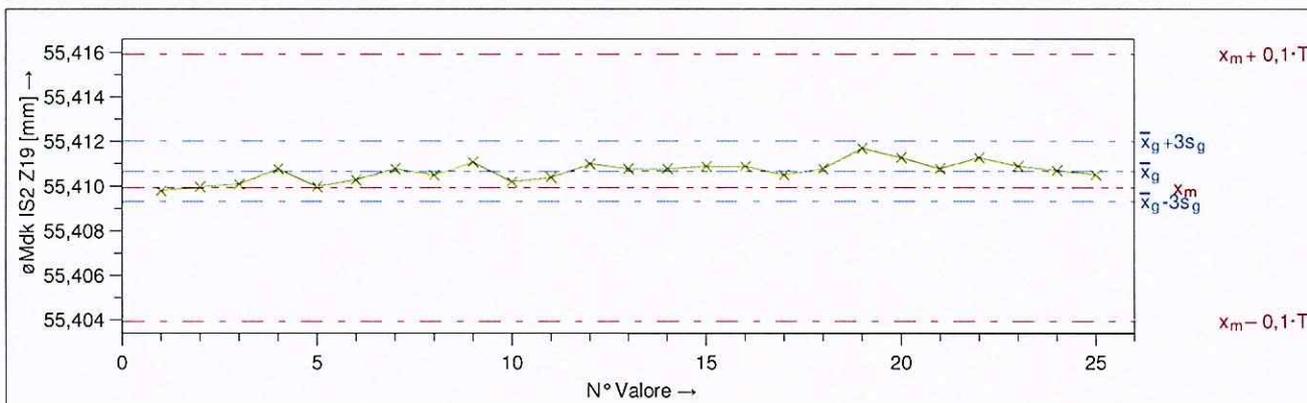
Valori a disegno		Valori Calcolati		Statistiche	
$x_m + 0,1 \cdot T$	= 91,193000	x_{maxg}	= 91,1913	$\bar{x}_g + 3s_g$	= 91,191741
x_m	= 91,190000	x_{ming}	= 91,1898	\bar{x}_g	= 91,190588
$x_m - 0,1 \cdot T$	= 91,187000	R_g	= 0,0015	$\bar{x}_g - 3s_g$	= 91,189435
$0,2 \cdot T$	= 0,006000	n_{tot}	= 25	$6s_g$	= 0,002306
T	= 0,0300			s_g	= 0,000384
Unità di misura	= mm			$ Bi $	= 0,00058800
				n_{eff}	= 25
Test per Bias				Risultati del test : significativo ($\alpha \leq 0,1\%$)	
Bias		=	1,96%		
Minimo riferimento per sistema di misura capace					
Risoluzione	%RE =	0,33%		$T_{min} (\%RE)$	= 0,00200
$C_g = \frac{0,2 \cdot T}{4 \cdot s_g}$	=	$2,80 \leq 3,90 \leq 5,00$		$T_{min} (C_g)$	= 0,0102
$C_{gk} = \frac{0,1 \cdot T - \bar{x}_g - x_m }{2 \cdot s_g}$	=	$2,24 \leq 3,14 \leq 4,03$		$T_{min} (C_{gk})$	= 0,0161
Sistema di misura capace (%RE,min,C _g ,C _{gk})					
<input type="checkbox"/> GETRAG MSA 2017: Capability of measuring system (Type-1 Study)					



Capacità strumenti di misura

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Data/ora	26/05/2018	Nome oper.	mario.bozza	Reparto/Area/Prod.	WLQ	Posto di prova	Levigatura IS2
Calibro		Master			Caratteristica		
Desc. calibro	Calibro a forcilla	Desc. mast.	IS2 Z19	Desc. Car.	øMdk IS2 Z19		
N° calibro	MAR 402090 048	N° master	MVZ 400664 002	N° Caratt.	2516123335_32C		
Ris. calibro	0,001	Valore reale mast.	55,41	Val. Nom.	55,4120	LSS	55,4420 $\hat{=} 0,0300$
Caus. Pr.	Cg CgK	Unità di misura	mm	Unità di r	mm	LSI	55,3820 $\hat{=} -0,0300$
Nota							



i	x _i	i	x _i	i	x _i	i	x _i	i	x _i
1	55,4098	6	55,4103	11	55,4104	16	55,4109	21	55,4108
2	55,4100	7	55,4108	12	55,4110	17	55,4105	22	55,4113
3	55,4101	8	55,4105	13	55,4108	18	55,4108	23	55,4109
4	55,4108	9	55,4111	14	55,4108	19	55,4117	24	55,4107
5	55,4100	10	55,4102	15	55,4109	20	55,4113	25	55,4105

Valori a disegno		Valori Calcolati		Statistiche	
$x_{m+0,1\cdot T}$	= 55,416000	x_{maxg}	= 55,4117	\bar{x}_g+3s_g	= 55,412032
x_m	= 55,410000	x_{ming}	= 55,4098	\bar{x}_g	= 55,410676
$x_{m-0,1\cdot T}$	= 55,404000	R_g	= 0,0019	\bar{x}_g-3s_g	= 55,409320
$0,2\cdot T$	= 0,012000	n_{tot}	= 25	$6s_g$	= 0,002713
T	= 0,0600			s_g	= 0,000452
Unità di misura	= mm			$ Bi $	= 0,00067600
				n_{eff}	= 25
Test per Bias				Risultati del test : significativo ($\alpha \leq 0,1\%$)	
Bias		=	1,13%		
Minimo riferimento per sistema di misura capace					
Risoluzione	%RE =	1,67%		$T_{min}(\%RE)$	= 0,0200
$C_g = \frac{0,2\cdot T}{4\cdot s_g}$	=	$4,77 \leq 6,64 \leq 8,50$		$T_{min}(C_g)$	= 0,0120
$C_{gk} = \frac{0,1\cdot T - \bar{x}_g - x_m }{2\cdot s_g}$	=	$4,22 \leq 5,89 \leq 7,56$		$T_{min}(C_{gk})$	= 0,0188
Sistema di misura capace (%RE,min,C _g ,C _{gk})					
<input type="checkbox"/> GETRAG MSA 2017: Capability of measuring system (Type-1 Study)					

Data _____

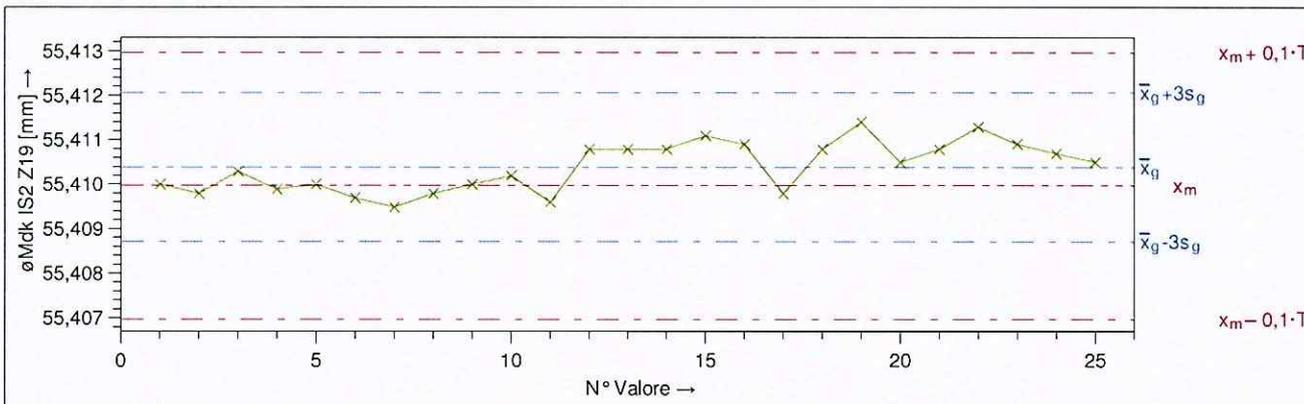
Firma _____

Dipartimento _____



Capacità strumenti di misura

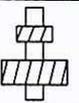
Data/ora	26/05/2018	Nome oper.	mario.bozza	Reparto/Area/Prod.	WLQ	Posto di prova	Dentatura IS2
Calibro		Master			Caratteristica		
Desc. calibro	Calibro a forcilla	Desc. mast.	Master IS2	Desc. Car.	øMdk IS2 Z19		
N° calibro	MAR 402090 045	N° master	MVZ 400664 001	N° Caratt.	2516123335_32C		
Ris. calibro	0,0001	Valore reale mast.	55,41	Val. Nom.	55,6200	LSS	55,6350 $\hat{\Delta} = 0,0150$
Caus. Pr.	Cg CgK	Unità di misura	mm	Unità di r	mm	LSI	55,6050 $\hat{\Delta} = -0,0150$
Nota							



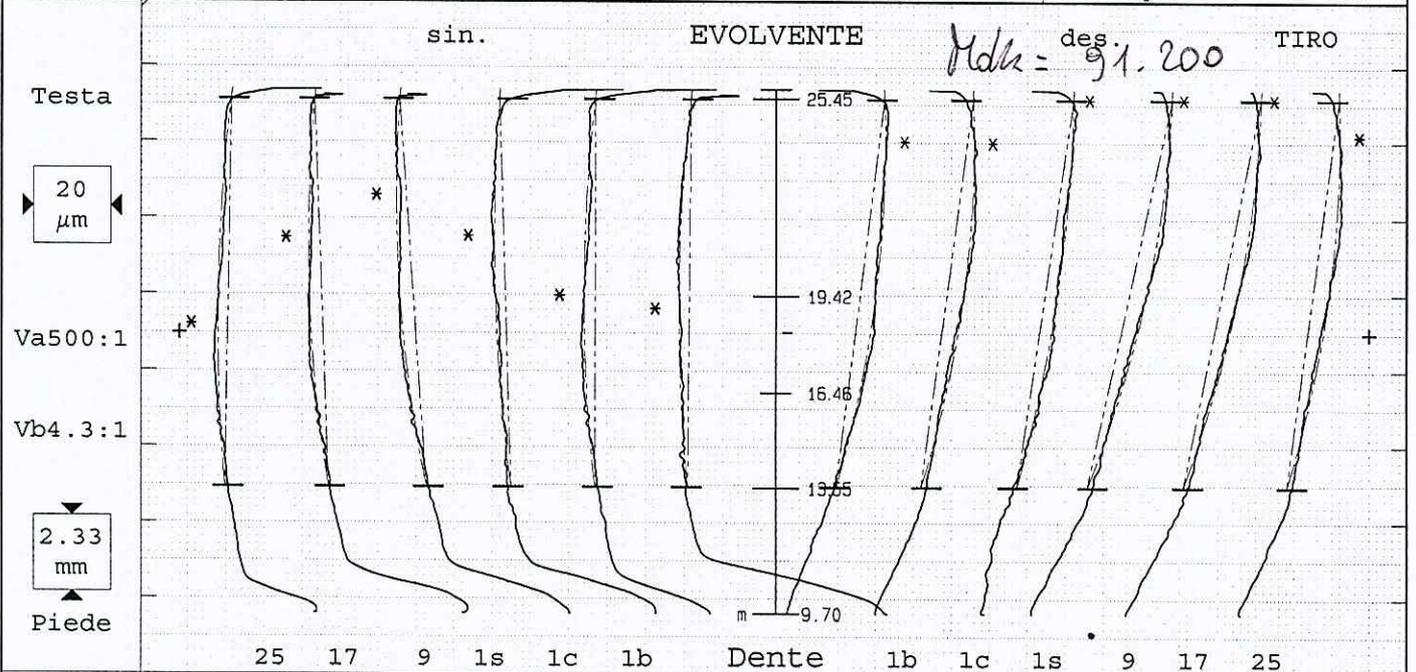
i	x _i	i	x _i	i	x _i	i	x _i	i	x _i
1	55,4100	6	55,4097	11	55,4096	16	55,4109	21	55,4108
2	55,4098	7	55,4095	12	55,4108	17	55,4098	22	55,4113
3	55,4103	8	55,4098	13	55,4108	18	55,4108	23	55,4109
4	55,4099	9	55,4100	14	55,4108	19	55,4114	24	55,4107
5	55,4100	10	55,4102	15	55,4111	20	55,4105	25	55,4105

Valori a disegno		Valori Calcolati		Statistiche	
$x_m + 0,1 \cdot T$	= 55,413000	x_{maxg}	= 55,4114	$\bar{x}_g + 3s_g$	= 55,412074
x_m	= 55,410000	x_{ming}	= 55,4095	\bar{x}_g	= 55,410396
$x_m - 0,1 \cdot T$	= 55,407000	R_g	= 0,0019	$\bar{x}_g - 3s_g$	= 55,408718
$0,2 \cdot T$	= 0,006000	n_{tot}	= 25	$6s_g$	= 0,003356
T	= 0,0300			s_g	= 0,000559
Unità di misura	= mm			$ Bi $	= 0,00039600
				n_{eff}	= 25
Test per Bias				Risultati del test : significativo ($\alpha \leq 1\%$)	
Bias		= 1,32%			
Minimo riferimento per sistema di misura capace					
Risoluzione	%RE = 0,33%			$T_{min} (\%RE)$	= 0,00200
$C_g = \frac{0,2 \cdot T}{4 \cdot s_g}$	= 1,93 ≤ 2,68 ≤ 3,43			$T_{min} (C_g)$	= 0,0149
$C_{gk} = \frac{0,1 \cdot T - \bar{x}_g - x_m }{2 \cdot s_g}$	= 1,66 ≤ 2,33 ≤ 3,00			$T_{min} (C_{gk})$	= 0,0188
Sistema di misura capace (%RE, min, C _g , C _{gk})					
<input type="checkbox"/> GETRAG MSA 2017: Capability of measuring system (Type-1 Study)					

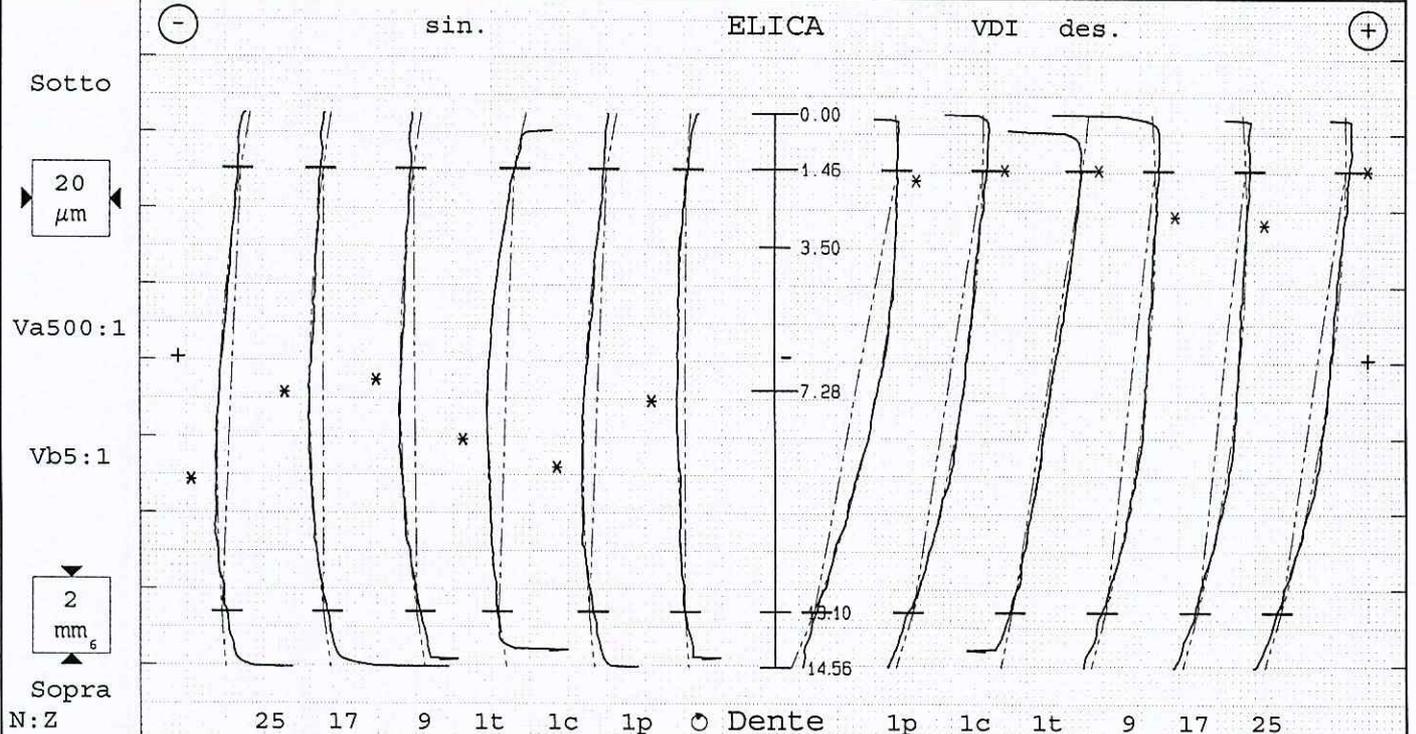
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 09:46
Denominazione: Input Outer Z32	Numero denti z 32	Largh.fasc.dent. b 14.56mm	
Numero disegno.: D51.6.1233.35-IF	Modulo m 2.35mm	Tratto evolv. La 11.9mm	
Comessa/serie nr.: pz n.1 - A	Angolo pressione 20°00'00"	Tratto elica Ls 11.65mm	
Masch.Nr.: M001	Spindel: Formantelic	Angolo elica 31°00'00"	Inizio elab. M1 13.55mm
Untersuchungszweck: Laufende Messung	Ø Base db 80.7524mm	Palpatore Ø (#2) 1mm	
Werkzeug: Charge:	Ang. Base 28°56'44"	Fat.scor.pr. x .4	



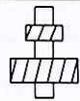
Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual
fH _{0m} ±6	2.3	Var a 8.7								21±6	Var a 8.4							17.6	
fH _a ±10	2.3	-1.6	3.6	7.1	3.1	-0.1	-0.8		21±10	12.7	13.8	14.9	22.2	20.5	13.8	17.6			
F _a	4.6	2.8	5.0	8.3	3.4	2.4	3.6			8.4	10.5	5.9	2.8	3.3	10.3	6.7			
ff _a	4	2.2	2.1	2.1	2.2	4.4	2.4	3.0		4	1.9	3.3	2.2	3.1	2.8	3.2	3.1		
C _a	3±2	3.0	2.6	3.2	3.5	2.6	2.8	2.7		5±2	4.0	4.4	3.2	4.4	4.2	4.2	4.3		
ff _{af}	3	0.0	0.0	0.0	0.0	1.1	0.0	0.7		3	0.0	1.8	1.8	1.7	1.5	1.6	1.7		
P/T-Ø [mm]	81.232	[81.08/81.4]								96.025	[95.94/96.2]								



Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual
fH _{βm} ±6	2.9	Bd 4.Var β 7.3								20±6	Bd -4.Var β 7.3							19.2	
fH _β ±13	2.9	6.4	0.2	-0.9	5.2	5.9	0.5		20±13	27.5	23.2	23.3	16.2	15.9	21.5	19.2			
F _β	4.8	5.6	3.9	4.5	6.3	5.3	2.0			8.1	5.9	3.3	4.6	4.9	5.2	5.2			
ff _β	4	1.9	2.3	1.9	1.7	0.9	1.8	1.1		4	1.3	2.4	1.2	2.1	2.0	2.2	2.2		
C _β	1/5	3.5	3.2	3.5	3.8	4.7	3.4	2.0		1/5	5.8	4.1	1.2	4.1	4.2	4.0	4.1		

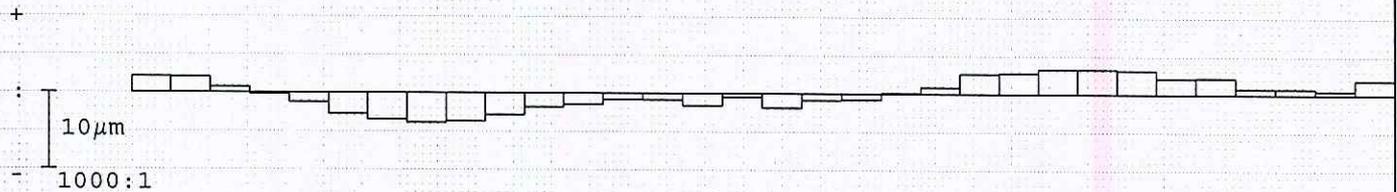


Ruota cilindrica Divisione

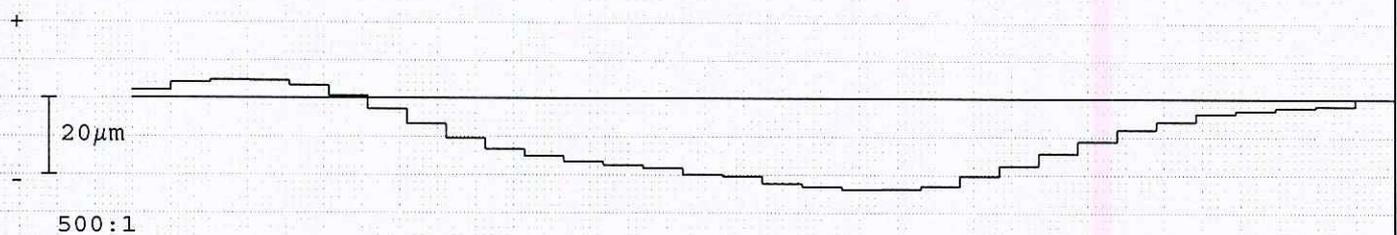


Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 09:46
Denominazione: Input Outer Z32		Numero denti z 32	Angolo pressione 20°00'00"
Numero disegno.: D51.6.1233.35-IF		Modulo m 2.35mm	Angolo elica 31°00'00"
Commessa/serie nr.: pz n.1		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Form	Erzlg:	Charge:

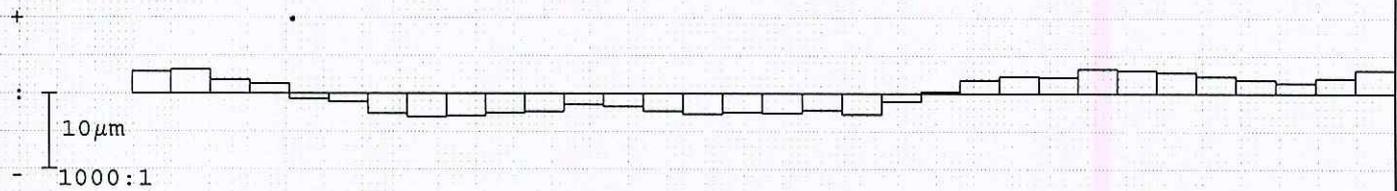
Errori singoli di divisione fp fianco sinistro



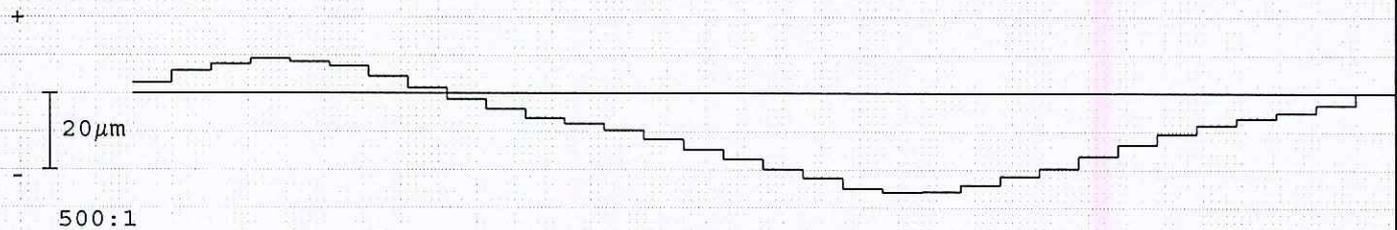
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



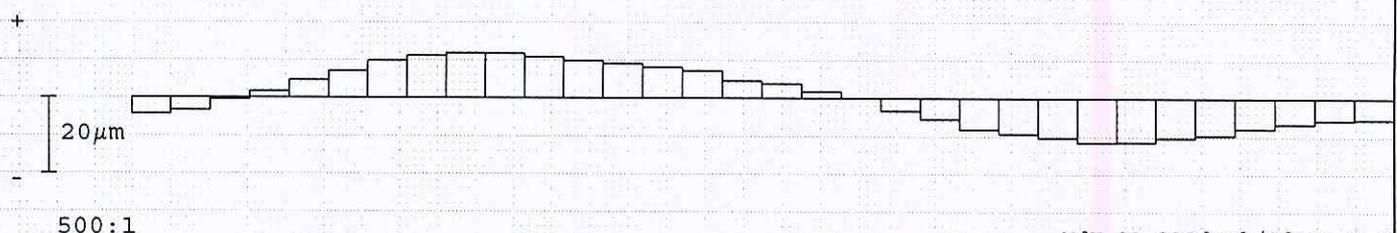
Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 87.208 z=3.5mm	fianco sinistro				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	3.9		14.0		3.2		14.0	
Gr. salto di passo fu max	1.7		18.0		2.0		18.0	
Scarto di divisione Rp	7.1				6.3			
Err. globale di divisione Fp	28.6		50.0		35.0		50.0	
Err. cordale di divisione Fpz/8	13.9				11.3			

Centricità Fr (Ø-sfera =3mm)

⊙ : 22µm



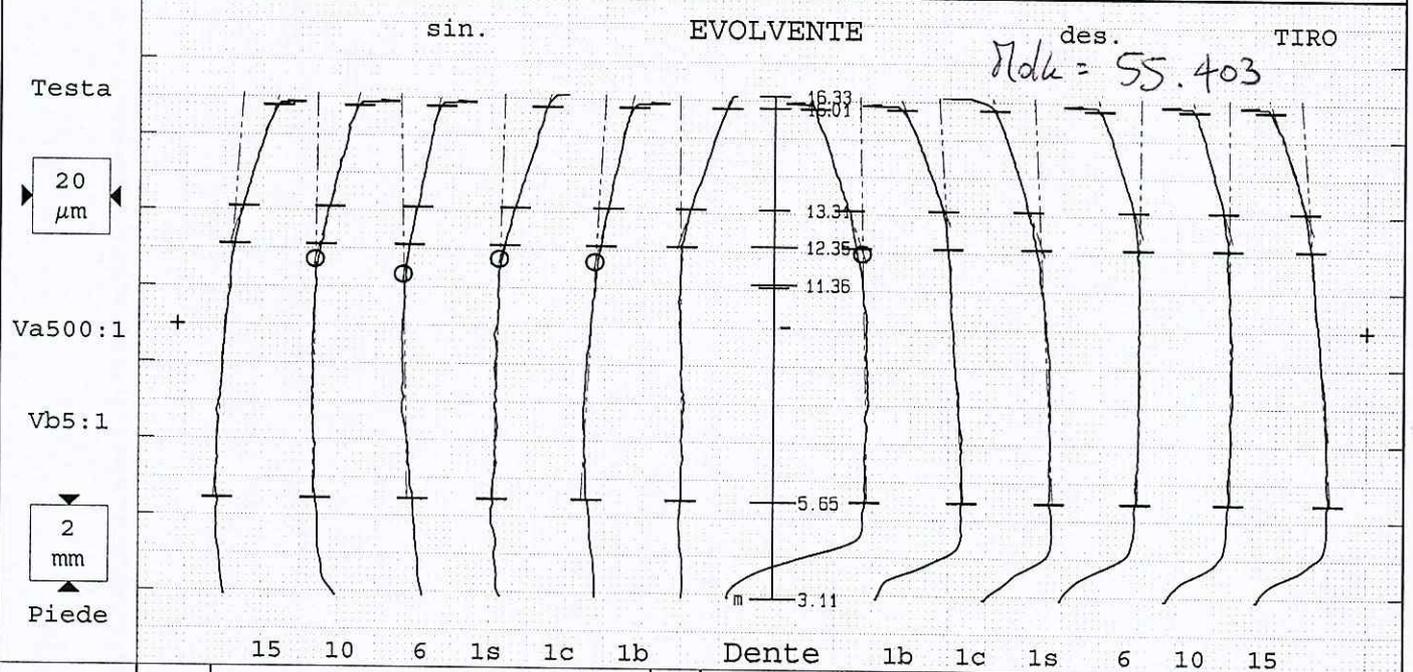
Err. di concentricità Fr	Val. amm	Mdk 91.232 [mm] / Sfere-Ø 3	
		91.232	91.152
Variaz. spessore dente Rs	91.199	91.2	91.197



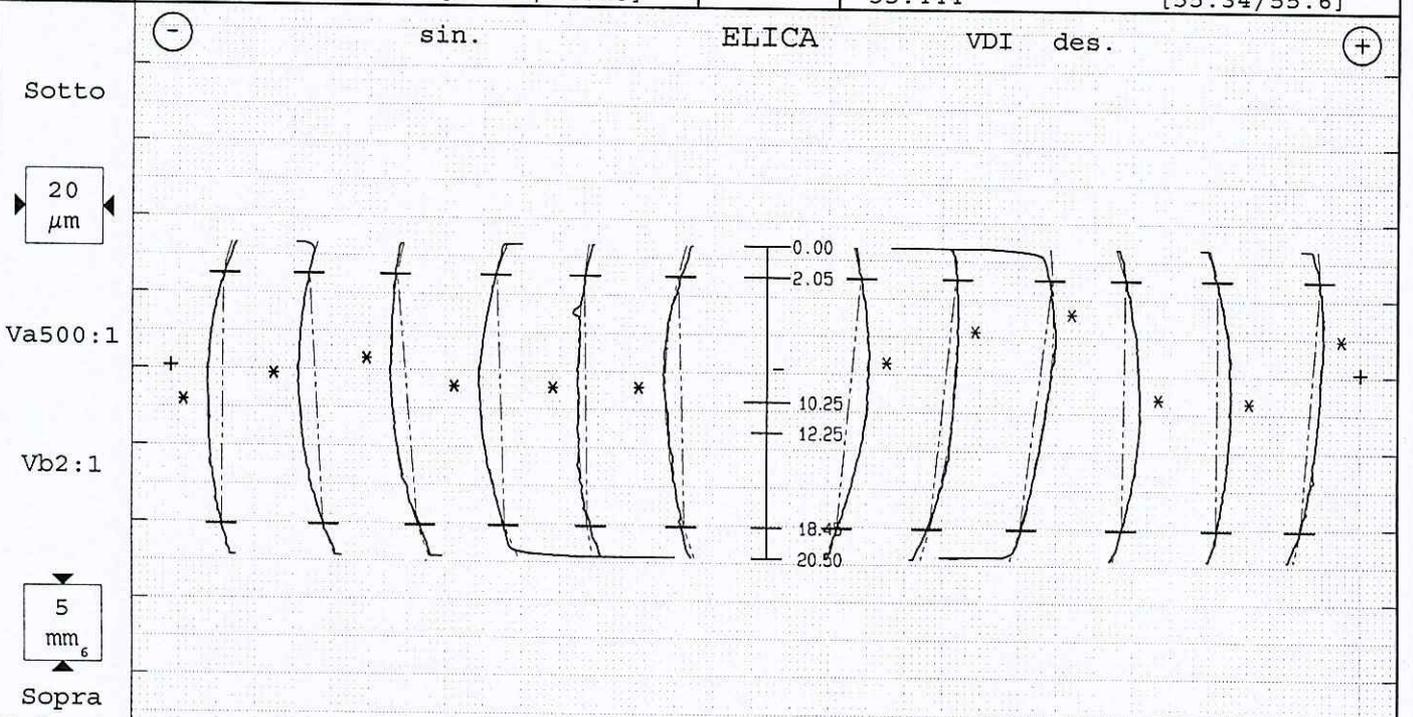
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 09:51
Denominazione: Input Outer Z19		Numero denti z 19	Largh. fasc. dent. b 20.5mm
Numero disegno.: D51.6.1233.35-IIF		Modulo m 2.3mm	Tratto evolv. La 6.7mm
Comessa/serie nr.: pz n.1 - ^		Angolo pressione 20°00'00"	Tratto elica L& 16.4mm
Masch.Nr.: M001	Spindel: Formmest. elica	Angolo elica 24°00'00"	Inizio elab. M1 5.65mm
Untersuchungszweck: Laufende Messung		Ø Base db 44.4385mm	Palpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base 22°28'14"	Fat. scor. pr. x .606



Tolerance	Medio	Val. misur [μ m]								Qual	Tolerance	Val. misur [μ m]								Medio	Qual
fH _{am}	± 6	Var a 9.2									± 6	Var a 8.3								-3.6	
fH _a	± 10	-3.1	-7.3	-1.0	1.9	-2.6	-5.8	1.0		± 10	-2.2	-6.6	-5.0	0.6	-0.7	-7.7	-3.6				
F _a		3.6	4.8	2.3	3.0	3.2	4.4	1.5			3.4	4.0	4.0	1.1	1.5	4.9	2.9				
ff _a	4	2.2	1.9	2.0	2.6	2.1	2.3	1.3		4	2.6	1.2	2.3	0.9	1.3	1.3	1.2				
Ca	-13/-5	-8.9	-8.7	-10.2	-9.9	-11.2	-6.8	-12.1		-13/-5	-12.0	-9.1	-10.2	-10.3	-8.8	-7.7	-9.0				
ff _{af}	3	0.0	0.0	0.0	0.0	0.5	0.0	0.9		3	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
P/T- ϕ [mm]		42.994 [42.85/43.15]										55.444 [55.34/55.6]									



Tolerance	Medio	Val. misur [μ m]								Qual	Tolerance	Val. misur [μ m]								Medio	Qual
fH _{Sm}	± 6	Bd -0. Var β 7.0									± 6	Bd 2. Var β 8.2								4.1	
fH _S	± 13	-3.1	0.2	-4.6	-6.8	-2.9	-1.2	-2.2		± 13	7.7	8.6	10.6	0.9	0.4	6.4	4.1				
F _S		5.7	3.7	7.9	7.1	5.7	4.2	3.9			7.7	8.0	8.3	4.0	2.7	5.7	5.1				
ff _S	4	1.5	1.0	0.8	1.3	0.8	2.8	2.0		4	0.7	1.5	1.5	0.7	0.7	1.4	1.1				
CR	1/5	3.7	3.9	4.6	4.2	5.5	2.2	4.2		1/5	4.7	3.0	3.0	4.2	3.6	2.4	3.3				

GCG 808006

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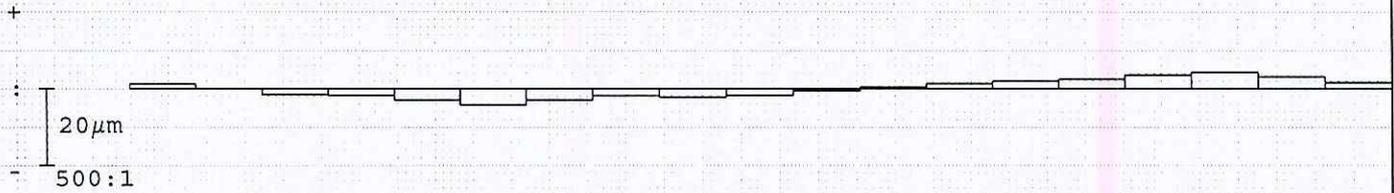


Ruota cilindrica Divisione

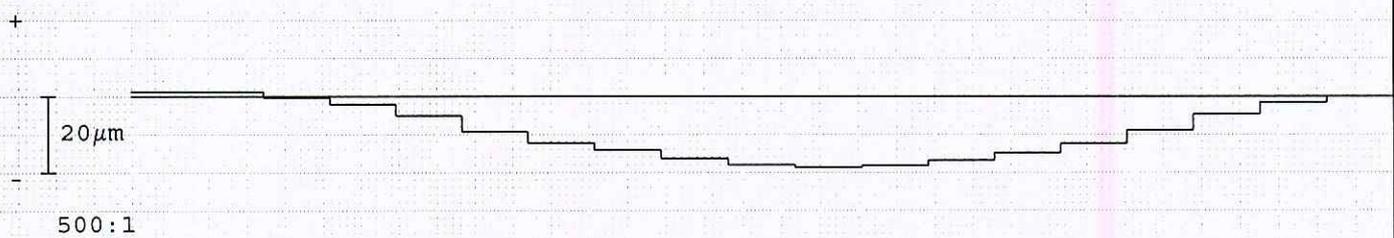


Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 09:51
Denominazione: Input Outer Z19		Numero denti z 19	Angolo pressione 20°00'00"
Numero disegno.: D51.6.1233.35-IIF		Modulo m 2.3mm	Angolo elica 24°00'00"
Commessa/serie nr.: pz n.1		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formelwerkzeug	Charge:	

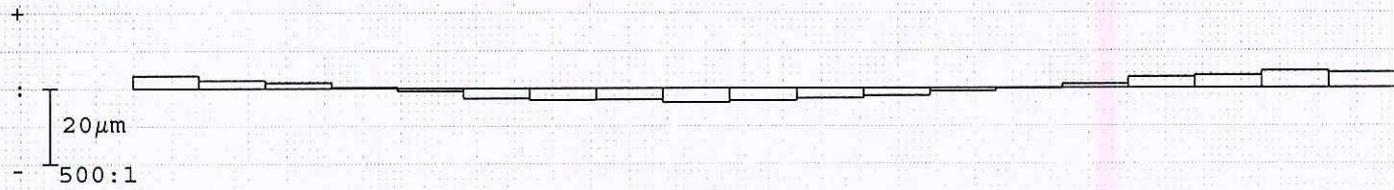
Errori singoli di divisione fp fianco sinistro



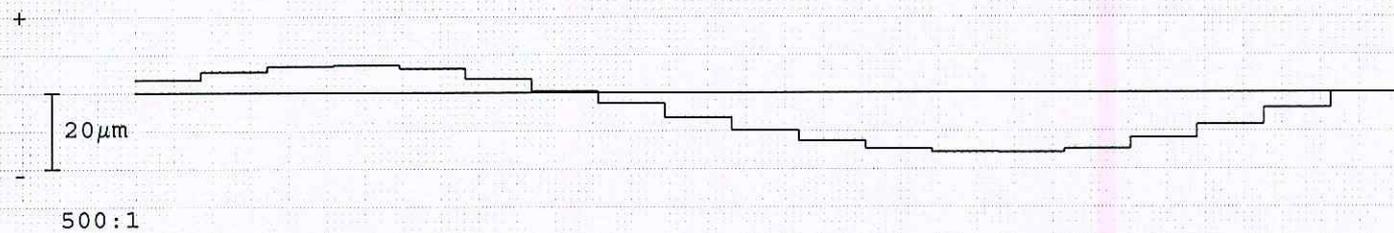
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

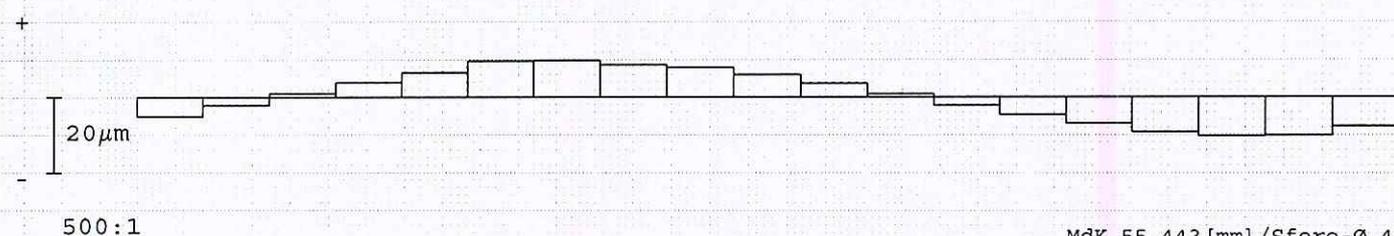


Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 49.841 z=12.3mm	fianco sinistro				fianco destro / TIRO			
	Val.misur	Qual.	Val. amm	Qual.	Val.misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	4.2		14.0		4.5		14.0	
Gr. salto di passo fu max	1.5		18.0		2.0		18.0	
Scarto di divisione Rp	8.4				8.4			
Err. globale di divisione Fp	19.9		40.0		22.9		40.0	
Err. cordale di divisione Fpz/8	7.7				8.5			

Centricità Fr (Ø-sfera =4mm) ☉ : 19.4µm



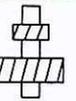
Err. di concentricità Fr	MdK 55.443 [mm] / Sfere-Ø 4	
	Val. amm	55.442 55.382
Variaz. spessore dente Rs	20.2	32.0
	Val. 55.417	55.418 55.415

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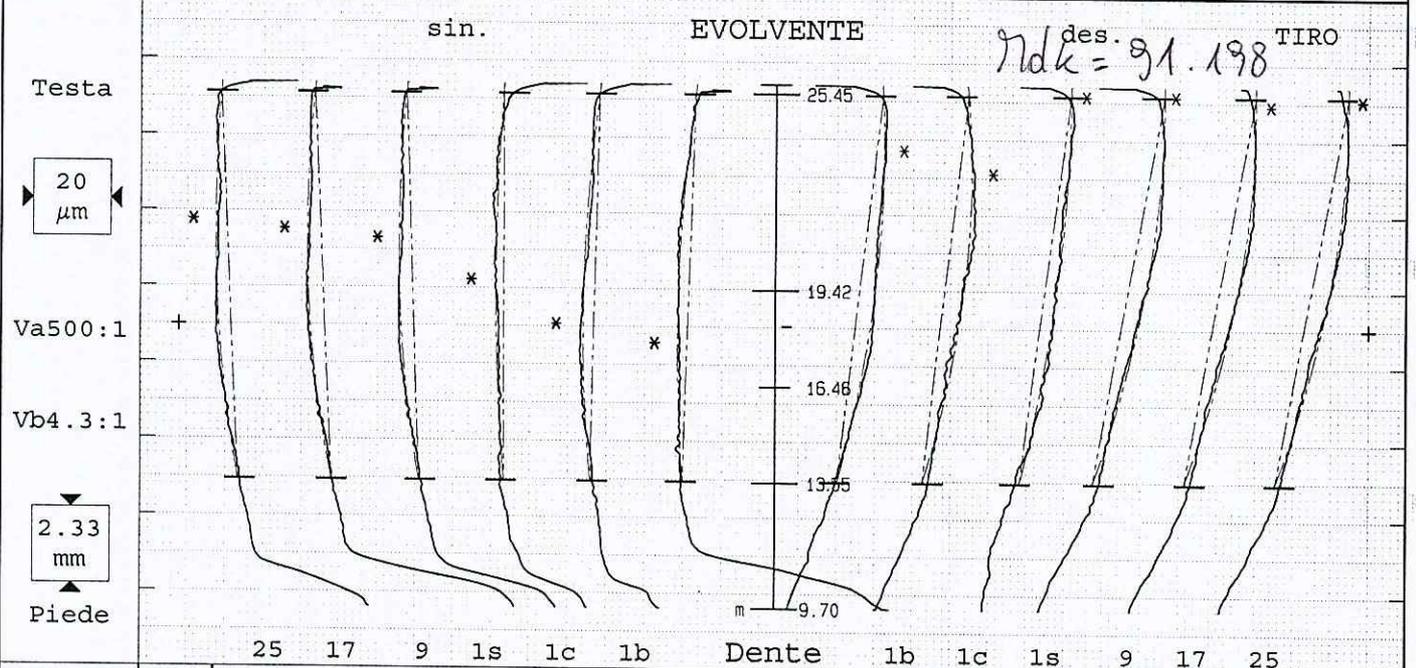
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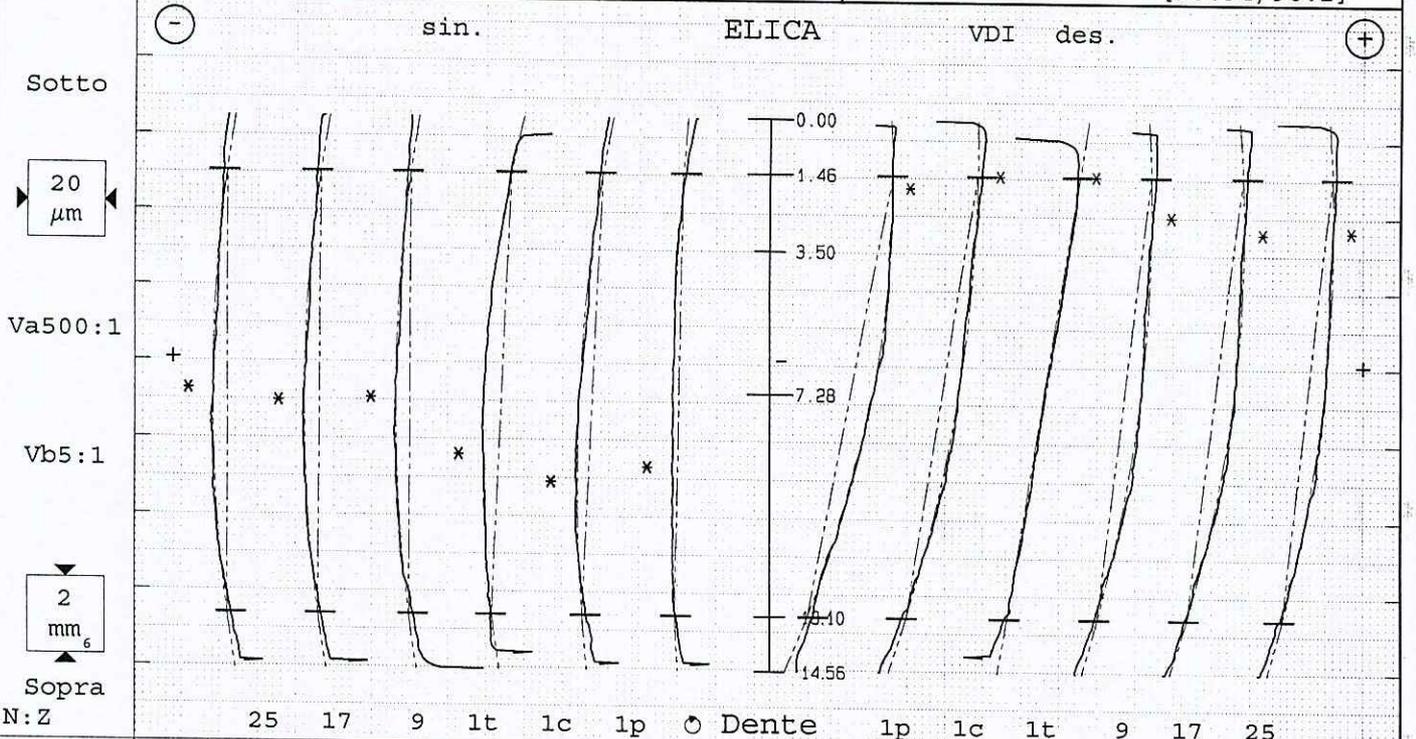
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 10:10
Denominazione: Input Outer Z32		Numero denti z 32	Largh.fasc.dent. b 14.56mm
Numero disegno: D51.6.1233.35-IF		Modulo m 2.35mm	Tratto evolv. La 11.9mm
Comessa/serie nr.: pz n.3 -2		Angolo pressione 20°00'00"	Tratto elica Lβ 11.65mm
Masch.Nr.: M001	Spindel: Formm	Angolo elicale 31°00'00"	Inizio elab. M1 13.55mm
Untersuchungszweck: Laufende Messung		Ø Base db 80.7524mm	Palpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base 28°56'44"	Fat.scor.pr. x .4



Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual
fHam ±6	2.6	Var a 6.8								21±6	Var a 7.2							17.2	
fHa ±10	2.6	4.5	4.6	3.5	0.3	-2.2	-3.1		21±10	11.9	12.1	13.3	18.6	18.6	19.3	17.2			
Fa	4.8	6.0	5.6	4.7	3.2	3.0	5.0			9.3	12.4	7.7	6.0	5.4	4.7	7.1			
ffa	4	1.9	2.2	1.7	1.8	3.8	1.9	2.2	4	2.1	3.5	2.6	3.7	3.0	3.1	3.3			
Ca	3±2	3.4	3.3	3.9	3.4	2.0	2.9	2.7	5±2	4.1	5.0	3.1	4.5	4.8	4.9	4.8			
ffaf	3	0.0	0.0	0.0	0.0	1.1	0.0	0.7	3	0.0	2.0	0.4	2.1	2.0	1.9	2.0			
P/T-Ø [mm]	81.214	[81.08/81.4]									96.025							[95.94/96.2]	



Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual
fHSm ±6	2.0	Bd 3.Var β 6.9								20±6	Bd -4.Var β 7.0							19.0	
fHS ±13	2.0	-0.2	0.9	0.6	6.3	6.7	2.7		20±13	27.9	23.5	23.9	17.6	18.3	16.5	19.0			
FR	4.5	4.4	3.8	4.1	6.5	5.7	3.1			8.1	6.3	3.8	4.2	4.7	4.8	5.0			
ffβ	4	1.9	1.9	1.8	2.0	0.9	1.7	1.1	4	2.0	2.4	1.2	2.3	1.9	1.8	2.1			
CB	1/5	3.7	3.7	3.9	3.7	4.5	3.3	1.6	1/5	6.0	4.3	0.6	4.3	5.0	4.4	4.5			

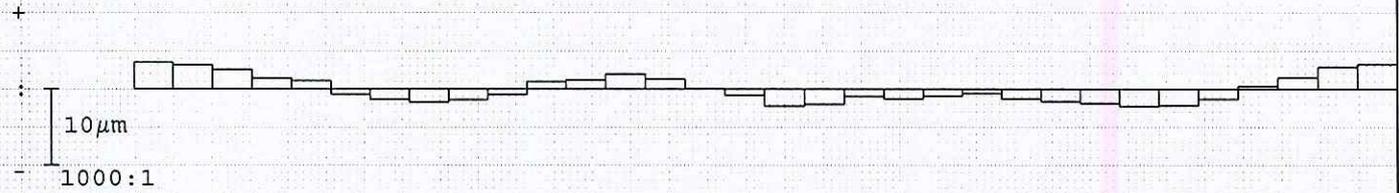


Ruota cilindrica Divisione

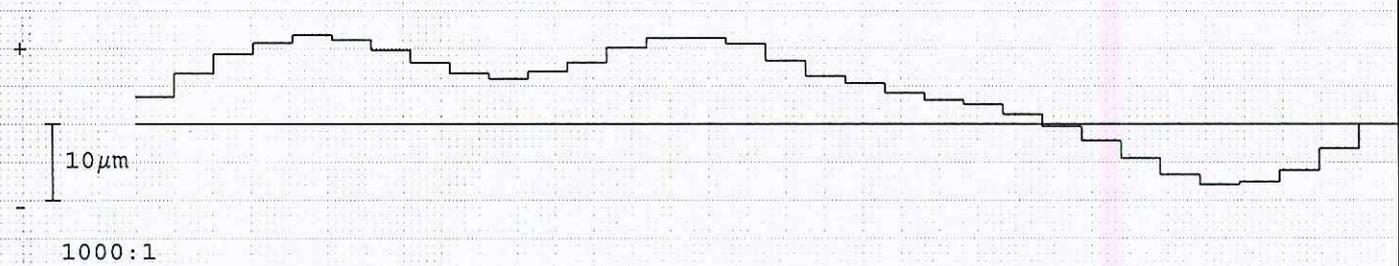


Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 10:10
Denominazione: Input Outer Z32		Numero denti z 32	Angolo pressione 20°00'00"
Numero disegno.: D51.6.1233.35-IF		Modulo m 2.35mm	Angolo elica 31°00'00"
Comessa/serie nr.: pz n.3		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formozahn	Werkzeug:	Charge:

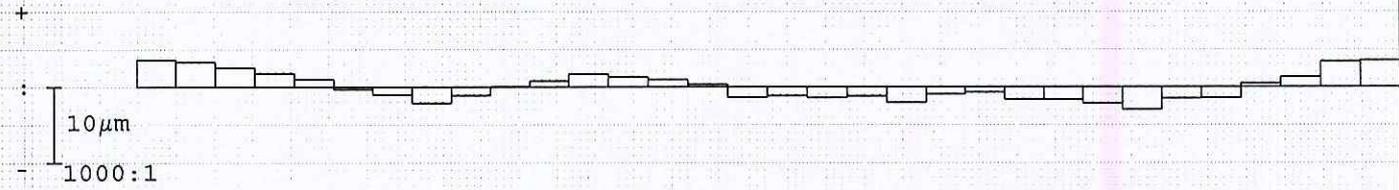
Errori singoli di divisione fp fianco sinistro



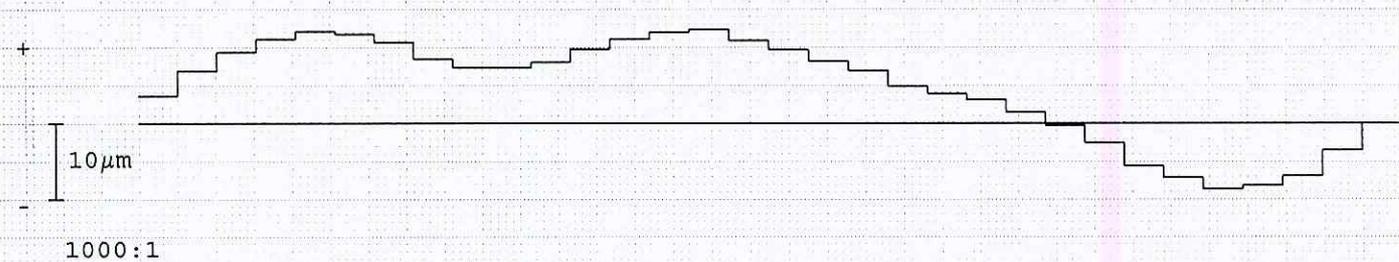
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

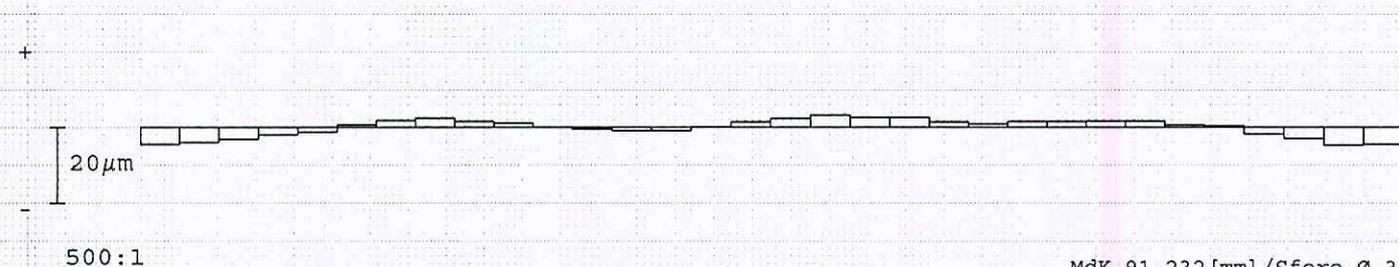


Errore somma di divisione Fp fianco destro



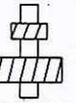
	fianco sinistro				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	3.5		14.0		3.6		14.0	
Gr. salto di passo fu max	1.8		18.0		2.1		18.0	
Scarto di divisione Rp	5.8				6.6			
Err. globale di divisione Fp	19.7		50.0		20.9		50.0	
Err. cordale di divisione Fpz/8	12.7				13.7			

Centricità Fr (Ø-sfera =3mm) \odot : 4.7µm

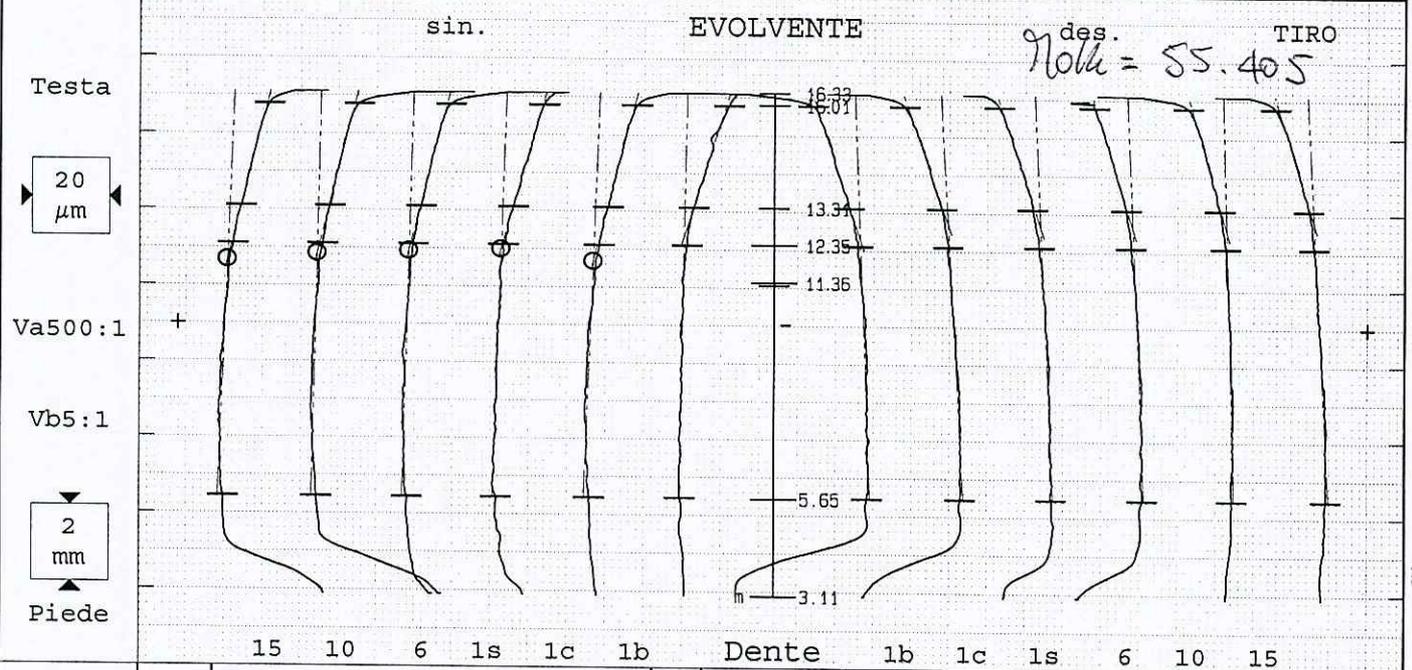


		MdK 91.232 [mm] / Sfere-Ø 3	
		Val. amm	91.232 91.152
Err. di concentricità Fr	8.0 40.0	91.198	91.202 91.193
Variaz. spessore dente Rs			

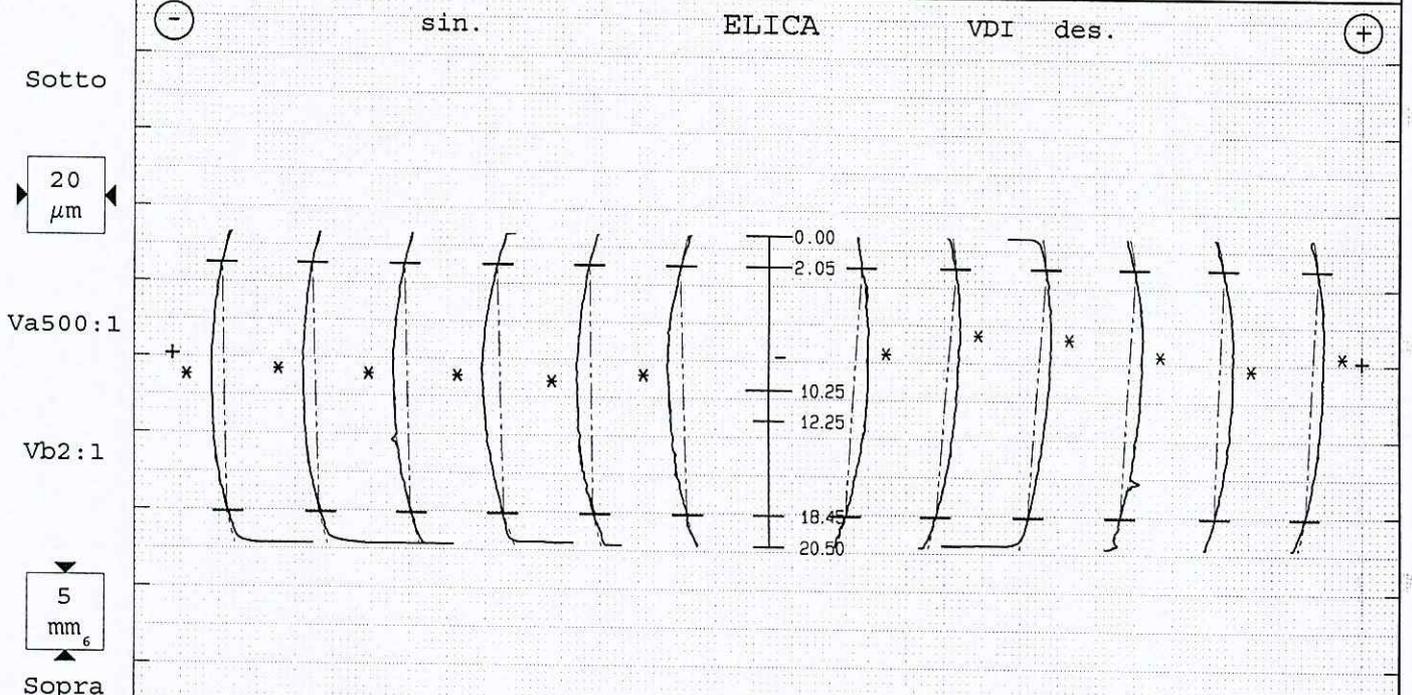
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 10:14
Denominazione: Input Outer Z19		Numero denti z 19	Largh.fasc.dent. b 20.5mm
Numero disegno.: D51.6.1233.35-IIF		Modulo m 2.3mm	Tratto evolv. La 6.7mm
Commessa/serie nr.: pz n.3 -2		Angolo pressione 20°00'00"	Tratto elica L8 16.4mm
Masch.Nr.: M001	Spindel: Formn. est. elicoidale	Angolo elicoidale 24°00'00"	Inizio elab. M1 5.65mm
Untersuchungszweck: Laufende Messung		Ø Base db 44.4385mm	Falpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base 22°28'14"	Fat.scor.pr. x .606



Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual	
fH _{am} ±6	-3.3	Var a 1.9								±6	Var a 3.0							-4.7		
fH _a ±10	-3.3	-4.2	-2.3	-2.8	-3.5	-3.9	-1.9		±10	-4.0	-5.9	-4.8	-4.4	-2.9	-5.4	-4.7				
F _a	3.3	3.7	3.1	2.9	2.8	3.6	2.0			3.3	3.5	3.6	3.2	2.2	3.5	3.1				
ff _a 4	2.2	2.2	2.1	2.3	1.4	2.1	1.2		4	1.5	1.4	1.4	1.4	1.2	1.2	1.3				
Ca -13/-5	-8.9	-8.6	-9.0	-8.9	-9.6	-9.1	-10.2		-13/-5	-10.3	-9.0	-9.1	-8.4	-8.3	-7.9	-8.4				
ff _{af} 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		3	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
P/T-Ø [mm]	42.982	[42.85/43.15]									55.449	[55.34/55.6]								



Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual
fH _{sm} ±6	-1.7	Bd 0.Var β 1.3								±6	Bd 0.Var β 3.3							4.8	
fH _S ±13	-1.7	-1.6	-2.3	-2.0	-2.2	-1.0	-2.2		±13	5.4	6.6	6.3	5.0	3.3	4.3	4.8			
F _S	4.0	3.5	3.9	4.4	4.7	4.0	4.3			5.5	6.1	5.5	5.4	4.1	4.5	5.0			
ff _S 4	1.3	0.9	1.0	1.9	0.8	1.2	1.1		4	1.0	0.7	0.6	3.2	0.7	0.8	1.4			
CB 1/5	3.6	3.4	3.4	3.7	4.6	3.7	4.0		1/5	3.6	2.9	3.0	3.4	3.6	2.9	3.2			

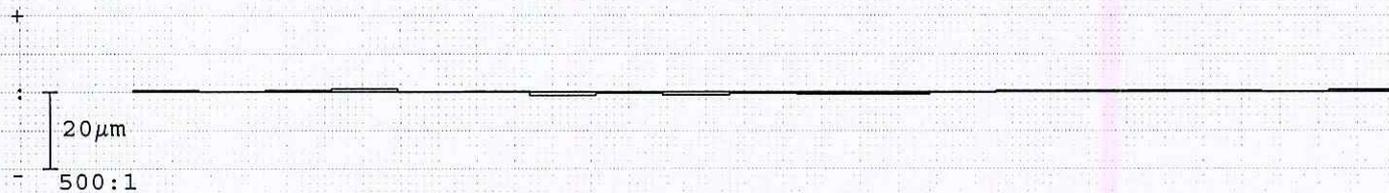


Ruota cilindrica Divisione

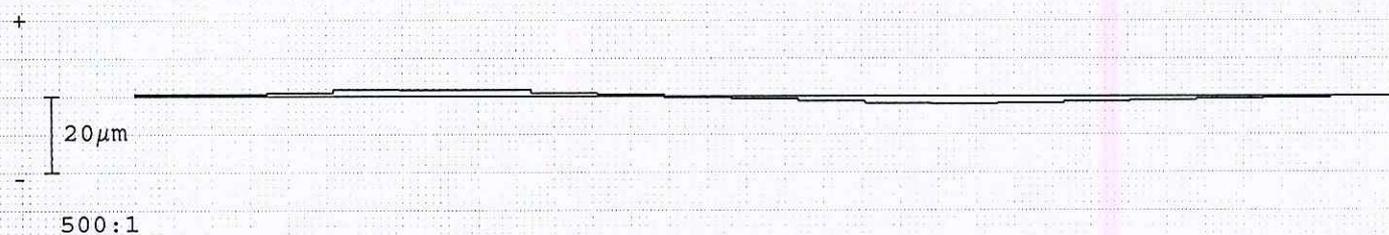


Nr. prog.: STI0416b04 0	P26 601390	Controllere: turno 06-12	Data: 22.04.2018 10:14
Denominazione: Input Outer Z19		Numero denti z 19	Angolo pressione 20°00'00"
Numero disegno.: D51.6.1233.35-IIF		Modulo m 2.3mm	Angolo elica 24°00'00"
Comessa/serie nr.: pz n.3		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formm	Charge:	

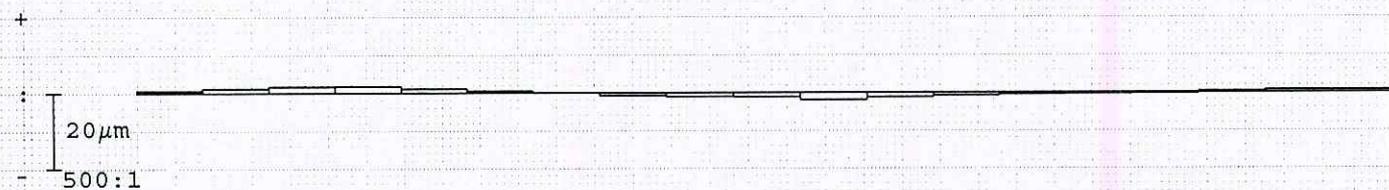
Errori singoli di divisione fp fianco sinistro



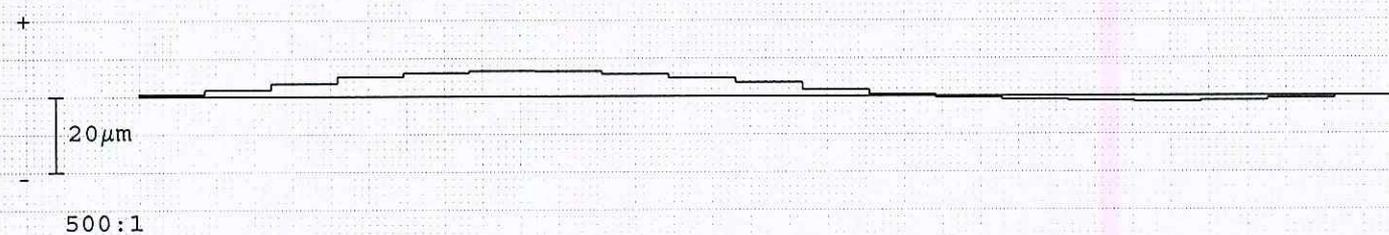
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



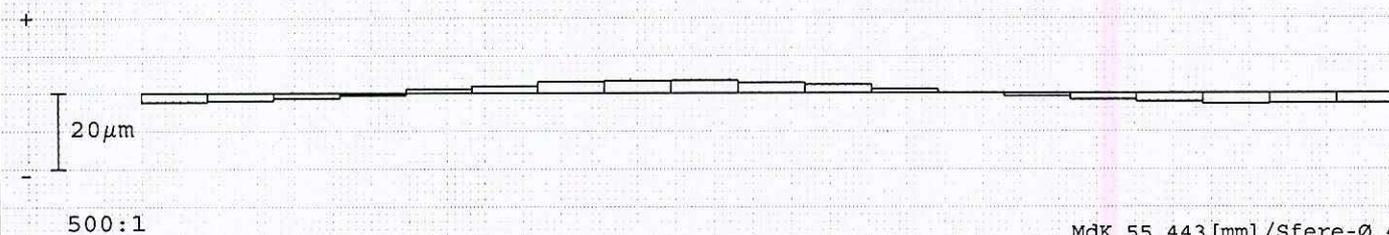
Errore somma di divisione Fp fianco destro



		fianco sinistro				fianco destro / TIRO			
		Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Corso per misura divis.: 49.841 z=12.3mm									
Gr. err. singoli divisione	fp max	0.9		14.0		2.0		14.0	
Gr. salto di passo	fu max	1.0		18.0		0.8		18.0	
Scarto di divisione	Rp	1.7				3.7			
Err. globale di divisione	Fp	3.8		40.0		8.2		40.0	
Err. cordale di divisione	Fpz/8	1.3				3.4			

Centricità Fr (Ø-sfera =4mm)

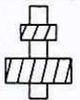
⊙ : 6.2µm



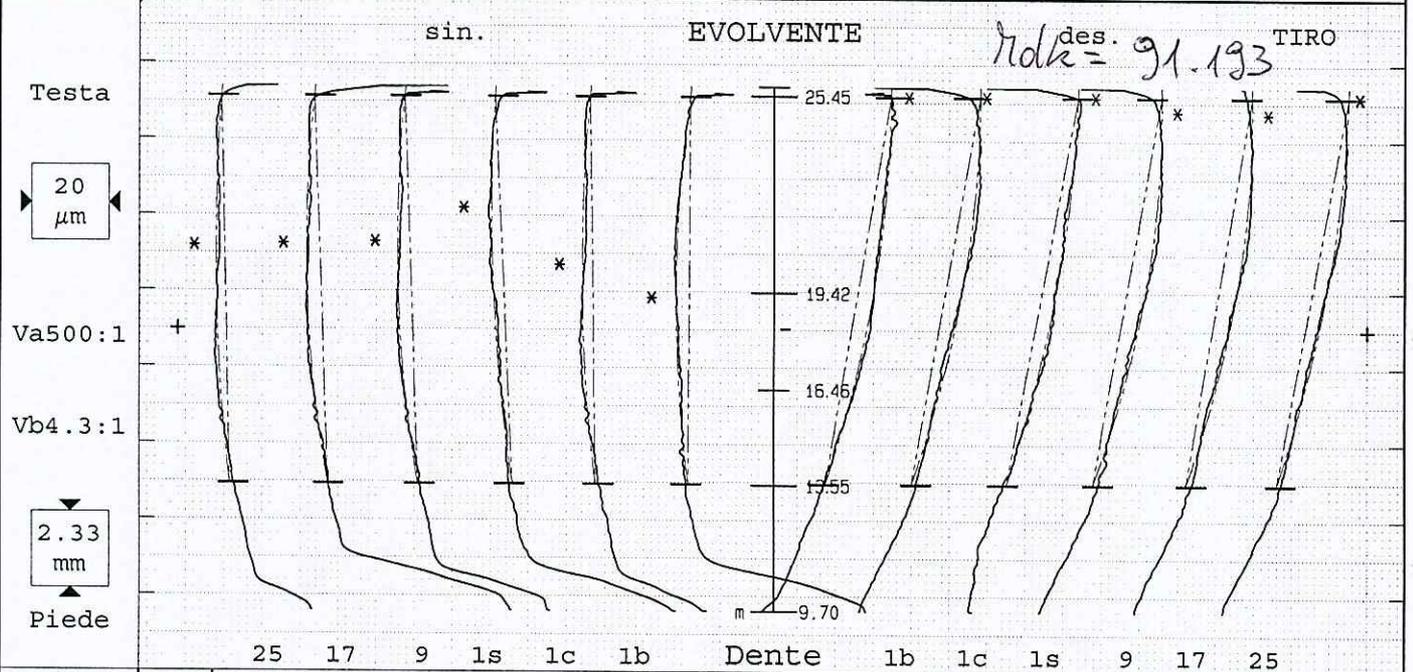
				Mdk 55.443 [mm] / Sfere-Ø 4		
		Val. misur	Qual.	Val. amm	Qual.	Qual.
Err. di concentricità	Fr	6.2		32.0		55.442 55.382
Variaz. spessore dente	Rs					55.417 55.418 55.416

Docum.archiviato elettronicamente.Archiviazione cartacea non necessaria

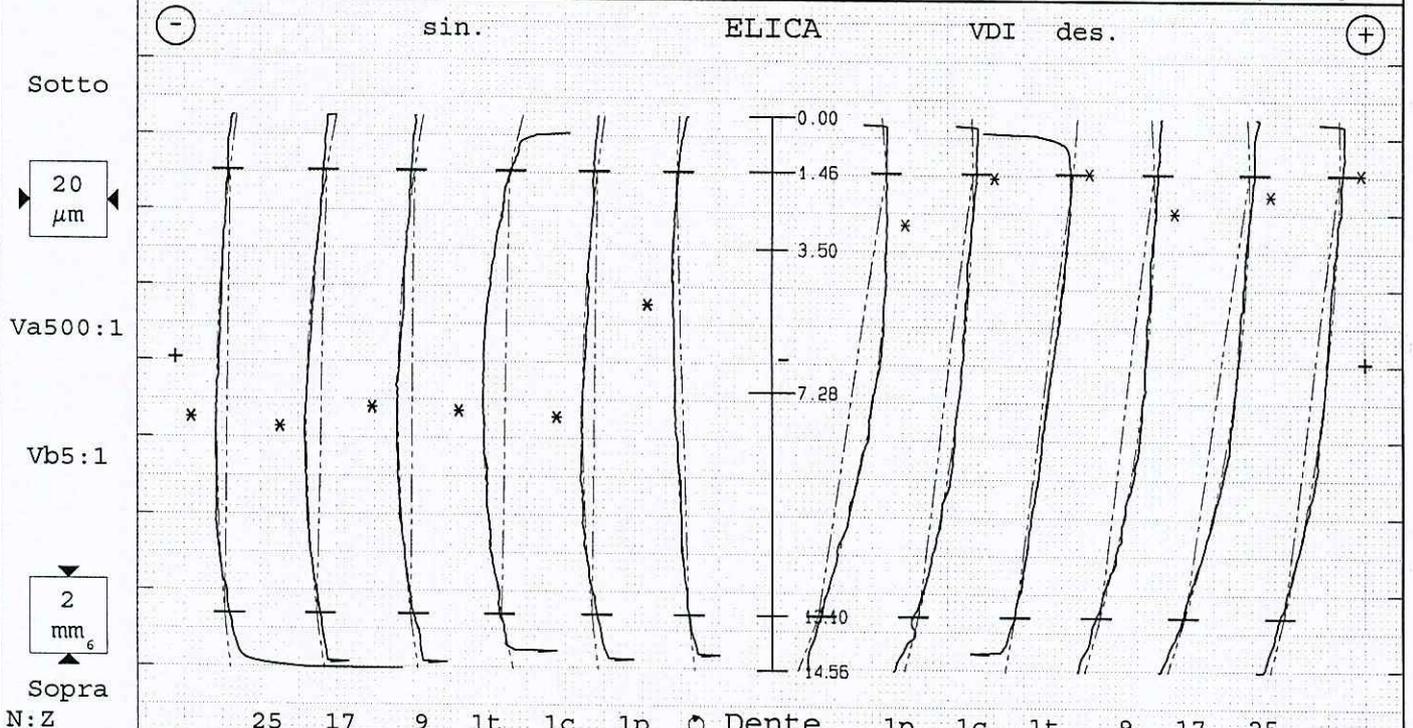
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 10:21
Denominazione: Input Outer Z32	Numero denti z 32	Largh.fasc.dent. b 14.56mm	
Numero disegno.: D51.6.1233.35-IF	Modulo m 2.35mm	Tratto evolv. La 11.9mm	
Commissa/serie nr.: pz n.4 -3	Angolo pressione 20°00'00"	Tratto elica L& 11.65mm	
Masch.Nr.: M001	Spindel: Formset	Angolo elicale 31°00'00"	Inizio elab. M1 13.55mm
Untersuchungszweck: Laufende Messung	Ø Base db 80.7524mm	Palpatore Ø (#2) 1mm	
Werkzeug: Charge:	Ang. Base 28°56'44"	Fat.scor.pr. x .4	



Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual
fHm ±6	2.7	Var a 2.1								21±6	Var a 1.7							18.1	
fHa ±10	2.7	2.2	3.5	3.5	4.6	1.4	-0.5		21±10	17.3	18.2	18.8	18.0	17.3	19.0	18.1			
Fa	4.1	3.8	4.8	5.0	4.3	2.9	3.2			3.8	7.1	3.5	7.0	6.6	5.3	6.5			
ffa 4	2.1	2.0	2.3	2.0	3.2	2.1	2.7		4	2.5	4.4	2.2	4.2	3.0	3.3	3.7			
Ca 3±2	3.1	2.4	3.7	3.5	2.7	2.7	3.4		5±2	4.1	4.3	3.7	4.8	4.7	3.7	4.4			
ffaf 3	0.0	0.0	0.1	0.0	1.1	0.0	0.9		3	0.0	1.5	3.4	1.7	1.8	1.4	1.6			
P/T-Ø (mm)	81.201		[81.08/81.4]							96.005		[95.94/96.2]							



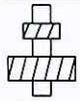
N:Z	25 17 9 1t 1c 1p							Ø Dente	1p 1c 1t 9 17 25							
fHSm ±6	2.1	Bd 6.	Var β 1.9						20±6	Bd -3.	Var β 3.5					18.8
fHS ±13	2.1	1.7	3.3	1.4	2.7	1.8	-3.9		20±13	22.2	17.9	19.2	17.7	21.2	18.4	18.8
FB	3.5	2.8	4.0	3.5	6.3	3.5	3.8			5.5	4.0	1.8	4.2	5.3	3.8	4.3
ffβ 4	2.0	2.0	1.8	1.8	1.2	2.2	1.0		4	1.5	2.4	1.1	2.1	2.2	2.1	2.2
CB 1/5	3.4	2.8	3.9	3.8	5.8	3.1	2.0		1/5	5.9	3.7	1.5	4.3	4.7	3.5	4.1

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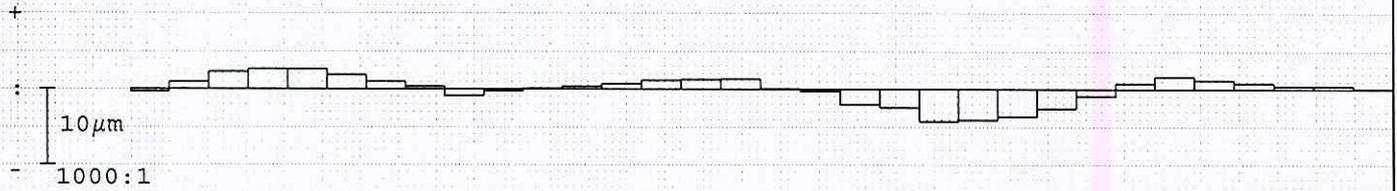


Ruota cilindrica Divisione

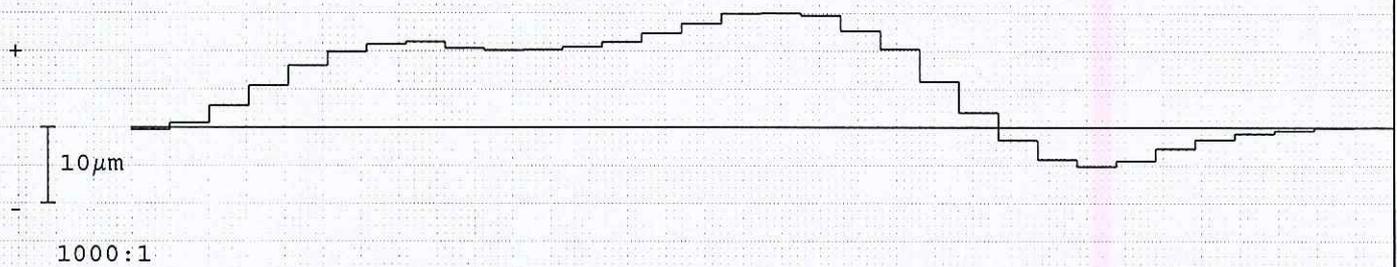


Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 10:21
Denominazione: Input Outer Z32		Numero denti z 32	Angolo pressione 20°00'00"
Numero disegno.: D51.6.1233.35-IF		Modulo m 2.35mm	Angolo elica 31°00'00"
Commessa/serie nr.: pz n.4		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formeltest	Erzeug:	Charge:

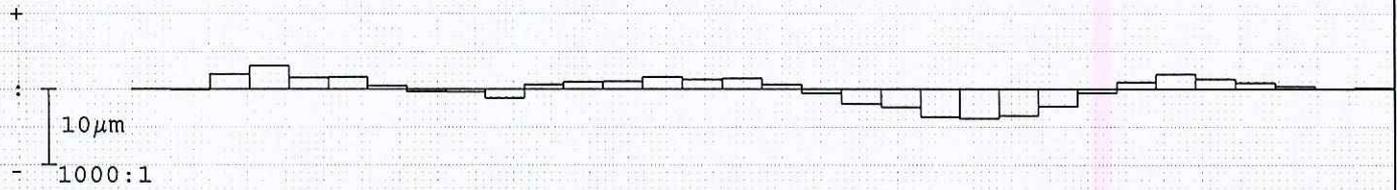
Errori singoli di divisione fp fianco sinistro



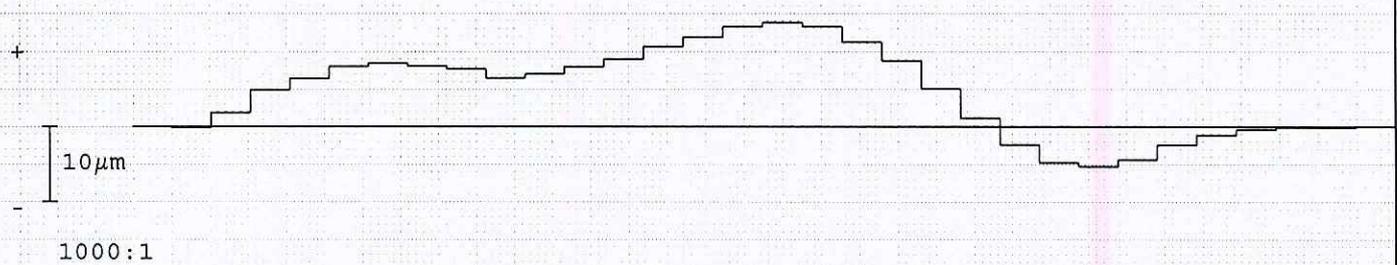
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

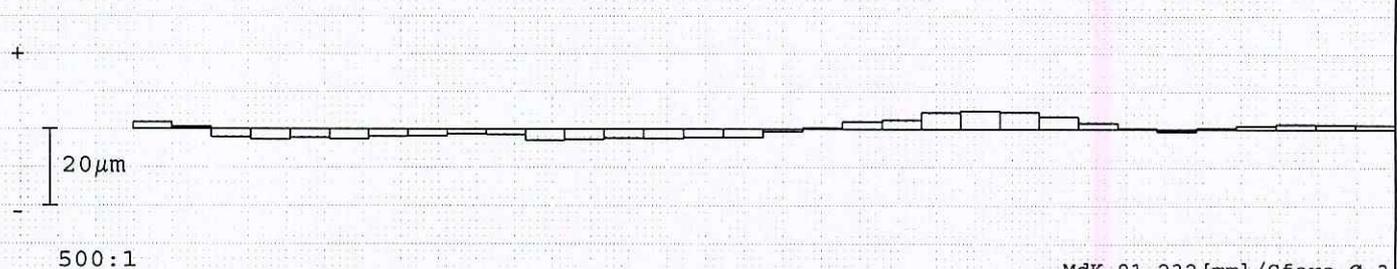


Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 87.208 z=3.5mm		fianco sinistro				fianco destro / TIRO			
		Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione	fp max	4.3		14.0		3.9		14.0	
Gr. salto di passo	fu max	1.9		18.0		2.1		18.0	
Scarto di divisione	Rp	6.9				7.0			
Err. globale di divisione	Fp	20.0		50.0		19.1		50.0	
Err. cordale di divisione	Fpz/8	14.4				13.6			

Centricità Fr (Ø-sfera = 3mm) ☉ : 5.3µm

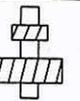


		Mdk 91.232 [mm] / Sfere-Ø 3	
Err. di concentricità	Fr	7.8	40.0
Variaz. spessore dente	Rs		
		Val. amm	91.232 91.152
		Val.	91.202 91.205 91.199

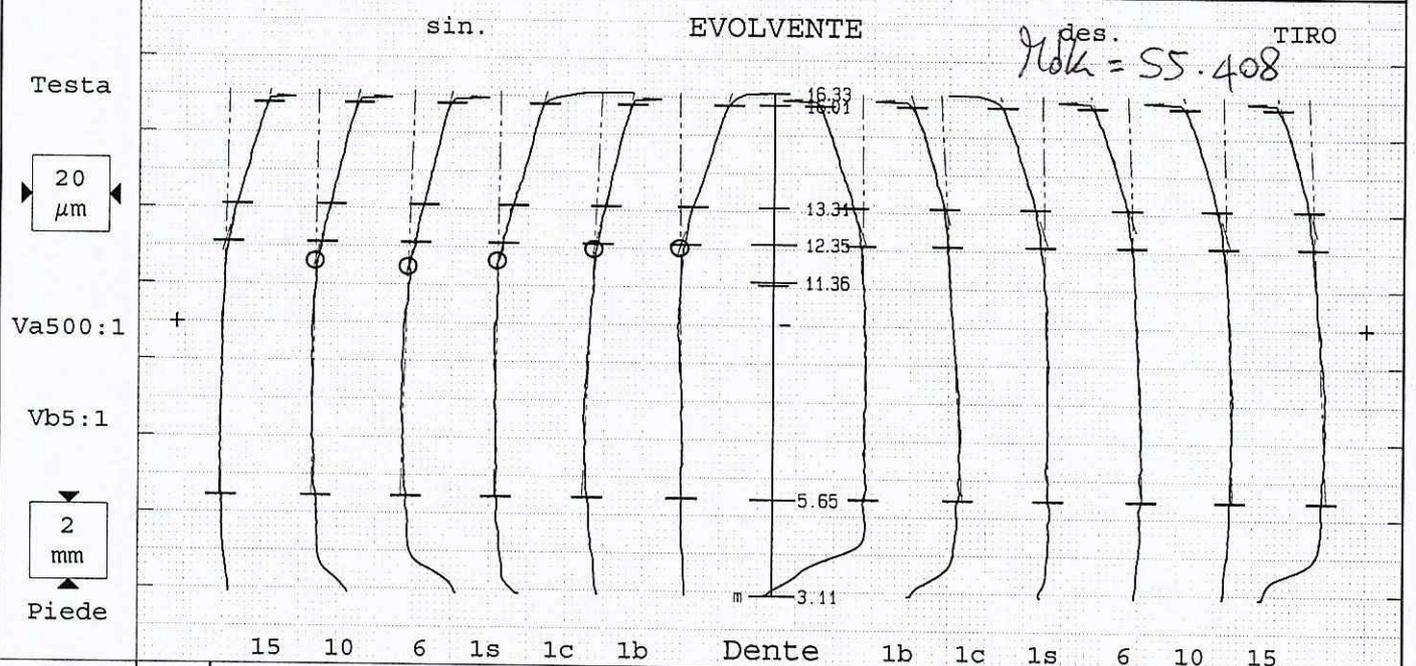


Docum.archiviato elettronicamente.Archiviazione cartacea non necessaria

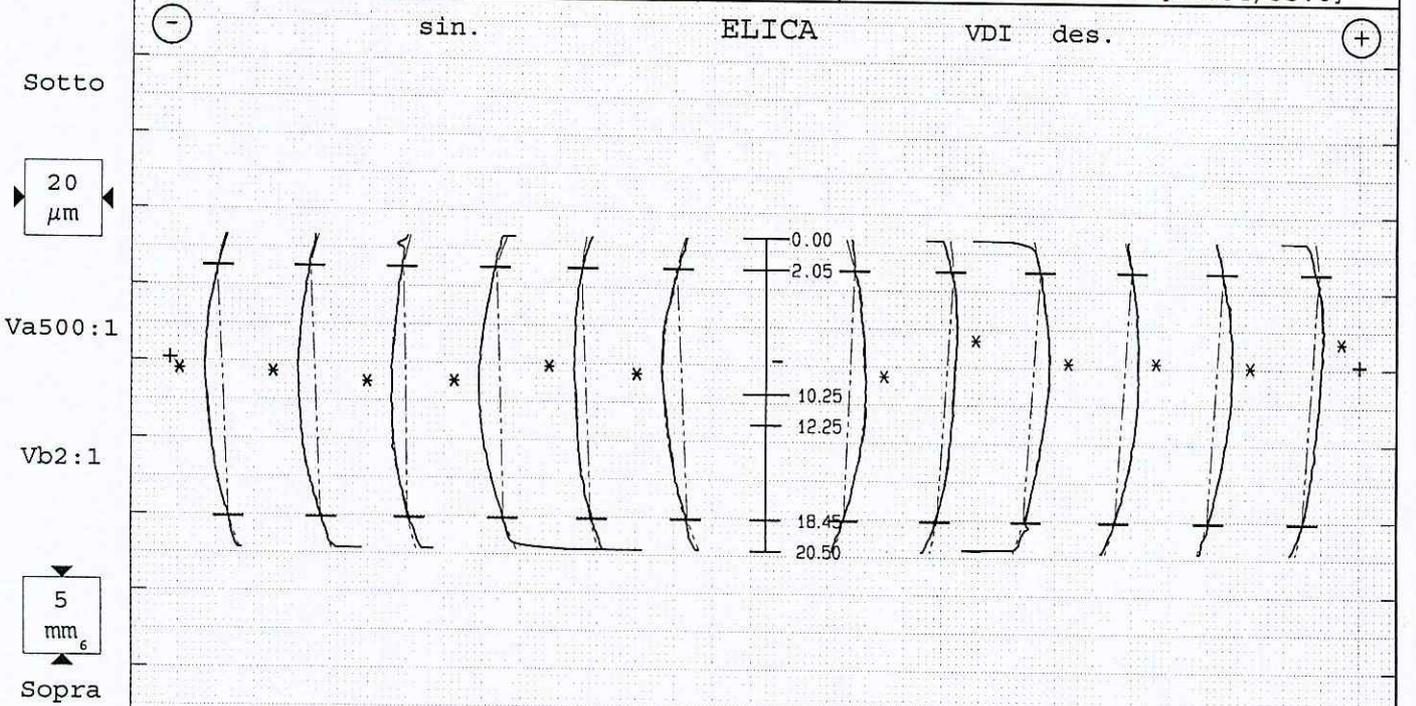
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 10:25
Denominazione: Input Outer Z19		Numero denti z 19	Largh.fasc.dent. b 20.5mm
Numero disegno.: D51.6.1233.35-IIF		Modulo m 2.3mm	Tratto evolv. La 6.7mm
Comessa/serie nr.: pz n.4 - 3		Angolo pressione 20°00'00"	Tratto elica L&S 16.4mm
Masch.Nr.: M001	Spindel: Formn. cat. 1	Angolo elica 24°00'00"	Inizio elab. M1 5.65mm
Untersuchungszweck: Laufende Messung		Ø Base db 44.4385mm	Palpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base 22°28'14"	Fat.scor.pr. x .606



Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual	
fHm	±6	-2.9	Var a 3.1								±6	Var a 3.1							-4.4	
fHa	±10	-2.9	-2.3	-1.5	-3.1	-1.2	-4.6	0.8		±10	-1.3	-5.9	-2.0	-4.2	-2.8	-4.8	-4.4			
Fa		3.0	2.1	2.6	3.7	2.4	3.6	2.0			1.7	3.8	2.3	2.9	2.6	3.5	3.2			
ffa	4	2.0	1.2	2.2	2.7	2.1	2.0	2.1		4	1.2	1.8	1.7	1.1	1.6	2.1	1.7			
Ca	-13/-5	-9.2	-9.9	-10.1	-9.3	-11.2	-7.6	-12.4		-13/-5	-11.0	-7.1	-10.3	-8.9	-9.7	-7.5	-8.3			
ffaf	3	0.0	0.0	0.0	0.0	0.0	0.0	0.2		3	0.0	0.0	0.3	0.0	0.0	0.0	0.0			
P/T-Ø [mm]		42.996	[42.85/43.15]									55.457	[55.34/55.6]							



Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual	
fHβm	±6	-3.0	Bd 1. Var β 2.4								±6	Bd 2. Var β 0.4							5.2	
fHβ	±13	-3.0	-3.9	-3.5	-1.5	-2.5	-3.1	-3.7		±13	3.3	5.3	5.4	5.2	5.0	5.4	5.2			
Fβ		4.8	5.6	5.5	4.0	5.5	3.9	5.5			5.1	5.2	5.5	5.6	5.5	4.9	5.3			
ffβ	4	1.0	0.9	0.8	1.4	0.7	1.0	1.1		4	1.0	1.3	1.1	0.7	0.8	1.4	1.1			
Cβ	1/5	4.0	4.5	4.6	3.8	5.5	2.9	4.9		1/5	4.3	2.4	4.0	3.8	4.1	2.5	3.2			

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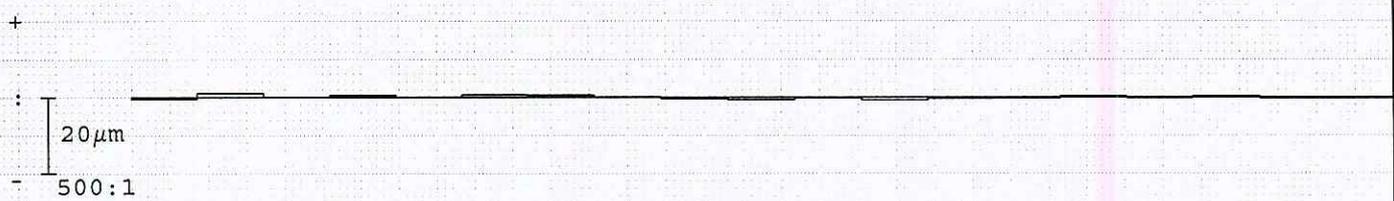


Ruota cilindrica Divisione

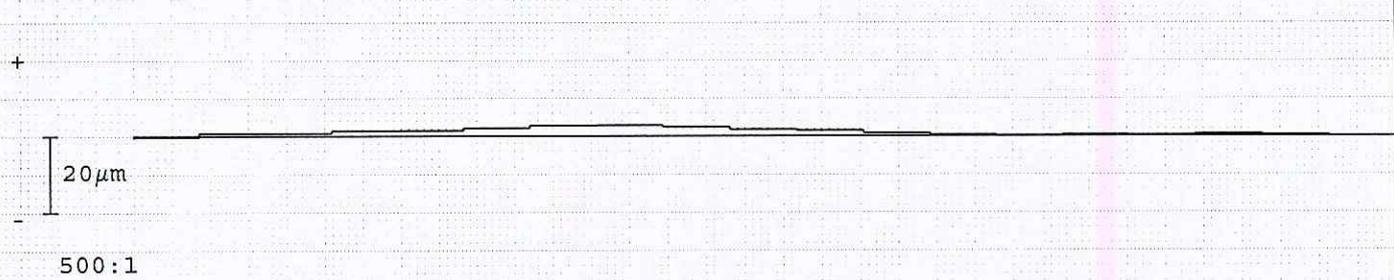


Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 10:25
Denominazione: Input Outer Z19		Numero denti z 19	Angolo pressione 20°00'00"
Numero disegno.: D51.6.1233.35-IIF		Modulo m 2.3mm	Angolo elica 24°00'00"
Commissa/serie nr.: pz n.4		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formelwerk	Werkzeug:	Charge:

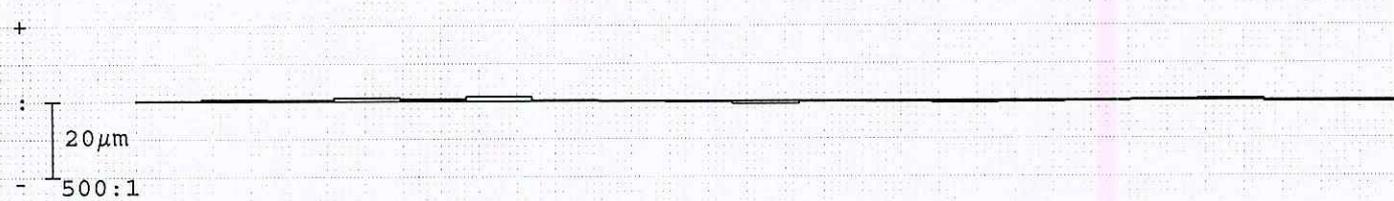
Errori singoli di divisione fp fianco sinistro



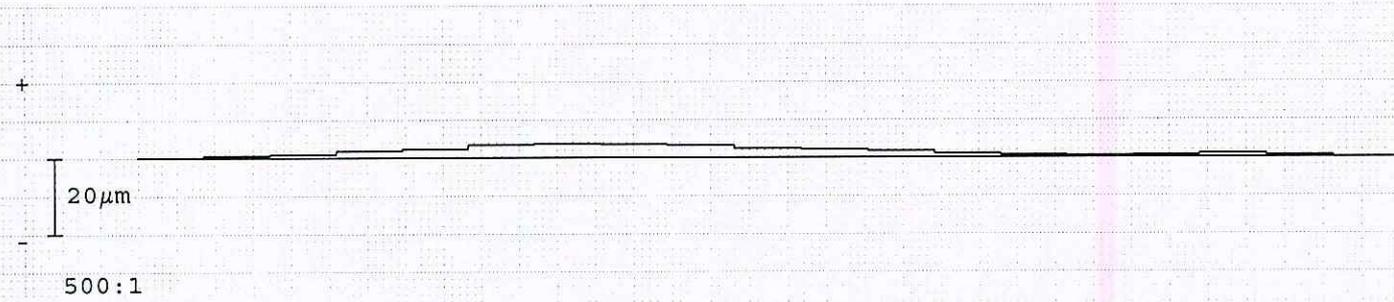
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



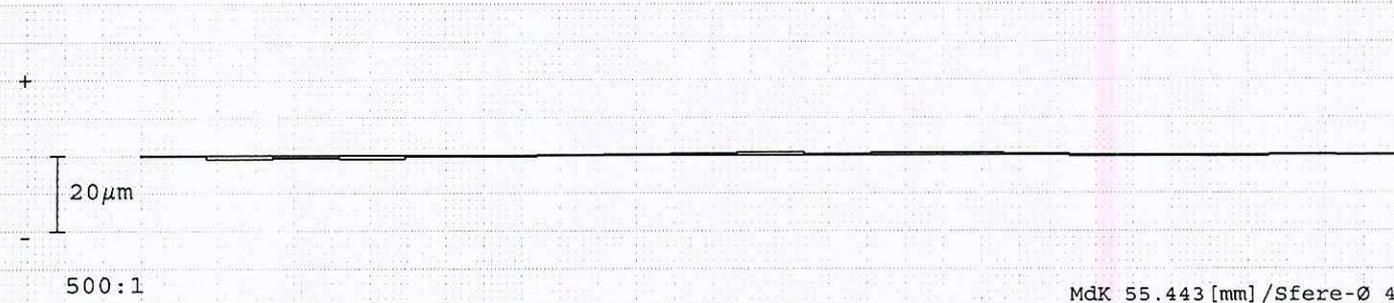
Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 49.841 z=12.3mm		fianco sinistro				fianco destro / TIRO			
		Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione	fp max	1.1		14.0		1.1		14.0	
Gr. salto di passo	fu max	1.5		18.0		0.9		18.0	
Scarto di divisione	Rp	1.9				1.9			
Err. globale di divisione	Fp	3.2		40.0		3.7		40.0	
Err. cordale di divisione	Fpz/8	1.3				1.7			

Centricità Fr (Ø-sfera =4mm)

⊙ : 1.2µm

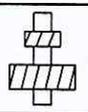


		MdK 55.443 [mm]/Sfere-Ø 4	
Err. di concentricità	Fr	1.9	32.0
		val. amm	55.442 55.382
Variaz. spessore dente	Rs		val. 55.418 55.419 55.417

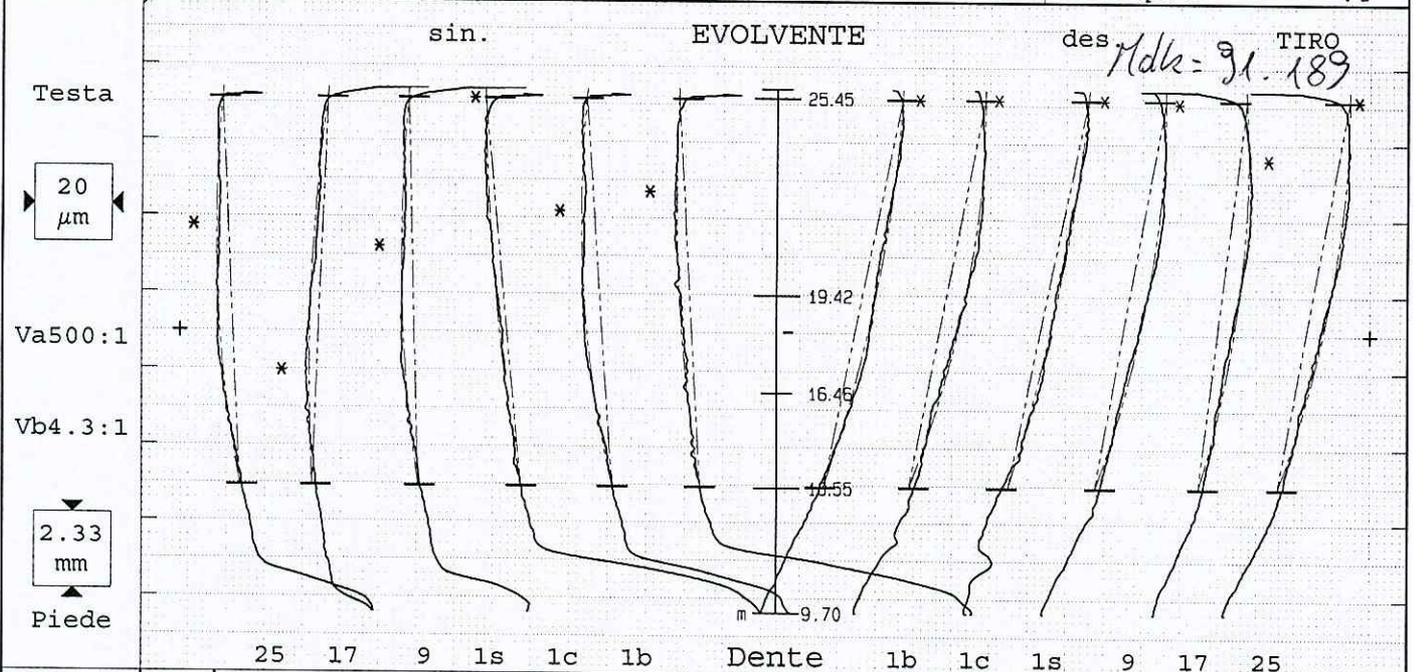
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Docum. archiviato elettronicamente. Archiviazione cartacea non necessaria

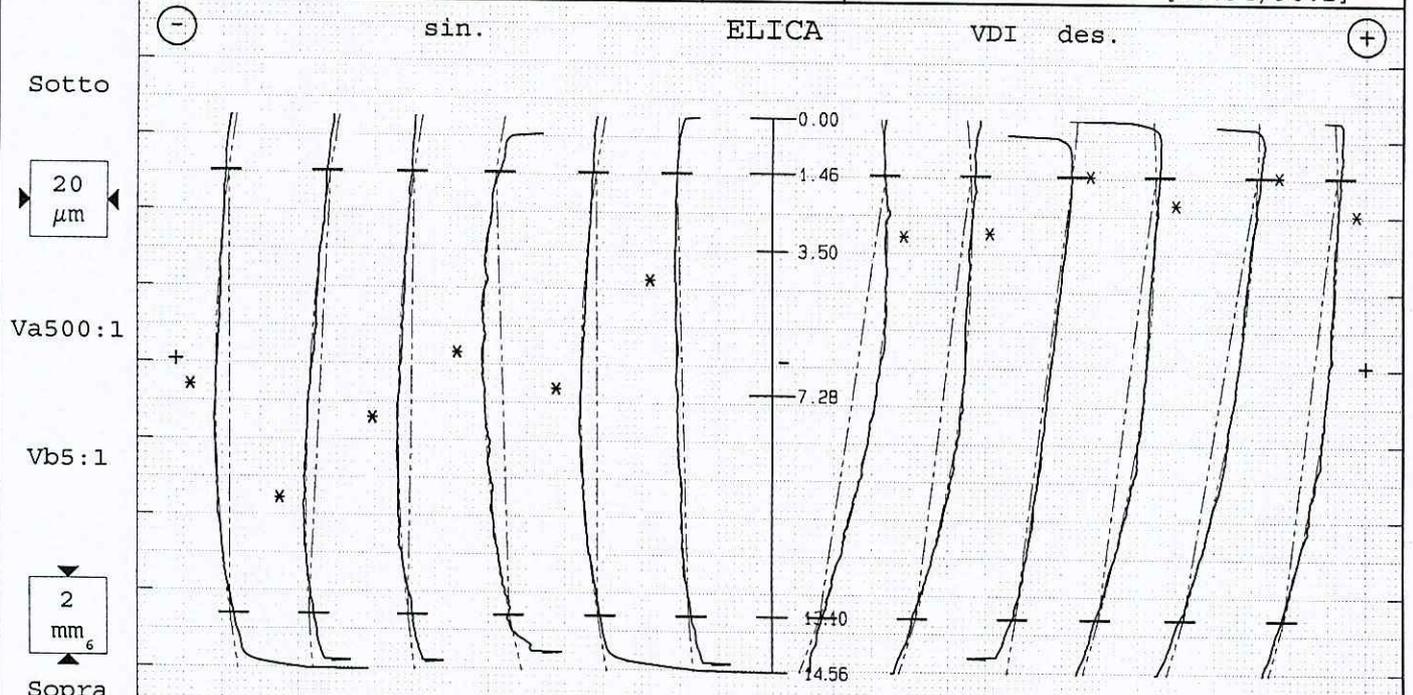
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 10:32
Denominazione: Input Outer Z32	Numero denti z 32	Largh. fasc. dent. b 14.56mm	
Numero disegno.: D51.6.1233.35-IF	Modulo m 2.35mm	Tratto evolv. La 11.9mm	
Commessa/serie nr.: pz n.5 - 4	Angolo pressione 20°00'00"	Tratto elica L& 11.65mm	
Masch.Nr.: M001	Spindel: Formata	Angolo elicale 31°00'00"	Inizio elab. M1 13.55mm
Untersuchungszweck: Laufende Messung	Ø Base db 80.7524mm	Palpatore Ø (#2) 1mm	
Werkzeug: Charge:	Ang. Base 28°56'44"	Fat. scor. pr. x .4	



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
fHm ±6	2.6	Var a 10.7								21±6	Var a 7.5							17.6	
fHa ±10	2.6	4.8	-3.9	2.8	9.5	6.8	5.6		21±10	20.7	20.1	21.0	18.5	12.6	19.0	17.6			
Fa	5.7	6.1	5.0	4.0	9.0	7.8	5.3		4	2.5	3.6	3.0	5.6	12.7	6.1	7.0			
ffa 4	2.0	1.7	2.2	2.3	4.5	1.9	3.3		5±2	3.5	5.0	2.7	4.6	4.5	4.6	4.7			
Ca 3±2	3.2	3.5	2.4	3.0	2.0	4.0	2.7		3	0.0	3.2	2.6	2.1	1.7	1.6	2.2			
ffaf 3	0.0	0.0	0.0	0.0	0.2	0.2	0.0												
P/T-Ø [mm]	81.199	[81.08/81.4]									95.995								[95.94/96.2]



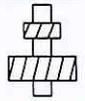
N:Z	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
fHSm ±6	1.9	Bd -0. Var β 7.5								20±6	Bd -2. Var β 6.6							19.6	
fHS ±13	1.9	-0.6	6.9	1.9	-4.5	-0.5	-3.9		20±13	21.5	18.0	18.6	18.7	24.2	17.6	19.6			
FS	4.4	4.3	5.4	3.3	6.6	4.5	3.8		4	5.6	4.9	1.7	4.6	5.6	4.4	4.9			
ffβ 4	1.9	1.7	2.2	2.0	1.6	1.6	1.1		1/5	6.0	4.9	1.1	4.3	3.7	4.3	4.3			
CB 1/5	3.5	3.6	2.9	3.4	4.9	4.2	1.5												

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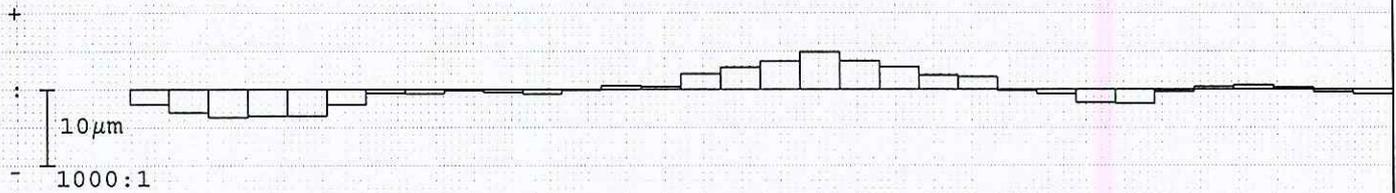


Ruota cilindrica Divisione

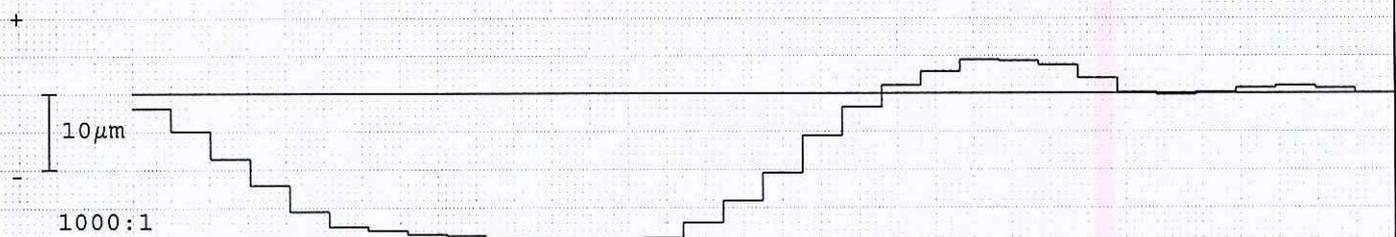


Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 10:32
Denominazione: Input Outer Z32		Numero denti z 32	Angolo pressione 20°00'00"
Numero disegno.: D51.6.1233.35-IF		Modulo m 2.35mm	Angolo elica 31°00'00"
Comessa/serie nr.: pz n.5		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: FORMER	Arbeitszeug:	Charge:

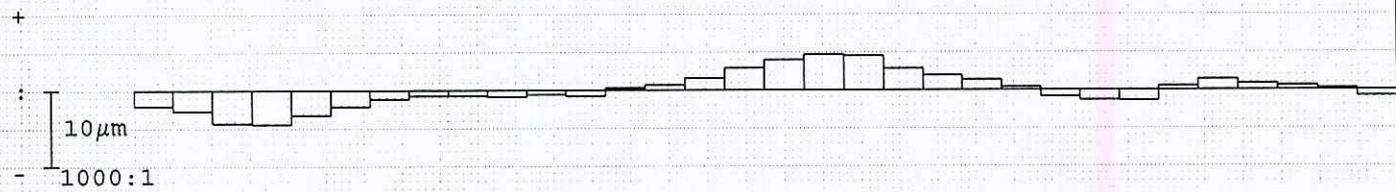
Errori singoli di divisione fp fianco sinistro



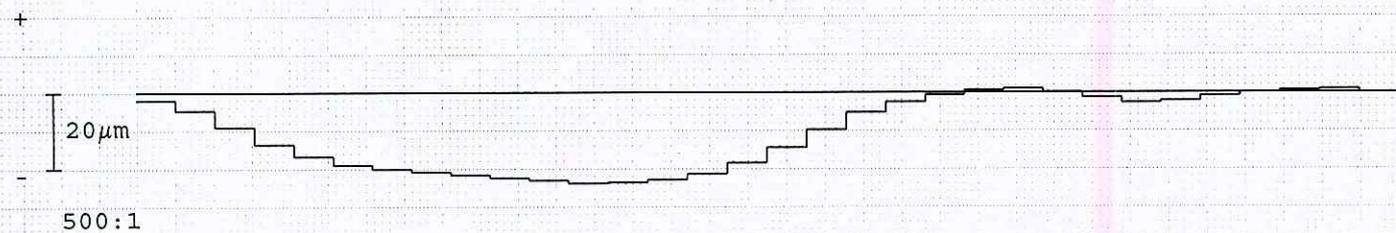
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



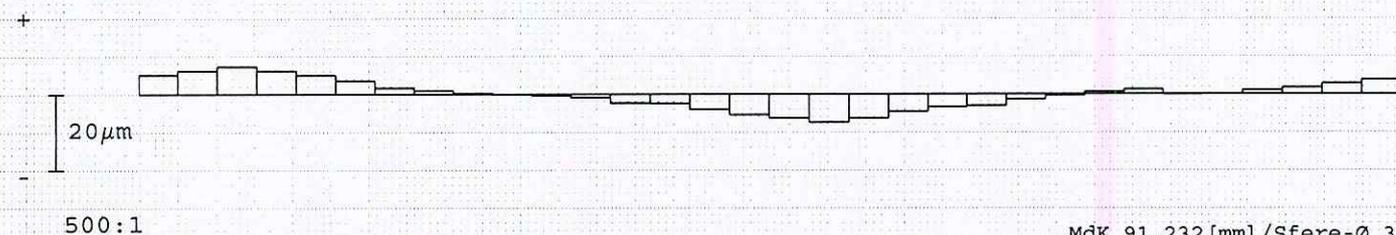
Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 87.208 z=3.5mm	fianco sinistro				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	4.9		14.0		4.6		14.0	
Gr. salto di passo fu max	1.7		18.0		1.9		18.0	
Scarto di divisione Rp	8.5				9.1			
Err. globale di divisione Fp	24.2		50.0		24.8		50.0	
Err. cordale di divisione Fpz/8	15.2				15.9			

Centricità Fr (Ø-sfera =3mm)

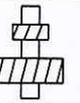
⊙ : 10.2µm



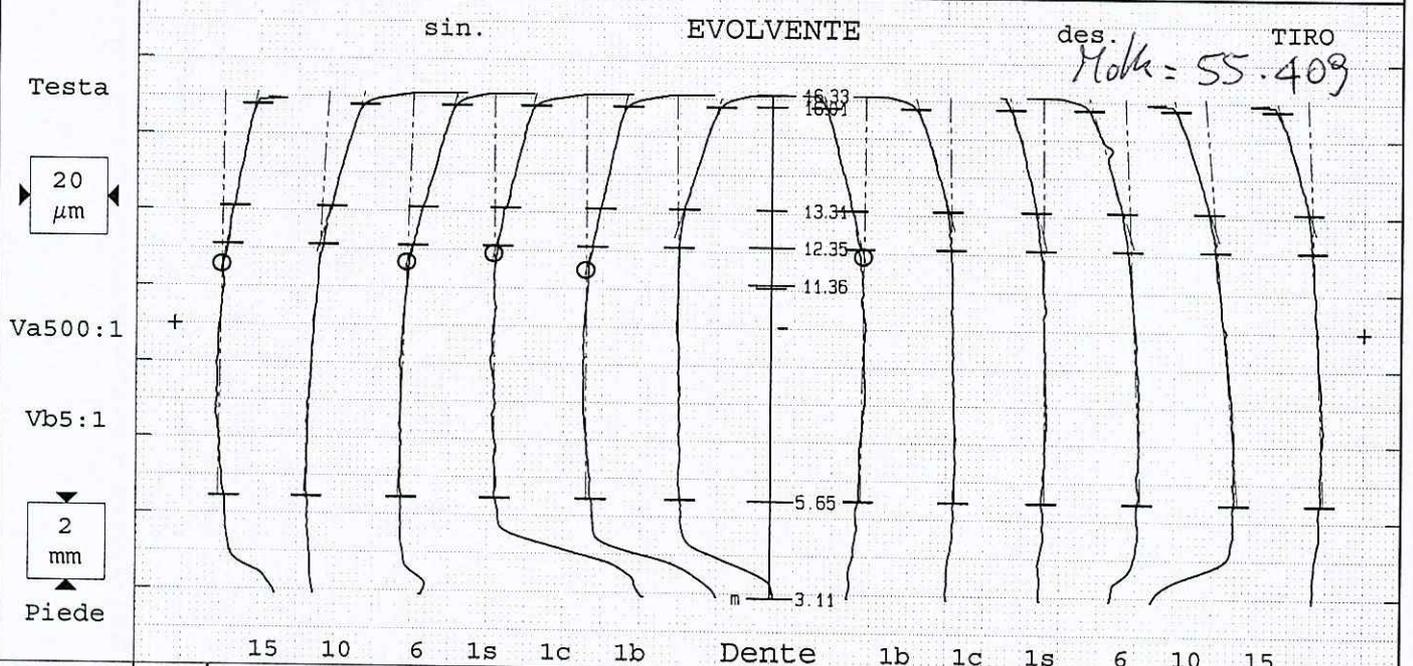
Err. di concentricità Fr	Val. amm	Mdk 91.232 [mm] / Sfere-Ø 3	
		91.232	91.152
Variaz. spessore dente Rs	Val. 91.201	91.203	91.2

Docum.archiviato elettronicamente.Archiviazione cartacea non necessaria

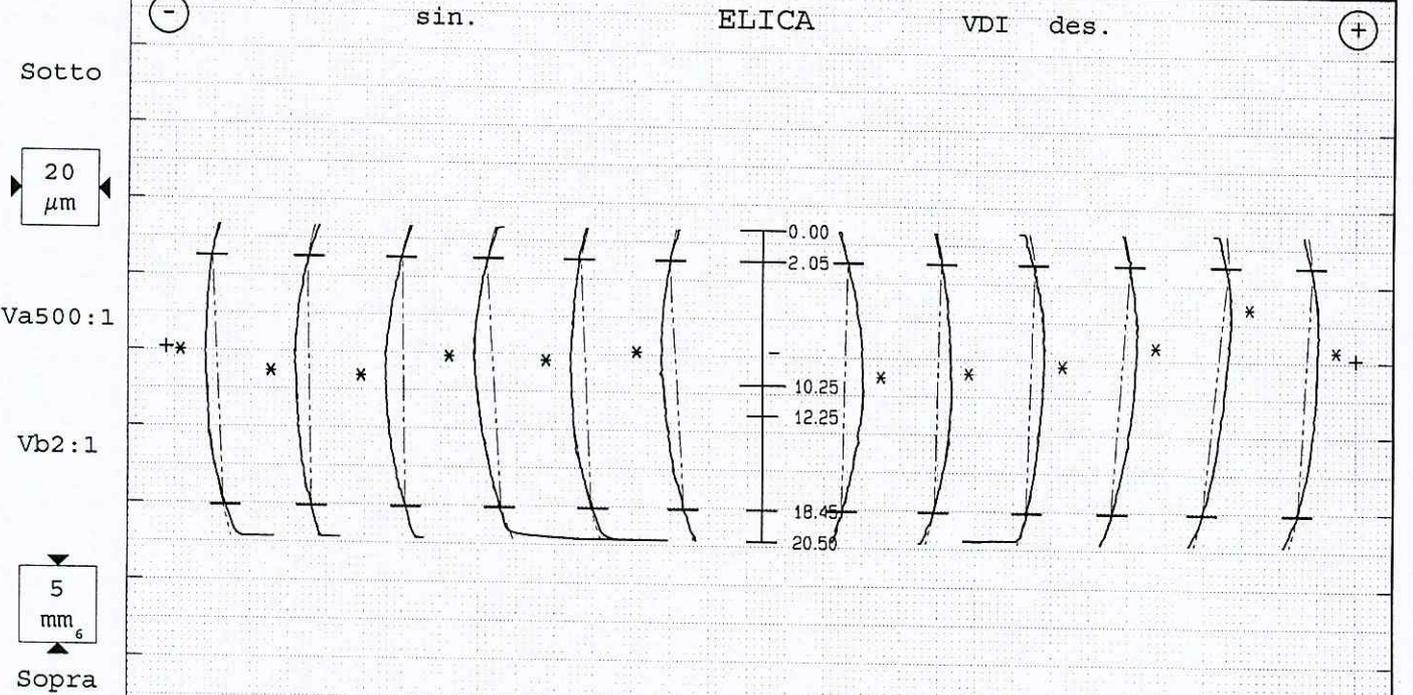
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 10:36
Denominazione: Input Outer Z19	Numero denti z 19	Largh.fasc.dent. b 20.5mm	
Numero disegno.: D51.6.1233.35-IIF	Modulo m 2.3mm	Tratto evolv. La 6.7mm	
Comessa/serie nr.: pz n.5 - 4	Angolo pressione 20°00'00"	Tratto elica Ls 16.4mm	
Masch.Nr.: M001	Spindel: Formulas	Angolo elicica 24°00'00"	Inizio elab. M1 5.65mm
Untersuchungszweck: Laufende Messung	Ø Base db 44.4385mm	Palpatore ø (#2) 1mm	
Werkzeug: Charge:	Ang. Base 22°28'14"	Fat.scor.pr. x .606	



Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual	
		Var a 6.4										Var a 6.9								
fHam ±6	-2.7									±6									-4.7	
fHa ±10	-2.7	-1.4	-6.1	-3.7	0.3	0.3	1.0		±10	1.0	-1.7	-0.7	-4.3	-8.6	-4.2	-4.7				
Fa	3.3	3.0	4.4	3.4	1.8	2.4	1.1			1.9	1.5	1.8	3.2	5.3	3.1	3.3				
ffa 4	2.2	2.6	1.5	2.2	1.9	2.5	0.8		4	2.3	0.9	1.6	1.7	1.7	1.6	1.5				
Ca -13/-5	-9.3	-8.0	-8.6	-10.7	-10.1	-10.0	-10.8		-13/-5	-10.2	-8.2	-8.2	-8.7	-7.5	-7.7	-8.0				
ffaf 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		3	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
P/T-ø [mm]	42.986	[42.85/43.15]									55.442							[55.34/55.6]		



Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual	
		Var β 2.7										Var β 6.4								
fHβm ±6	-2.4									±6								5.4		
fHβ ±13	-2.4	-3.7	-1.4	-1.0	-4.8	-3.5	-4.8		±13	1.9	2.1	3.0	6.2	8.5	4.9	5.4				
Fβ	4.4	4.4	3.6	4.5	6.0	5.1	5.1			4.6	3.9	3.9	5.9	7.1	5.1	5.5				
ffβ 4	1.0	1.2	0.8	0.6	0.9	1.2	1.0		4	0.8	0.9	1.0	0.9	1.3	0.9	1.0				
Cβ 1/5	3.9	3.1	3.7	4.7	4.8	3.9	3.7		1/5	4.8	3.6	3.3	3.6	2.6	3.1	3.2				

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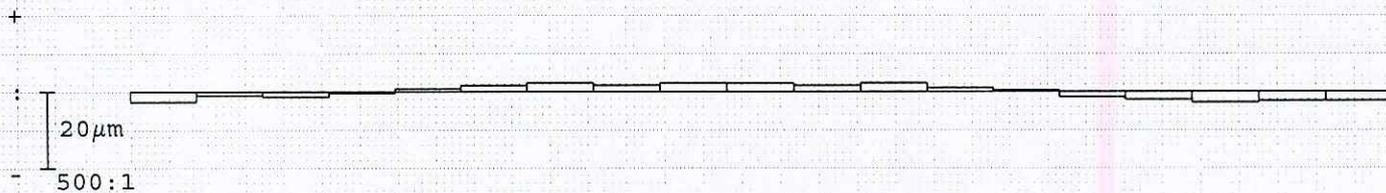


Ruota cilindrica Divisione

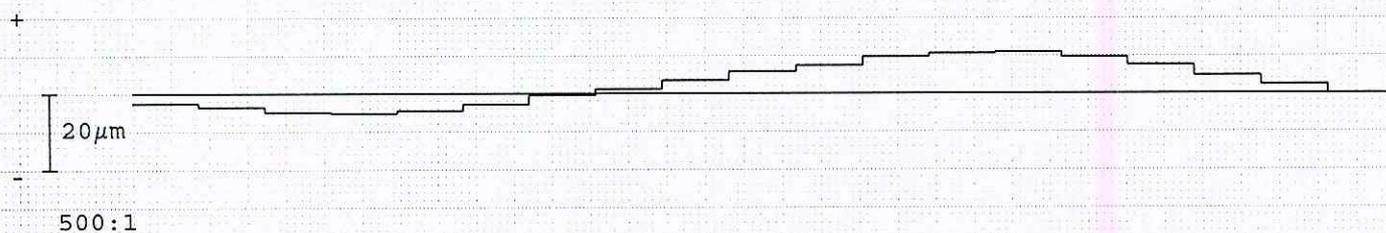


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Numero disegno.: D51.6.1233.35-IIF		Modulo m 2.3mm	Angolo elica 24°00'00"
Comessa/serie nr.: pz n.5		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formozedelg.	Charge:	

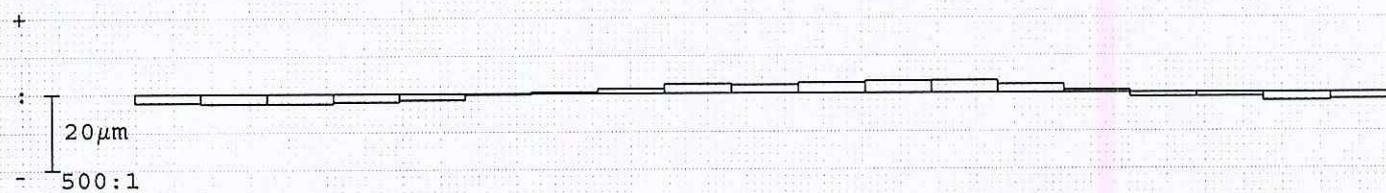
Errori singoli di divisione fp fianco sinistro



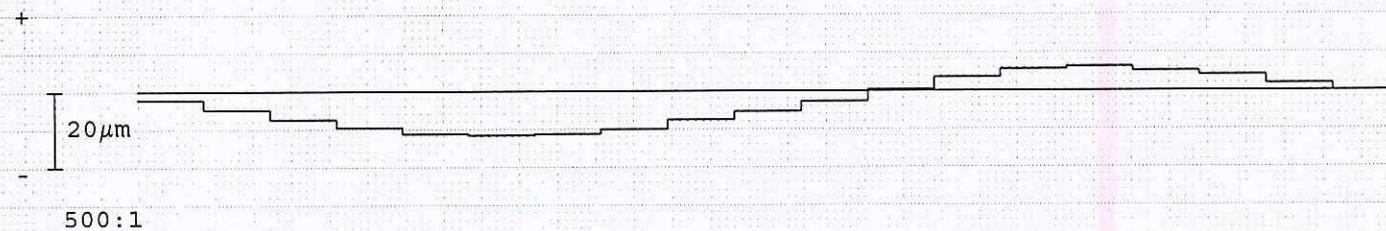
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



Errore somma di divisione Fp fianco destro

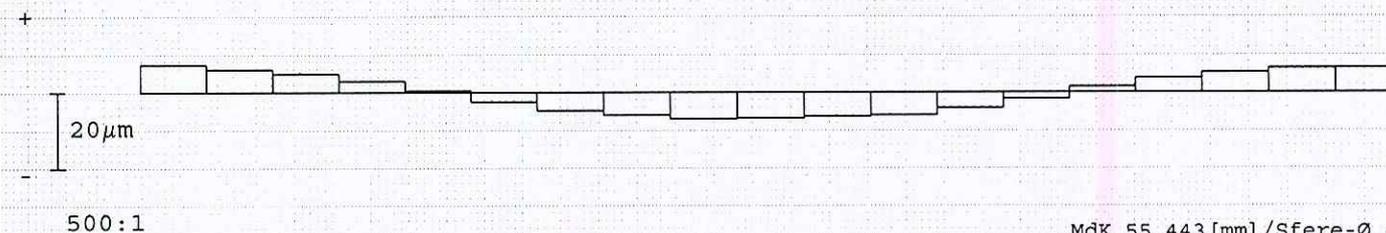


Corsa per misura divis.: 49.841 z=12.3mm

	fianco sinistro				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	2.8		14.0		3.2		14.0	
Gr. salto di passo fu max	1.7		18.0		1.8		18.0	
Scarto di divisione Rp	5.1				5.8			
Err. globale di divisione Fp	16.2		40.0		17.8		40.0	
Err. cordale di divisione Fpz/8	5.1				6.3			

Centricità Fr (Ø-sfera =4mm)

⊙ : 14.5µm



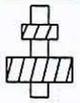
		Mdk 55.443 [mm] / Sfere-Ø 4			
		Val. amm	55.442	55.382	
Err. di concentricità Fr	14.2	32.0			
Variatz. spessore dente Rs			55.416	55.417	55.416

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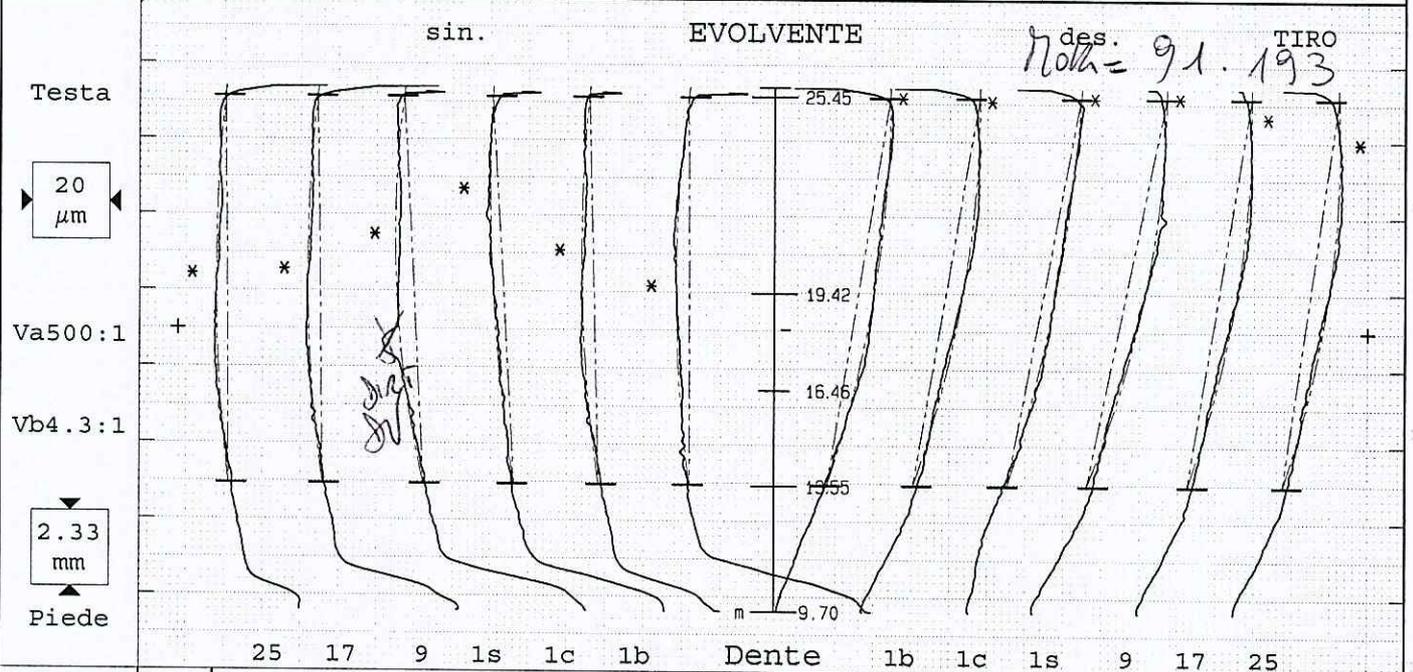


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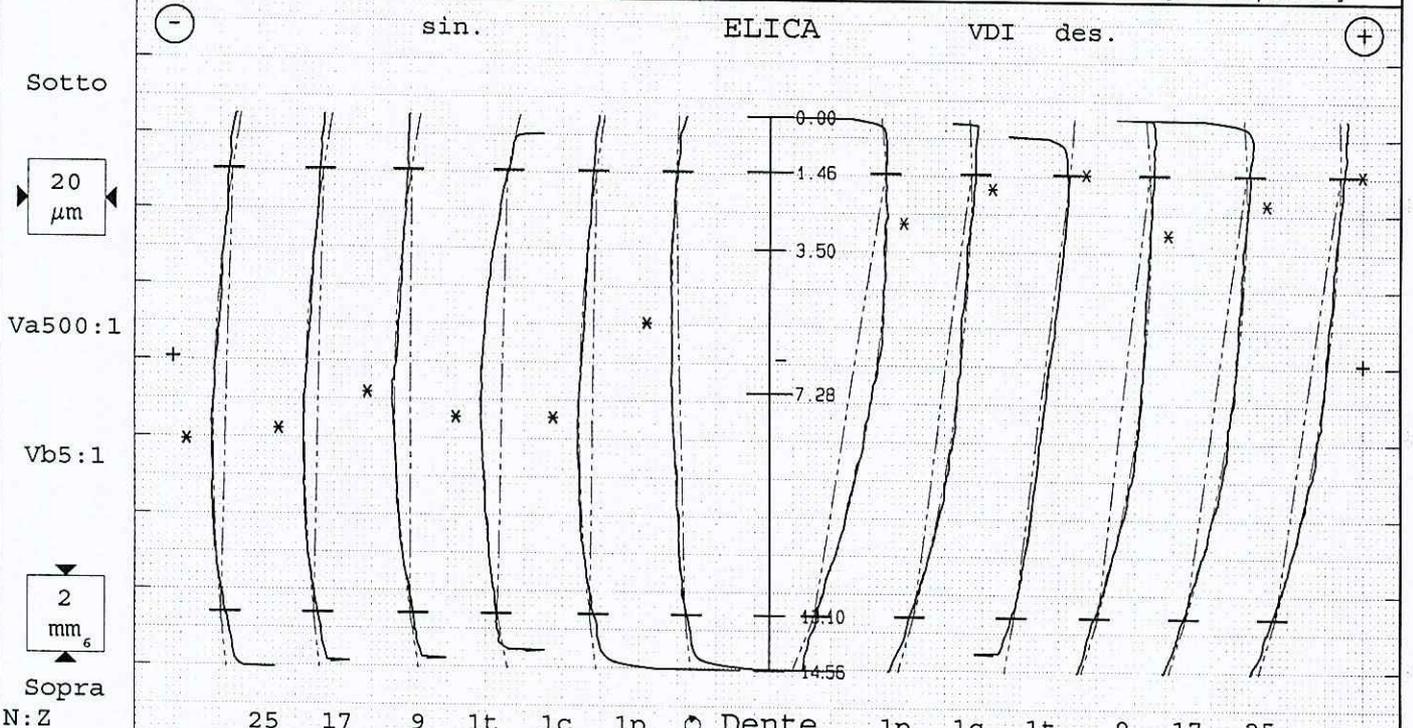
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 10:43
Denominazione: Input Outer Z32	Numero denti z 32	Largh.fasc.dent. b 14.56mm	
Numero disegno.: D51.6.1233.35-IF	Modulo m 2.35mm	Tratto evolv. La 11.9mm	
Comessa/serie nr.: pz n.6 - 5	Angolo pressione 20°00'00"	Tratto elica Ls 11.65mm	
Masch.Nr.: M001	Spindel: Formata a elica	31°00'00"	Inizio elab. M1 13.55mm
Untersuchungszweck: Laufende Messung	Ø Base db 80.7524mm	Palpatore Ø (#2) 1mm	
Werkzeug: Charge:	Ang. Base 28°56'44"	Fat.scor.pr. x .4	



Tolerance	Medio	Val.misur [µm]						Qual	Tolerance	Val.misur [µm]						Medio	Qual
fH _{am} ±6	2.5	Var a 4.3							21±6	Var a 6.0						17.5	
fH _a ±10	2.5	0.9	1.4	5.2	5.7	2.5	0.3		21±10	16.5	17.5	19.3	20.8	16.8	14.8	17.5	
F _a	4.6	2.9	2.7	8.7	5.1	4.1	2.8			5.5	6.9	3.1	3.6	7.1	9.6	6.8	
f _{fa} 4	3.0	2.1	2.0	6.0	3.3	2.0	3.0		4	2.8	3.6	2.2	3.6	2.9	3.5	3.4	
C _a 3±2	3.5	2.9	3.3	4.6	2.7	3.1	3.4		5±2	4.1	4.4	3.1	4.9	4.6	4.8	4.7	
f _{faf} 3	0.0	0.0	0.0	0.1	0.8	0.0	0.8		3	0.0	1.6	1.5	2.1	2.2	1.9	1.9	
P/T-Ø [mm]	81.213	[81.08/81.4]								96.020						[95.94/96.2]	



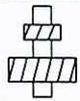
N:Z	Medio	Val.misur [µm]						Qual	Tolerance	Val.misur [µm]						Medio	Qual
fH _{sm} ±6	2.2	Bd 6. Var β 3.5							20±6	Bd -5. Var β 4.4						19.2	
fH _s ±13	2.2	3.6	3.1	0.1	3.1	2.0	-3.2		20±13	23.3	18.8	18.2	16.9	19.7	21.3	19.2	
F _β	3.7	3.6	3.4	4.6	6.2	3.3	3.7			6.5	4.4	2.3	4.6	4.7	5.1	4.7	
f _{fβ} 4	1.9	2.1	2.0	1.8	0.8	1.8	1.1		4	1.4	2.4	1.1	2.0	1.8	1.9	2.0	
C _β 1/5	3.6	3.3	3.5	4.2	5.4	3.4	2.1		1/5	6.0	4.1	1.3	4.7	4.6	4.2	4.4	

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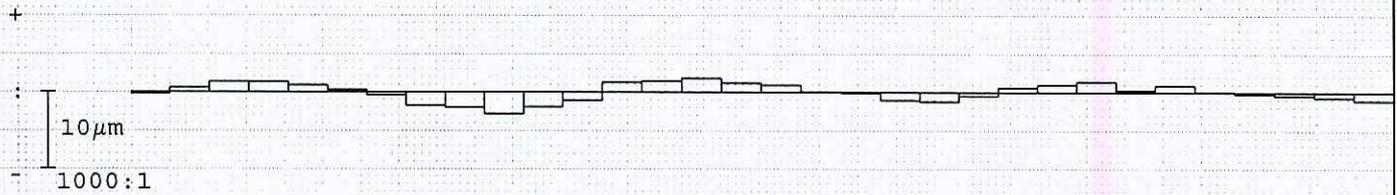


Ruota cilindrica Divisione

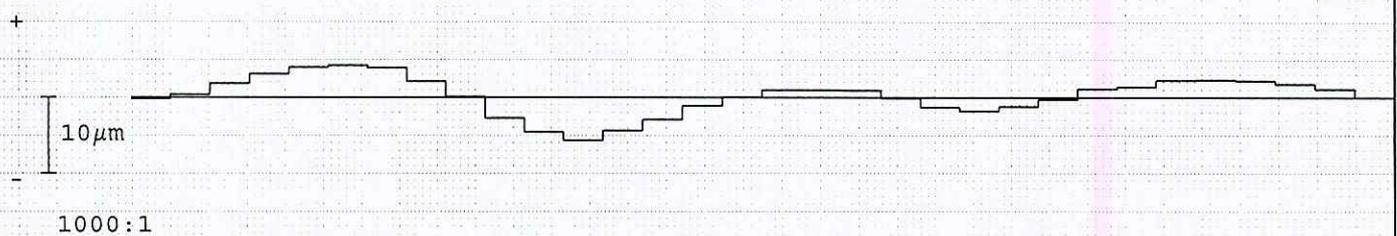


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Denominazione: Input Outer Z32		Numero denti z 32	Angolo pressione 20°00'00"
Numero disegno.: D51.6.1233.35-IF		Modulo m 2.35mm	Angolo elica 31°00'00"
Commessa/serie nr.: pz n.6		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formelwerkzeug	Charge:	

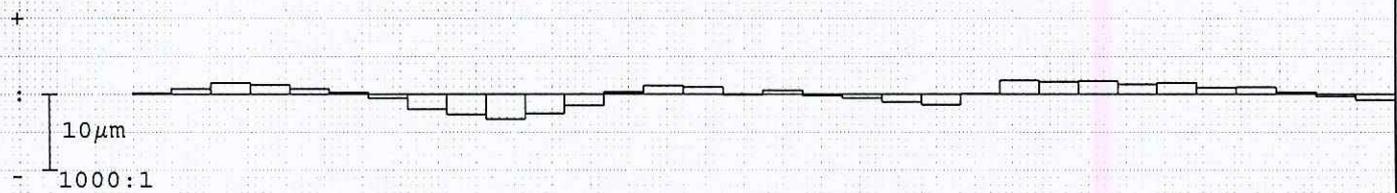
Errori singoli di divisione fp fianco sinistro



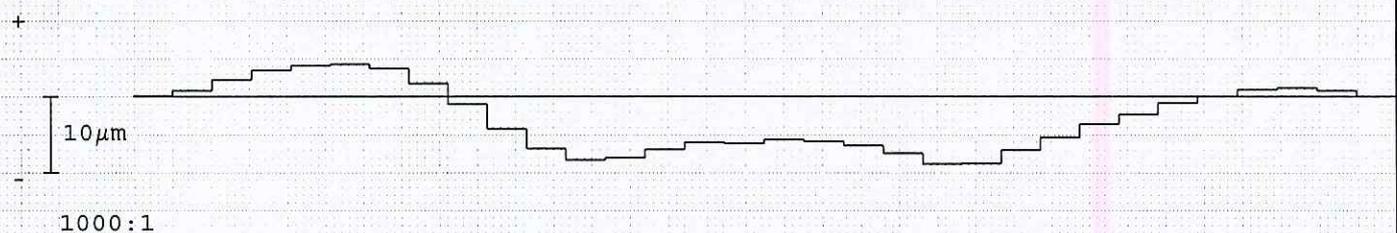
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

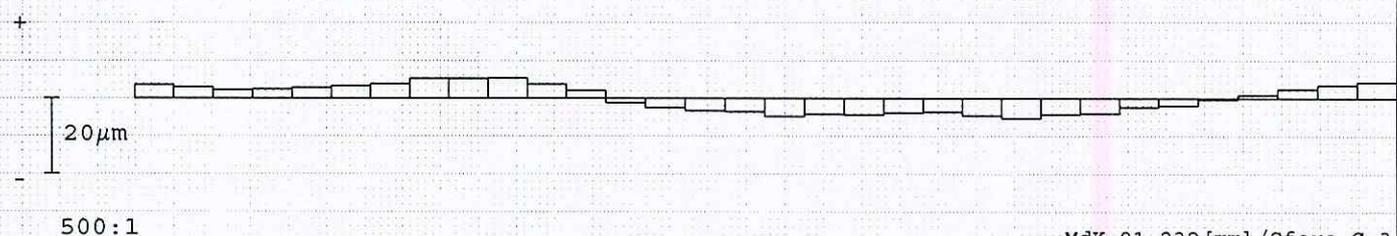


Errore somma di divisione Fp fianco destro



Corso per misura divis.: 87.208 z=3.5mm		fianco sinistro				fianco destro / TIRO			
		Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione	fp max	2.8		14.0		3.3		14.0	
Gr. salto di passo	fu max	2.3		18.0		1.8		18.0	
Scarto di divisione	Rp	4.6				5.1			
Err. globale di divisione	Fp	9.9		50.0		13.1		50.0	
Err. cordale di divisione	Fpz/8	8.4				10.5			

Centricità Fr (Ø-sfera =3mm) \odot : 9.5µm

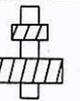


		Mdk 91.232 [mm] / Sfere-Ø 3	
Err. di concentricità	Fr	10.6	40.0
Variaz. spessore dente	Rs		
		Val. amm	91.232 91.152
		Val.	91.199 91.202 91.197

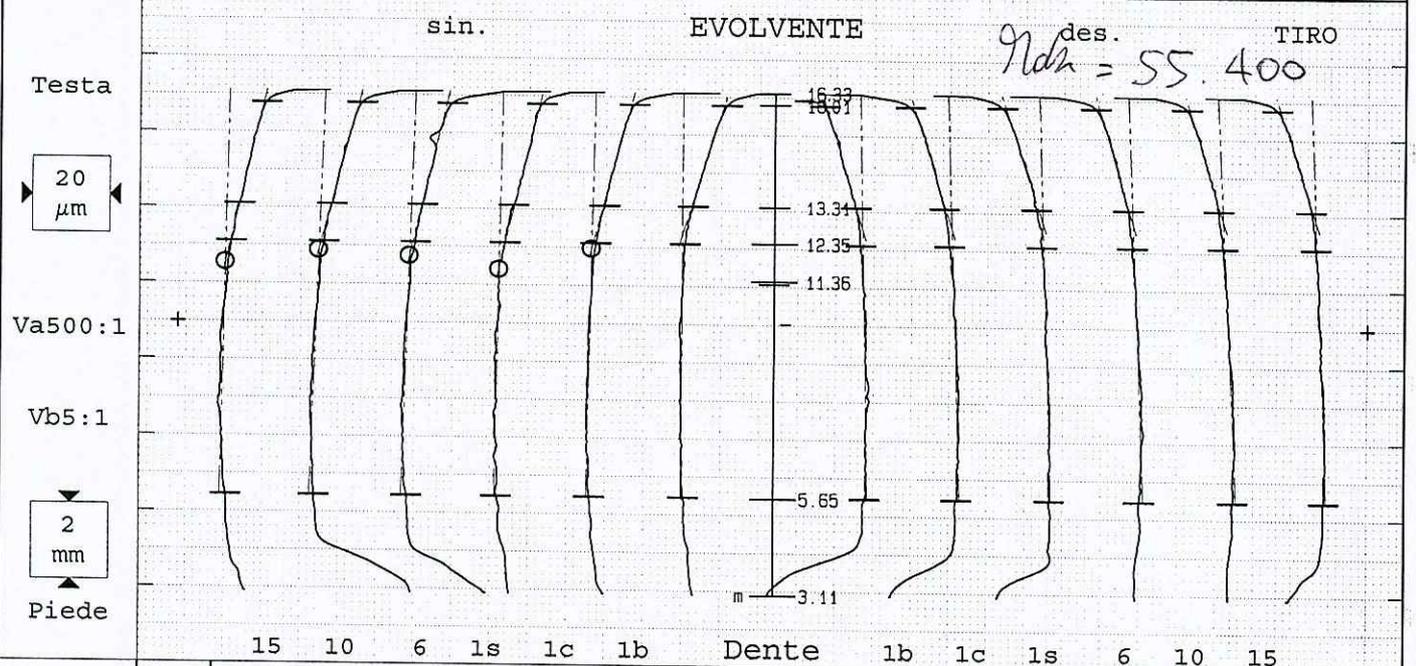
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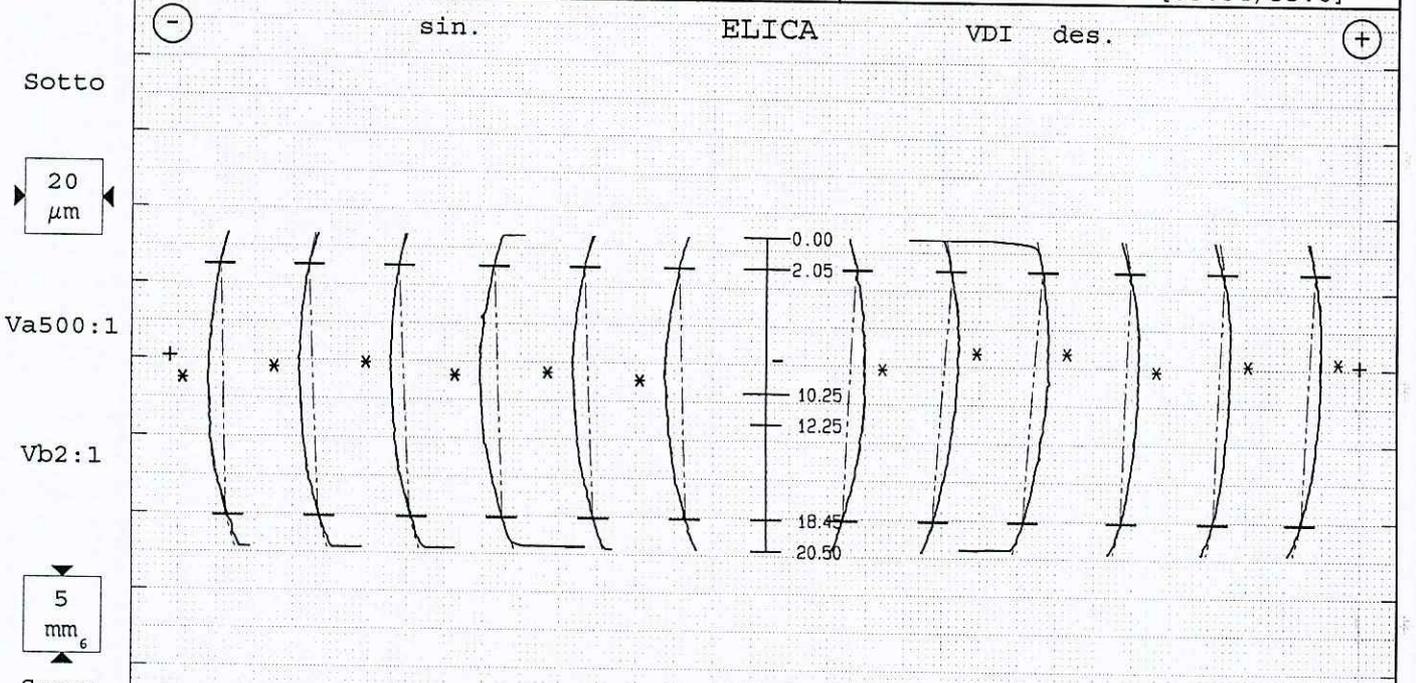
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 10:47
Denominazione: Input Outer Z19		Numero denti z 19	Largh. fasc. dent. b 20.5mm
Numero disegno.: D51.6.1233.35-IIF		Modulo m 2.3mm	Tratto evolv. La 6.7mm
Comessa/serie nr.: pz n. 6 -5		Angolo pressione 20°00'00"	Tratto elica L& 16.4mm
Masch. Nr.: M001	Spindel: Formn. 101	Angolo elica 24°00'00"	Inizio elab. M1 5.65mm
Untersuchungszweck: Laufende Messung		Ø Base db 44.4385mm	Palpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base 22°28'14"	Fat. scor. pr. x .606



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual	
fHm	±6	-2.7	Var a 1.6								±6	Var a 1.5							-4.2	
fHa	±10	-2.7	-2.1	-3.6	-3.2	-1.8	-2.0	-0.1		±10	-2.2	-3.5	-3.4	-4.2	-5.0	-4.1	-4.2			
Fa		3.1	3.2	3.4	3.5	2.8	2.3	1.4			2.5	2.9	2.5	3.3	3.4	2.8	3.1			
ffa	4	2.1	2.5	2.0	2.2	2.1	1.5	1.4		4	1.7	1.5	0.9	1.8	1.5	1.1	1.5			
Ca	-13/-5	-9.0	-9.1	-9.0	-8.4	-9.7	-9.3	-10.8		-13/-5	-9.1	-9.1	-9.0	-7.8	-7.7	-8.4	-8.3			
ffaf	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		3	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
P/T-Ø [mm]		42.988	[42.85/43.15]									55.448	[55.34/55.6]							



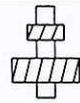
Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual	
fHsm	±6	-2.9	Bd -0. Var β 2.0								±6	Bd 2. Var β 3.0							4.5	
fHs	±13	-2.9	-1.7	-3.2	-3.7	-2.9	-3.0	-2.1		±13	4.2	6.4	6.4	3.4	3.6	4.6	4.5			
Fβ		4.5	4.3	4.5	4.7	4.9	4.5	4.3			5.3	6.1	6.2	4.0	4.2	4.9	4.8			
ffβ	4	0.9	1.0	0.9	1.0	1.1	0.6	0.8		4	0.8	0.8	1.0	1.0	1.0	0.8	0.9			
Cβ	1/5	3.8	3.9	3.6	3.5	4.7	4.0	4.3		1/5	4.1	3.8	3.7	3.3	2.9	3.2	3.3			

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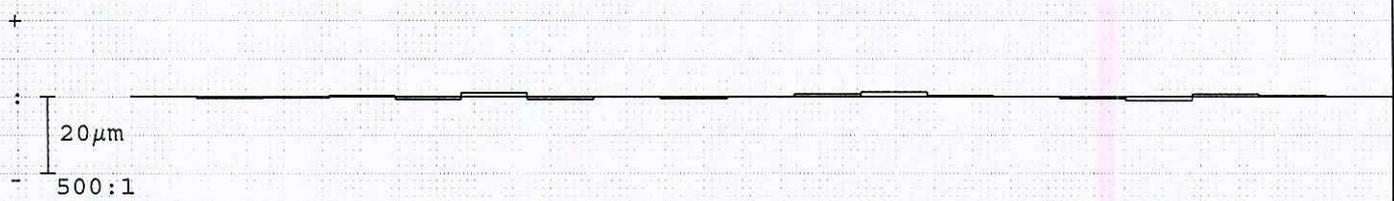


Ruota cilindrica Divisione

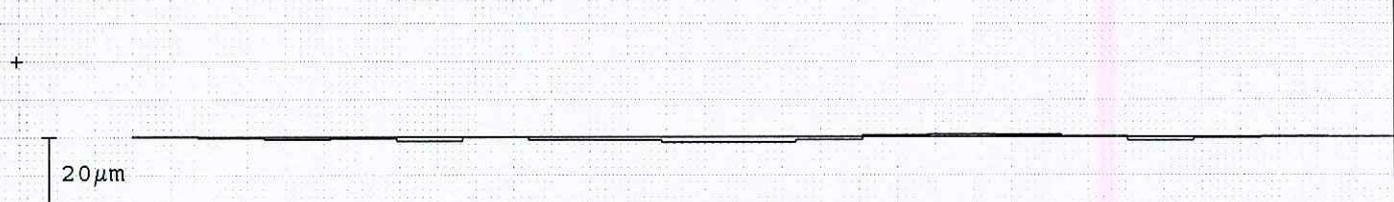


Nr. prog.: STI0416b04 0	P26 601390	Controllore: turno 06-12	Data: 22.04.2018 10:47
Denominazione: Input Outer Z19		Numero denti z 19	Angolo pressione 20°00'00"
Numero disegno.: D51.6.1233.35-IIF		Modulo m 2.3mm	Angolo elica 24°00'00"
Comessa/serie nr.: pz n.6		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: FORMER	Werkzeug:	Charge:

Errori singoli di divisione fp fianco sinistro



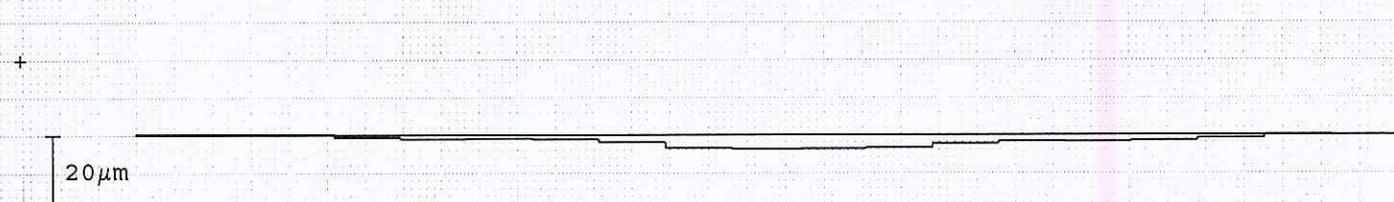
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



Errore somma di divisione Fp fianco destro

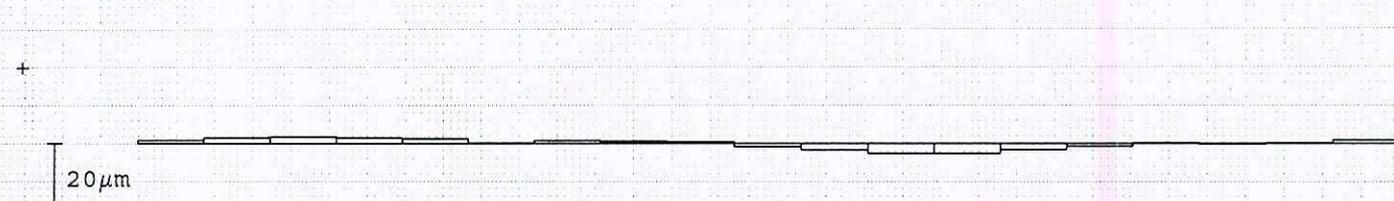


Corso per misura divis.: 49.841 z=12.3mm

	fianco sinistro				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	1.2		14.0		1.5		14.0	
Gr. salto di passo fu max	1.8		18.0		1.3		18.0	
Scarto di divisione Rp	2.3				2.6			
Err. globale di divisione Fp	2.1		40.0		4.0		40.0	
Err. cordale di divisione Fpz/8	1.9				2.3			

Centricità Fr (Ø-sfera =4mm)

⊙ : 3.3µm



Err. di concentricità Fr	4.3	32.0	Val. amm	55.442	55.382	
Variaz. spessore dente Rs			Val.	55.418	55.419	55.417

MdK 55.443 [mm] / Sfere-Ø 4



REPORT 18/073

Date: 10/05/2018
 Author: M. de Dato

Reason for analysis: PPAP
Motivo dell'indagine:

Requester: WLQ - M. Vicenti
Richiedente:

Part Name: OS2
Nome particolare:
Material: GCG_805000 Part 2
Materiale:
State of part: Finito
Stato del particolare:

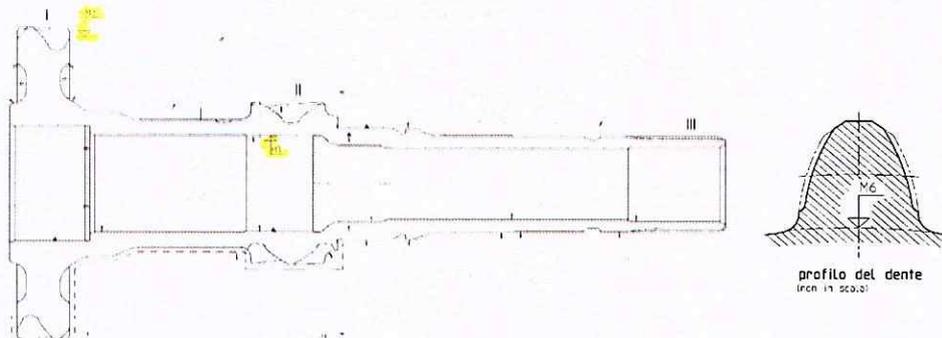
P/N: 251.6.1242.35
S/N: -
Customer:
Cliente:

Result: OK
Risultato:

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

Notes: Gearset 32C
Note:

Drawing (disegno)



Picture 1: posizioni di misura a disegno.

Surface hardness verification (verifica durezza superficiale)

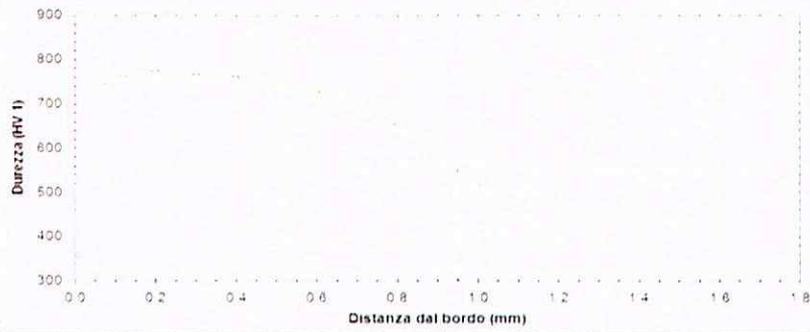
Component	Scale	Position	Measured Value	Range
Shaft	HRC	M1	61.8	-
Shaft	HRA	M1	82.3	80.5 + 2.5

REPORT 18/073

Date: 10/05/2018
Author: M. de Dato

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

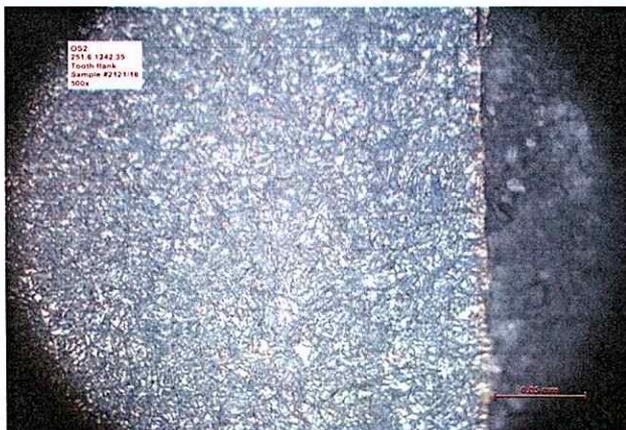
Component	Scale	Sample #	Position	Measured Value	Range
Shaft	CHD 550 HV1	2121/18	M2 (tooth flank)	1.04	0.70+0.50 mm
Shaft	CHD 550 HV1	2121/18	M3	0.95	0.50 mm min.
Shaft	Core hardness HV10	2121/18	M4 (tooth core)	351	≥ 300



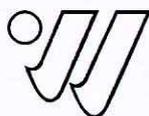
Picture 2: profili di durezza.

Microstructure analysis (analisi della microstruttura)

Sample #	2121/18
Shaft - Tooth flank surface structure:	Martensite e austenite residua (10%)
Shaft - Tooth base core structure:	Martensite, bainite



Picture 2: Microstruttura sul fianco dente (a sinistra) ed a cuore sulla base dente (a destra).



ZerTech – division of Institute of Materials Engineering, D-34125 Kassel

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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):	$0^\circ; \pm 18^\circ; \pm 27^\circ; \pm 33^\circ; \pm 39^\circ; \pm 45^\circ$
Diffraction angle range (2θ):	$148^\circ - 164^\circ$
Step-feeding:	0.1°
Primary aperture:	$\varnothing 1.0$ mm for measuring point A, F and MP 0.5×4.0 mm ² for measuring point B
Detector aperture:	symmetrizing slit

Evaluation parameter:

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

Macchina da confrontare: HNW11013
Capability da confrontare Nr.: 02/03/2017

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

Codice Pezzo di riferimento: 251.6.1071.35

Partnumber in esame: 251.6.1233.35

	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

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

Deviazione Std. Ammessa: ± 25 %

Componente di riferimento					Componente in esame						
DIMENSIONEN					DIMENSIONEN						
Merkmal	Einheit	Nominale		Deviazione ammessa in %	Nominale		Deviazione %	i.O./n.i.O.			
numero denti Z	---	17			19			i.O.			
diam.primitivo - Ø	mm	39.376			44.438			i.O.			
Altezza dentatura	mm	6.525			6.225			i.O.			
diam.testa - Ø (da)	mm	50.75			55.60			i.O.			

Studio delle specifiche					Studio delle specifiche						
Merkmal	Einheit	Nominale	Toleranz T ₁	P _p	P _{pk} (solo per caratteristiche unilaterali)	Nominale	Toleranz T ₂	Taregt (1,00/1,33/1,67)	i.O./n.i.O.	Min. P _p	Min. P _{pk}
Mdk - Ø	mm	50.112	0.058	1.67		55.382	0.060	1.67	i.O.	1.73	
Fr (Eccentricità)	µm	0	32	1.67		0	32	1.67	i.O.	1.67	
	µm								---		
	µm								---		
	µm								---		
	µm								---		
	µm								---		
...									---		

Part Submission Warrant

Hivo - Internal	Rev.:	00
Material-Nr.:	111689-00	
Partgroup:	1102	
Report-Nr.:	1520180086	

Part Name <u>Input shaft outer</u>		Cust. Part Number <u>251.6.0931.90</u>
Shown on Drawing No. <u>2516093190</u>		Org. Part Number <u>111689-00</u>
Engineering Change Level <u>T72586</u>		Dated <u>15. Sep 17</u>
Additional Engineering Changes <u>AB / 10076446</u>		Dated <u>10. Sep 15</u>
Safety and/or Government Regulation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Purchase Order No. <u>550004003901</u>	Weight (kg) <u>3,6304</u>
Checking Aid No. <u>general inspection equip.</u>	Checking Aid Engineering Change Level	Dated

ORGANIZATION MANUFACTURING INFORMATION <u>Hirschvogel Umformtechnik GmbH</u> <u>6589</u> Organization Name & Supplier/Vendor Code <u>Dr.-Manfred-Hirschvogel-Strasse 6</u> Street Address <u>Denklingen</u> <u>Bayern</u> <u>86920</u> <u>Germany</u> City Region Postal Code Country	CUSTOMER SUBMITTAL INFORMATION <u>Getrag B.V. & Co. KG.</u> Customer Name/Division <u>Mr. Hettinger Andreas</u> Buyer/Buyer Code Application
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MATERIALS REPORTING

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

Submitted by IMDS or other customer format: Module ID: 724563948 Version: 0.01

Date: 2018-02-27

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

REASON FOR SUBMISSION (Check at least one)

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

REQUESTED SUBMISSION LEVEL (Check one)

Level 1 - Warrant only (and for designated appearance items, an Appearance Approval Report) submitted to customer.

Level 2 - Warrant with product samples and limited supporting data submitted to customer.

Level 3 - Warrant with product samples and complete supporting data submitted to customer.

Level 4 - Warrant and other requirements as defined by customer.

Level 5 - Warrant with product samples and complete supporting data reviewed at organization's manufacturing location.

SUBMISSION RESULTS

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

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

Mold / Cavity / Production Process Cold forging

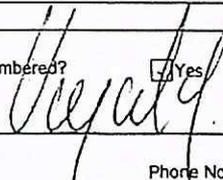
DECLARATION

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 the declaration below.

EXPLANATION/COMMENTS: Initial sample inspection / Report-No.: 1520180086

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

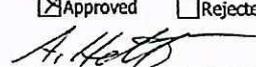
Organization Authorized Signature i. A.  Date 27. Feb 18

Print Name Hr.Simon Brugger Phone No. +49-8243-291-6157 Fax No. +49-8243-991-0

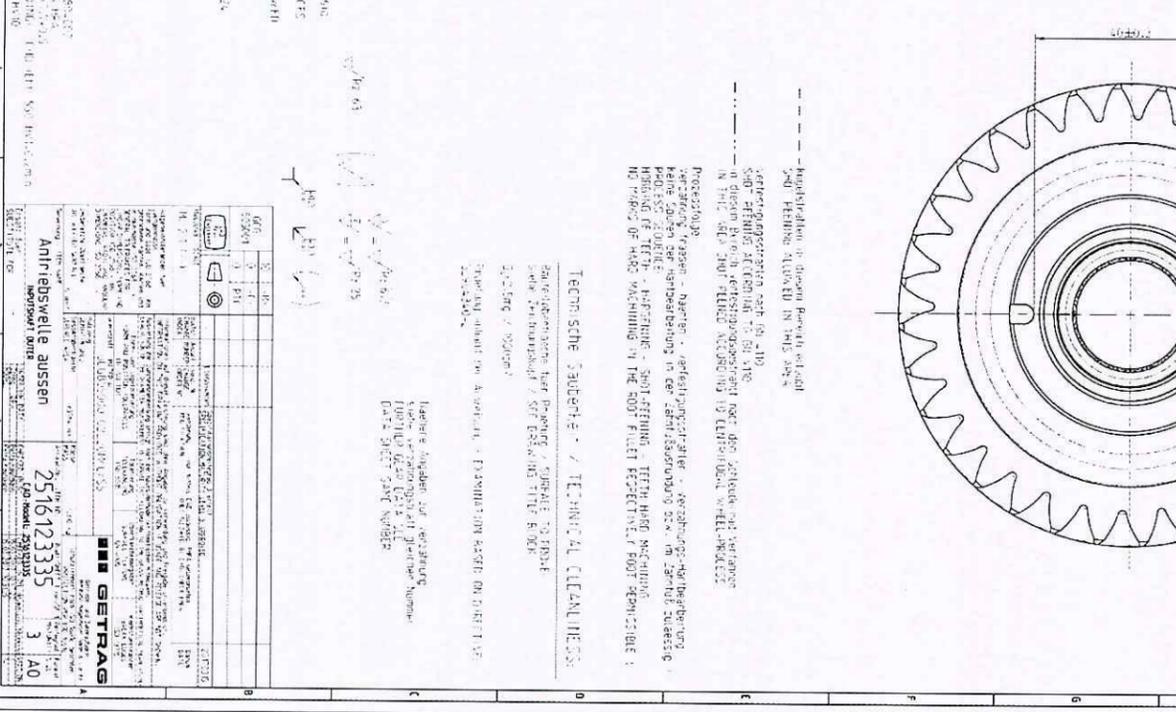
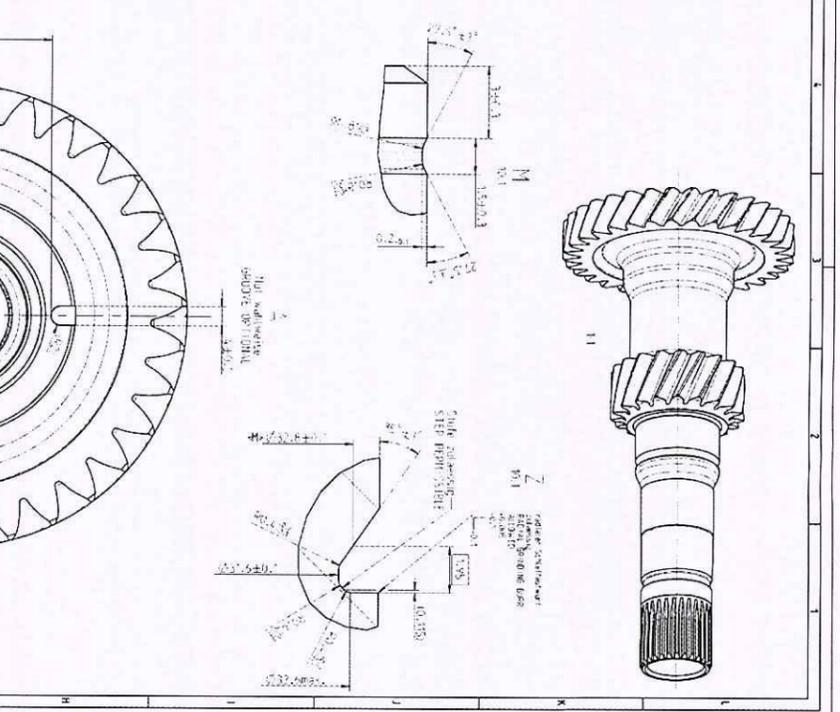
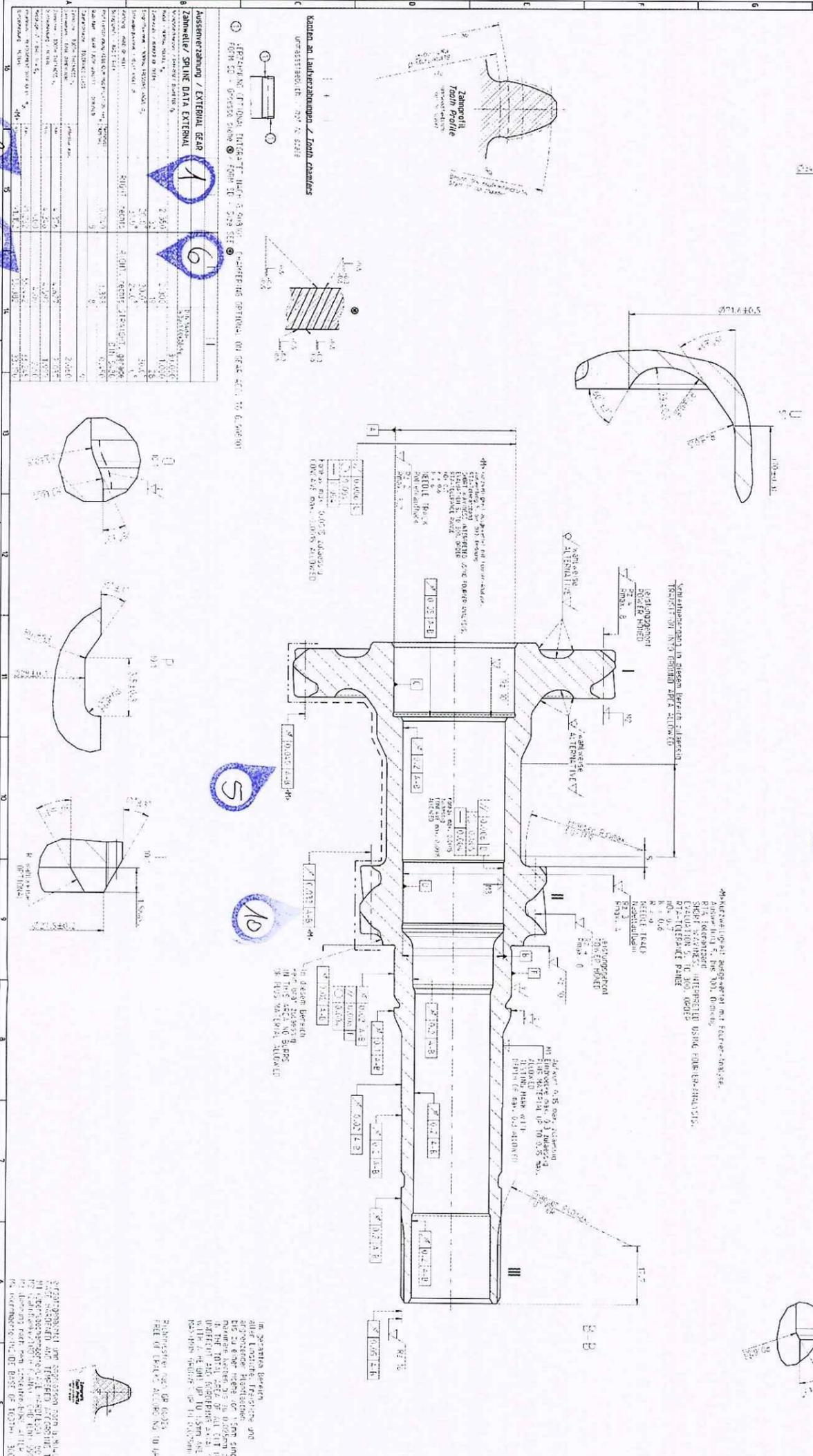
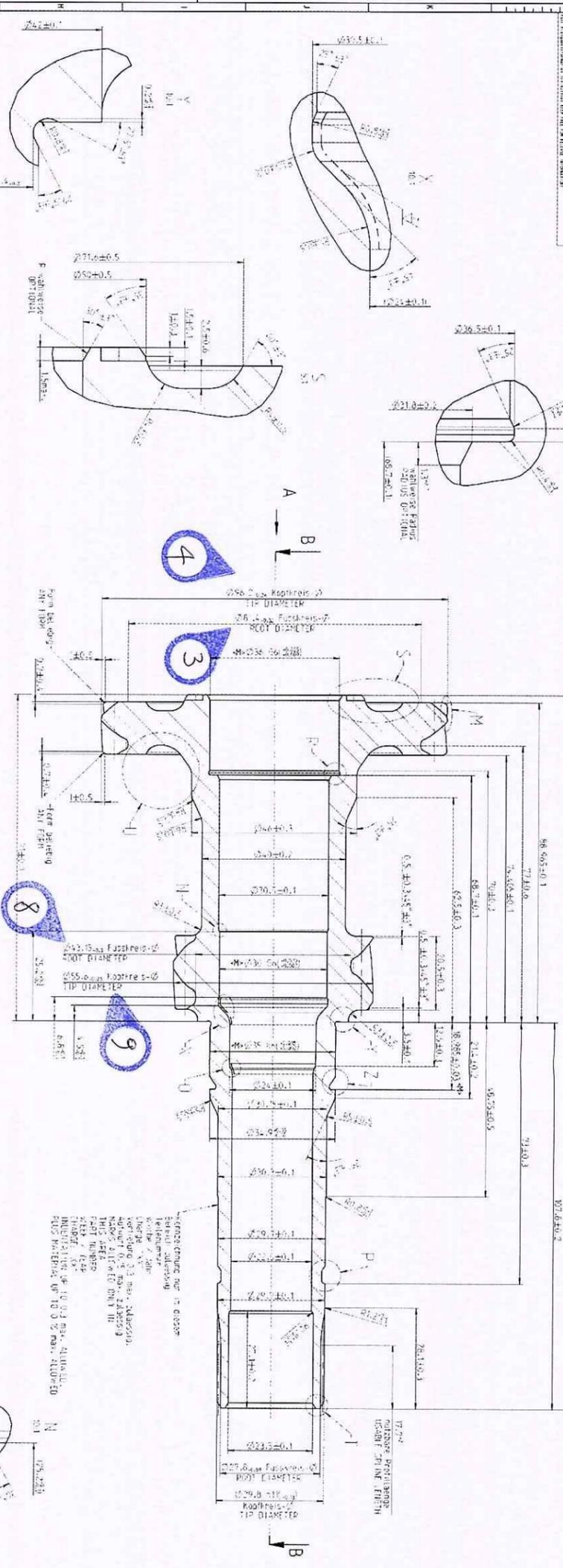
Title QMP E-mail Simon.Brugger@Hirschvogel.com

FOR CUSTOMER USE ONLY (IF APPLICABLE)

Part Warrant Disposition: Approved Rejected Other

Customer Signature  Date 28.02.18

Print Name A. Hettinger Customer Tracking Number (optional) 18-028-1



Item	Part Name	Material	Quantity	Notes
1	Zahnrad	St 50	1	
2	Zahnrad	St 50	1	
3	Zahnrad	St 50	1	
4	Zahnrad	St 50	1	
5	Zahnrad	St 50	1	
6	Zahnrad	St 50	1	
7	Zahnrad	St 50	1	
8	Zahnrad	St 50	1	
9	Zahnrad	St 50	1	
10	Zahnrad	St 50	1	

TECHNISCHE ZEICHNUNG / TECHNICAL DRAWING
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