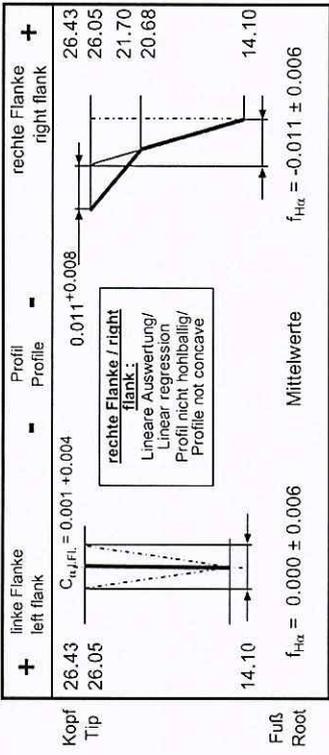


STIRNRAD		Toleranzen der Verzahnung (DIN 3961 vom Aug. 1978)		(7)	
GEAR		gültig für Werte am Einzelzahn		Tolerances of gearing (DIN 3961 of Aug. 1978)	
außenverzahnt		valid for values at individual tooth			
external					
Zähnezahl	z	linke Fl.	rechte Fl.		
Number of teeth	38	left flank	right flank		
Modul	m_n				
Normal module	2.000000		0.005	Eingriffsteilungs-Abweich.	f_{pe}
Eingriffswinkel	α_n			Normal pitch error	0.010
Normal pressure angle	17° 30' 0"			Teilungs-Einzelabweichung	f_p
Schrägungswinkel	β			Adjacent pitch error	0.010
Helix angle	33° 0' 0"			Teilungssprung	f_u
Steigungsrichtung	LINKS			Diff. bet. adjacent pitches	0.012
Hand of helix				Teilungs-Summenabweich.	F_{pk}
Profilverschiebungsfaktor	x			Cumulative circ. pitch error	
Addendum modification coeff.	1.187			Rundlaufabweichung	F_r
Teilkreisdurchmesser	d			Radial run-out	0.032
Pitch diameter	90.620			Zahndickenschwankung	R_s
Kopfkreisdurchmesser	d_s			Range of tooth thckn. error	
Outside diameter	100.40 -0.26				
Kopfnutzkreis. theo. max. d_{sa}	99.95			Zweifl.-Wälzabweichung	F_r
Tip diam. usable theo.	99.55			Radial composite error	0.028
Kopfnutzkreis. theo. min. d_{na}	99.55			Zweifl.-Wälzsprung	f_r
Tip diam. usable theo.	86.90 -0.32			Radial tooth to tooth comp. err.	0.012
Fußkreisdurchmesser	d_f			Meßkreis Krümmungsradius P_{aw}	
Root diameter	89.39			Radius of curvature meas. diam.	19.68
Fußnutkreisdurchmesser	d_{nf}				
Root diameter usable	42.412				
Grundkreisradius	r_b				
Base circle radius	84.823				
Grundkreisdurchmesser	d_b				
Base diameter	4.639				
Normalzahnstärke max. s_n	4.614				
Normal tooth thickness	9				
Normalzahnstärke min. s_n	53.548				
Normal tooth thickness	53.524				
Meßzähnezahl	k				
Number of teeth spanned	3.0000				
Zahnweite max. W_k	97.787				
Base tangent length	97.725				
Zahnweite min. W_k	0.067				
Base tangent length	0.171				
Meßkugeldurchmesser	D_M				
Ball diameter					
Diam. Zweikugelmaß max. M_{GK}					
Measurement o. balls					
Diam. Zweikugelmaß min. M_{GK}					
Measurement o. balls					
Verdrehtflankenspiel	theo.				
Circumferential backlash					

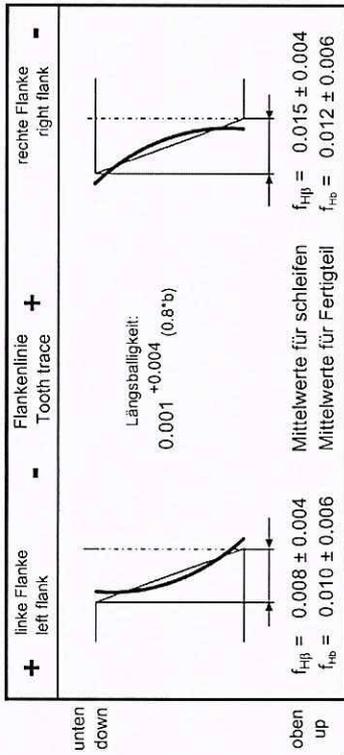
Vorbereitungsdaten siehe Verzahnungsblatt Vorbearbeitung gleicher Nr.
For pre-machining dimensions, see gear data sheet same number

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

251.1.1.1252.50



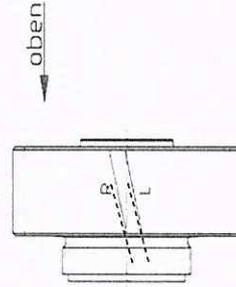
* Schreibbeginn $\emptyset = 87.85_{-0.30} \approx 11.43$
* Start of checking



* $f_{H\beta}$ (zwischen dNF und dem Schreibbeginn ds) max $f_{H\beta}/2$, jedoch 0.003 zulässig
* $f_{H\beta}$ (between dNF and start of checking ds) max $f_{H\beta}/2$, 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

Profile and helix checking according to G_808006 and VDI/VDE 2612
Tooth trace testing area $L_{\beta} = 0.8^*b$ calculated to 1.0^*b
Terms of the tooth system according to DIN (German Industrial Standards) No. 868, 3960, 3998



R. Fl. Zug

Bezugsprofil-Schleifscheibe

Grinding tool data

Schleifscheibenkopfhöhe $h_{pOS} = 4.200$

Schleifscheibenkoppradius $P_{pOS} = 0.336$

Schleifdurchmesser = $87.85_{-0.30} \approx 11.43$

grinding diameter

Verteiler:

Schutzvermerk nach ISO 16016 beachten
Protection per ISO 16016

■ ■ ■ GETRAG
GETRAG Getriebe- und Zahnradfabrik
Hermann Hagenmeyer GmbH & Cie KG

Remark:

251

Erstverwendung bei Getriebeartyp:

Verzahnungsblatt Endkontrolle

Final Check Gear Data

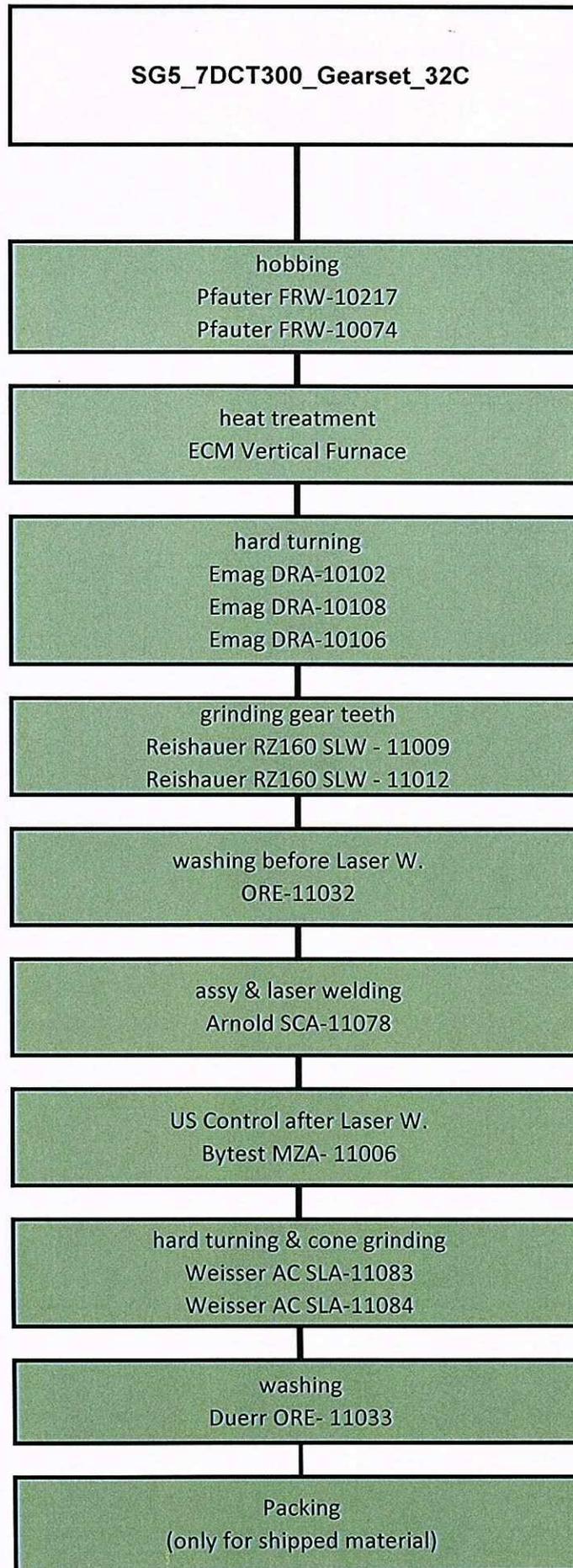
Benennung:

Naming:

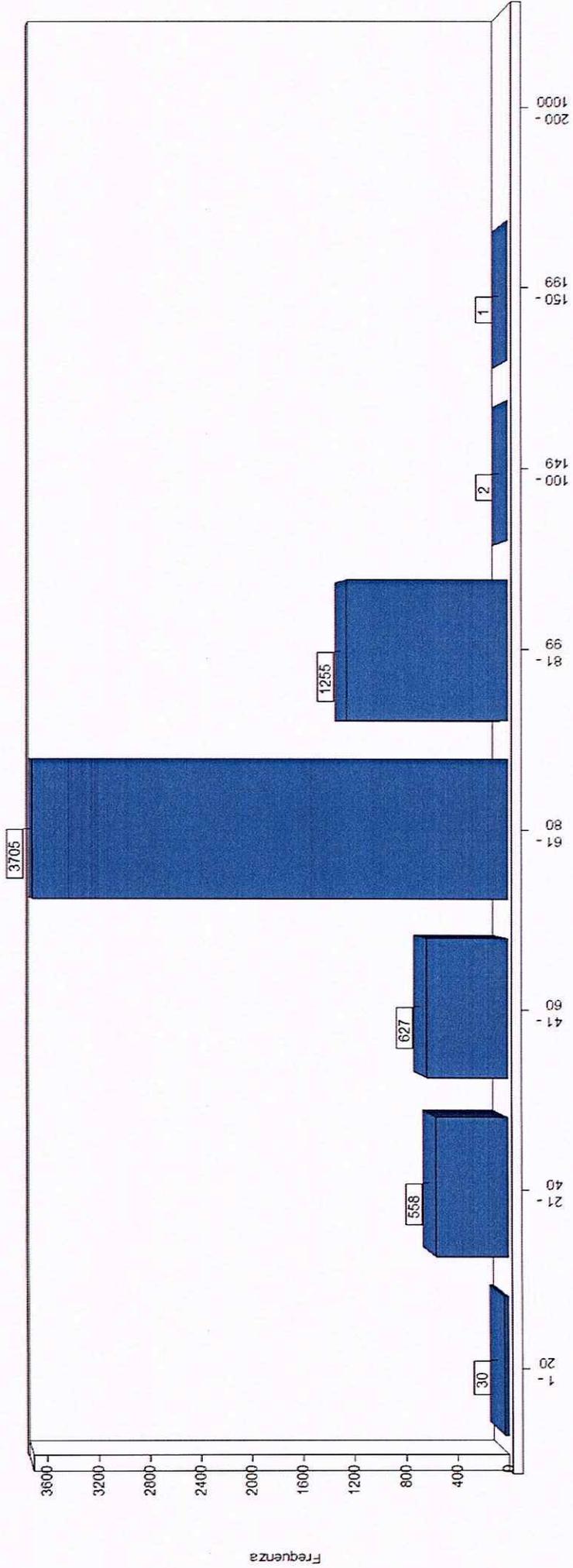
Schaltrad 5.Gg.

Zeichnungsnummer:
Drawing number:

251.1.1.1252.50



		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	Responsabile: Getrag Ditta: Getrag	Enesso: 31/08/2015
FMEA/Elemento: GEARSET 7DCT300	Codice dell'operazione: Tutte Stato modifica: -	Responsabile: Papagna, Oscuro, Nitti, Cicirelli, Tanzi T., Terlizese, Landriscina, Guerra, Sinibaldi, Caponio, Vicenti, Picerno, Pierro, Cacciapaglia, Sisto. Ditta:	Responsabile: Papagna, Oscuro, Nitti, Cicirelli, Tanzi T., Terlizese, Landriscina, Guerra, Sinibaldi, Caponio, Vicenti, Picerno, Pierro, Cacciapaglia, Sisto. Ditta:	Enesso: Modificato: 13/01/2017 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

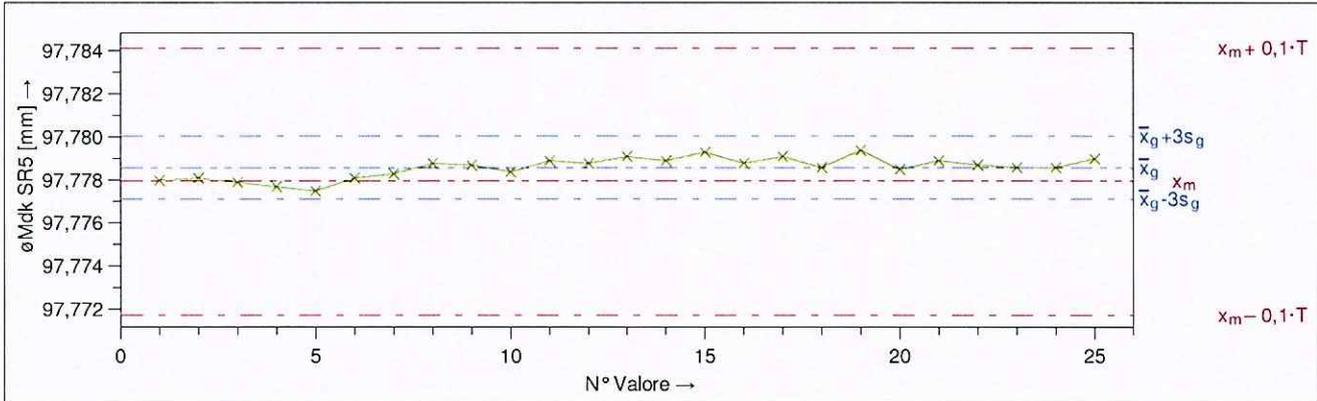
Actions ongoing for RPN > 100:

Chr. Classification	Project	Component	Operation	Chr. Description	Actual RPN			Action	Resp.	Due date	Min. RPN expected			
					S	O	D				S	O	D	RPN
<M>	DCT300	SG1	Hard Turning	Clutch body Height	7	4	4	112	Pierro	31-May-18	7	2	5	(70)
<M>	DCT300	SGRv	Hard Turning	Clutch body Height	7	3	5	105	Pierro	30-Jun-18	7	2	5	(70)
std	DCT300	IS2	Diam. Grinding	Spline Fr	8	6	4	192	Cacciapaglia	31-Jul-18	8	3	5	(120)
										31-Aug-18	8	2	5	(80)



Capacità strumenti di misura

Data/ora	24/04/2018	Nome oper.	mario.bozza	Reparto/Area/Prod.	WLQ	Posto di prova	Rettifica denti cnc
Calibro		Master			Caratteristica		
Desc. calibro	Banchetto in acciaio	Desc. mast.	SR5	Desc. Car.	øMdk SR5		
N° calibro	MVZ 406001 020	N° master	MVZ 400655 002	N° Caratt.	2511125250_32C		
Ris. calibro	0,0001	Valore reale mast.	97,778	Val. Nom.	97,7560	LSS	97,7870 $\hat{=}$ 0,0310
Caus. Pr.	Cg CgK	Unità di misura	mm	Unità di r	mm	LSI	97,7250 $\hat{=}$ -0,0310
Nota							

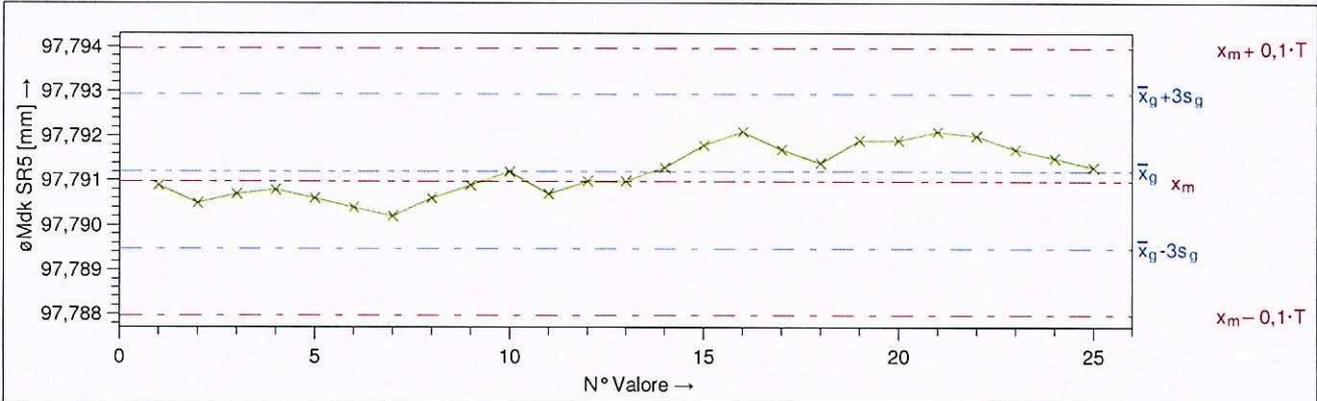


i	x _i	i	x _i	i	x _i	i	x _i	i	x _i
1	97,7780	6	97,7781	11	97,7789	16	97,7788	21	97,7789
2	97,7781	7	97,7783	12	97,7788	17	97,7791	22	97,7787
3	97,7779	8	97,7788	13	97,7791	18	97,7786	23	97,7786
4	97,7777	9	97,7787	14	97,7789	19	97,7794	24	97,7786
5	97,7775	10	97,7784	15	97,7793	20	97,7785	25	97,7790

Valori a disegno		Valori Calcolati		Statistiche	
$x_m + 0,1 \cdot T$	= 97,784200	x_{maxg}	= 97,7794	$\bar{x}_g + 3s_g$	= 97,780051
x_m	= 97,778000	x_{ming}	= 97,7775	\bar{x}_g	= 97,778588
$x_m - 0,1 \cdot T$	= 97,771800	R_g	= 0,0019	$\bar{x}_g - 3s_g$	= 97,777125
$0,2 \cdot T$	= 0,012400	n_{tot}	= 25	$6s_g$	= 0,002926
T	= 0,0620			s_g	= 0,000488
Unità di misura	= mm			$ B_i $	= 0,00058800
				n_{eff}	= 25
Test per Bias				Risultati del test : significativo ($\alpha \leq 0,1\%$)	
Bias		=	0,95%		
Minimo riferimento per sistema di misura capace					
Risoluzione	%RE =	0,16%		$T_{min} (\%RE)$	= 0,00200
$C_g = \frac{0,2 \cdot T}{4 \cdot s_g}$	=	$4,57 \leq 6,36 \leq 8,14$		$T_{min} (C_g)$	= 0,0130
$C_{gk} = \frac{0,1 \cdot T - \bar{x}_g - x_m }{2 \cdot s_g}$	=	$4,12 \leq 5,75 \leq 7,39$		$T_{min} (C_{gk})$	= 0,0189
Sistema di misura capace (%RE,min,C _g ,C _{gk})					
☐ GETRAG MSA 2017: Capability of measuring system (Type-1 Study)					



Data/ora	11/06/2018	Nome oper.	mario.bozza	Reparto/Area/Prod.	WLQ	Posto di prova	Dentatura SR5
Calibro		Master			Caratteristica		
Desc. calibro	Banchetto in acciaio	Desc. mast.	SR5	Desc. Car.	øMdk SR5		
N° calibro	MVZ 406001 019	N° master	MVZ 400655 001	N° Caratt.	2511125250_32C		
Ris. calibro	0,0001	Valore reale mast.	97,791	Val. Nom.	98,3100	LSS	98,3250 $\hat{=}$ 0,0150
Caus. Pr.	Cg CgK	Unità di misura	mm	Unità di rr mm	LSI	98,2950	$\hat{=}$ -0,0150
Nota							



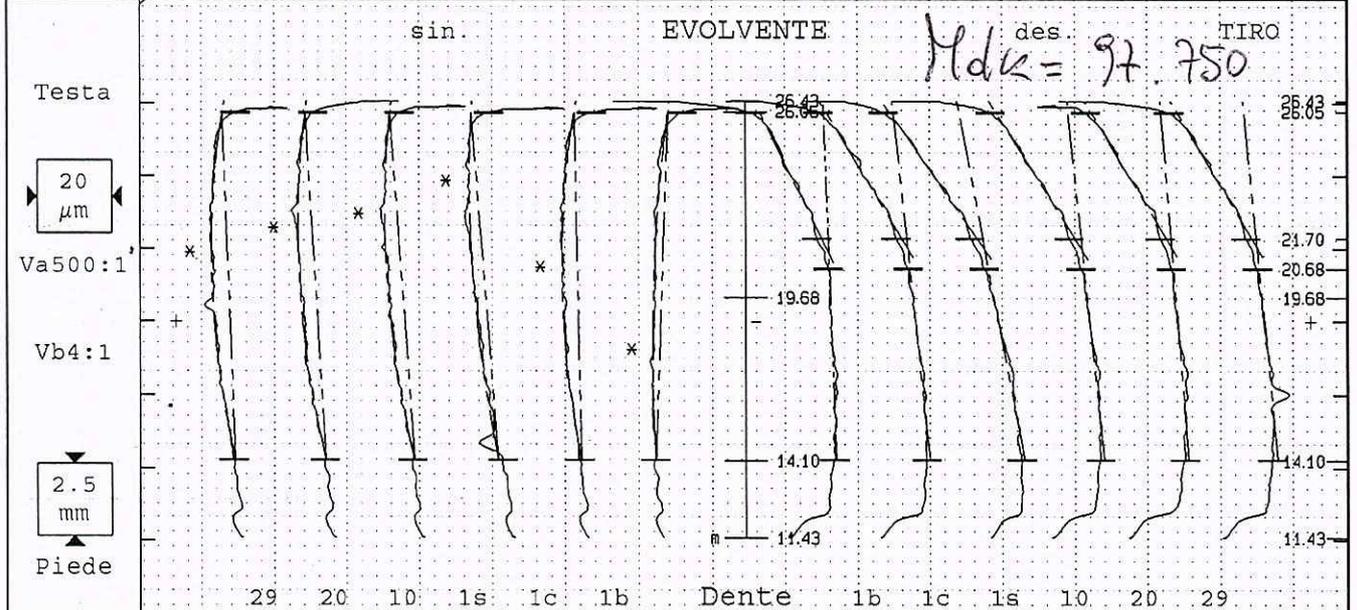
i	x _i	i	x _i	i	x _i	i	x _i	i	x _i
1	97,7909	6	97,7904	11	97,7907	16	97,7921	21	97,7921
2	97,7905	7	97,7902	12	97,7910	17	97,7917	22	97,7920
3	97,7907	8	97,7906	13	97,7910	18	97,7914	23	97,7917
4	97,7908	9	97,7909	14	97,7913	19	97,7919	24	97,7915
5	97,7906	10	97,7912	15	97,7918	20	97,7919	25	97,7913

Valori a disegno		Valori Calcolati		Statistiche	
x _m +0,1·T	= 97,794000	x _{maxg}	= 97,7921	\bar{x}_g+3s_g	= 97,792942
x _m	= 97,791000	x _{ming}	= 97,7902	\bar{x}_g	= 97,791208
x _m -0,1·T	= 97,788000	R _g	= 0,0019	\bar{x}_g-3s_g	= 97,789474
0,2·T	= 0,006000	n _{tot}	= 25	6s _g	= 0,003468
T	= 0,0300			s _g	= 0,000578
Unità di misura	= mm			B _i	= 0,00020800
				n _{eff}	= 25
Test per Bias				Risultati del test : non significativo	
Bias		=	0,69%		
Minimo riferimento per sistema di misura capace					
Risoluzione	%RE =	0,33%		T _{min} (%RE)	= 0,00200
$C_g = \frac{0,2 \cdot T}{4 \cdot s_g}$	=	1,87 ≤ 2,60 ≤ 3,32		T _{min} (C _g)	= 0,0153
$C_{gk} = \frac{0,1 \cdot T - \bar{x}_g - x_m }{2 \cdot s_g}$	=	1,72 ≤ 2,42 ≤ 3,11		T _{min} (C _{gk})	= 0,0175
Sistema di misura capace (%RE,min,C _g ,C _{gk})					
GETRAG MSA 2017: Capability of measuring system (Type-1 Study)					

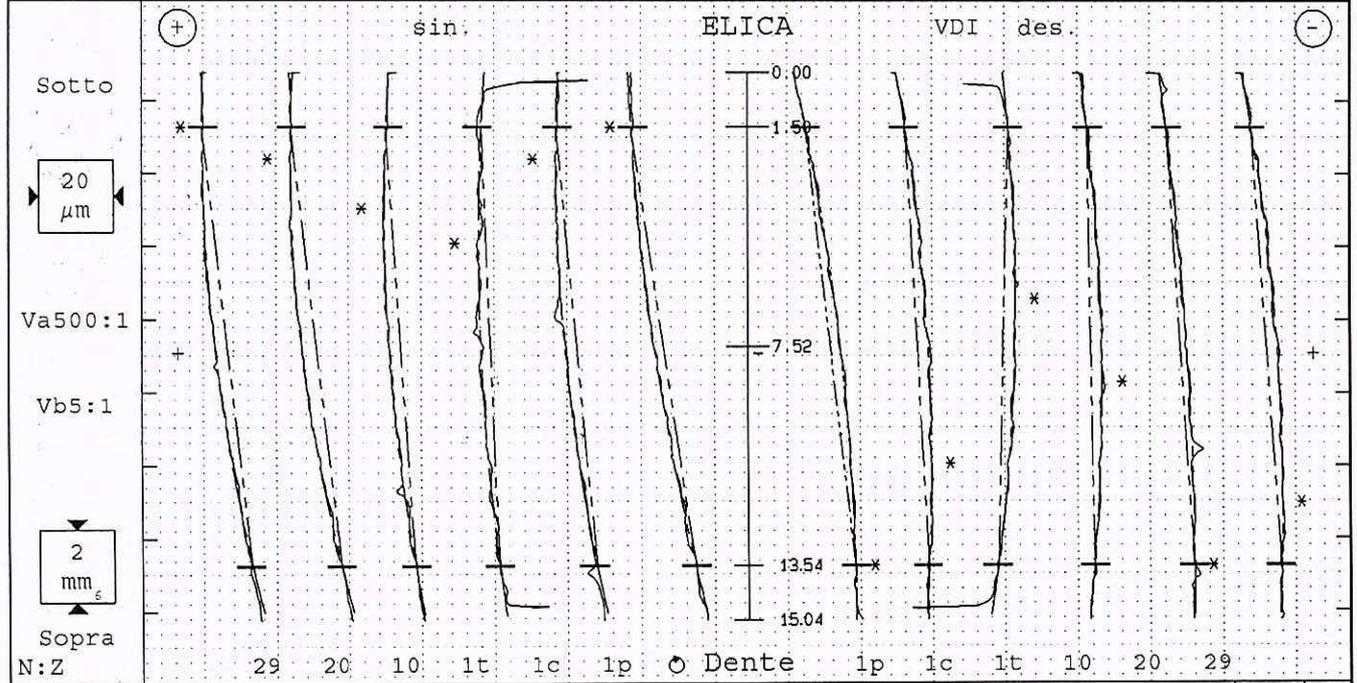
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 B7590	Controllore: turno d	Data: 09.05.2018 11:32
Denominazione: SR5		Numero denti z 38	Largh.fasc.dent. b 15.04mm
Numero disegno.: D51.1.1252.50-ICA		Modulo m 2mm	Tratto evolv. La 11.95/6.58mm
Comessa/serie nr.: 1		Angolo pressione 17.5°	Tratto elica Ls 12.03mm
Masch.Nr.: M001	Spindel: Formm	Angolo elicale -33°	Inizio elab. M1 14.1mm
Untersuchungszweck: Laufende Messung		Ø Base db 84.8232mm	Palpatore Ø (#2)1mm
Werkzeug:	Charge:	Ang. Base -31.294°	Fat.scor.pr. x 1.187



Tolerance	Medio	Val.misur[µm]							Qual	Tolerance	Val.misur[µm]							Medio	Qual
fH _{0m} ±6	4.5	Var a 4.8								-11±6	Var a 2.6							-9.2	
fH _α ±10	4.5	3.6	5.7	6.7	7.4	1.9	-3.3		-11±10	-3.5	-10.1	-18.0	-9.7	-7.5	-9.3	-9.2			
F _α	7.9	7.5	8.5	8.1	9.4	7.6	7.8			4.6	2.1	4.6	2.5	3.5	6.7	3.7			
ff _α 5	4.9	6.0	4.0	3.8	9.0	5.6	5.0		5	1.7	1.8	2.5	2.2	2.6	6.4	3.3			
Ca _{1/5}	4.3	4.6	4.3	4.0	3.0	4.2	2.3												
Ca									-19/-11	-17.3	-19.1	-19.3	-18.9	-18.8	-18.7	-18.9			
ff _{αf} 3	1.7	1.7	1.6	1.9	0.0	1.5	0.7		3	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
P/T-Ø[mm]										100.144	[100.14/100.4]								



fH _{0m}	10±6	14.5	Var β 7.4								12±6	Var β 7.9							7.6
fH _α 10±10	14.5	17.1	17.4	10.0	6.1	13.6	21.7		12±10	17.0	8.2	-3.6	2.4	9.6	10.3	7.6			
F _α	5.6	6.2	7.0	3.8	4.7	5.3	9.4			5.4	4.9	13.0	8.1	4.6	3.6	5.3			
ff _β 5	2.0	1.5	1.3	2.7	2.9	2.6	1.4		5	1.2	1.4	1.3	1.3	3.6	1.3	1.9			
C _β 1/5	3.5	3.4	4.1	3.2	2.6	3.2	2.5		1/5	2.7	3.1	3.3	3.0	1.7	2.9	2.7			
Bd		-15.6														-20.6			

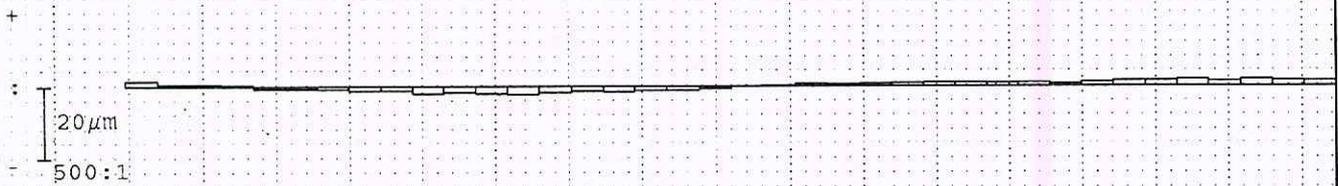


Ruota cilindrica Divisione

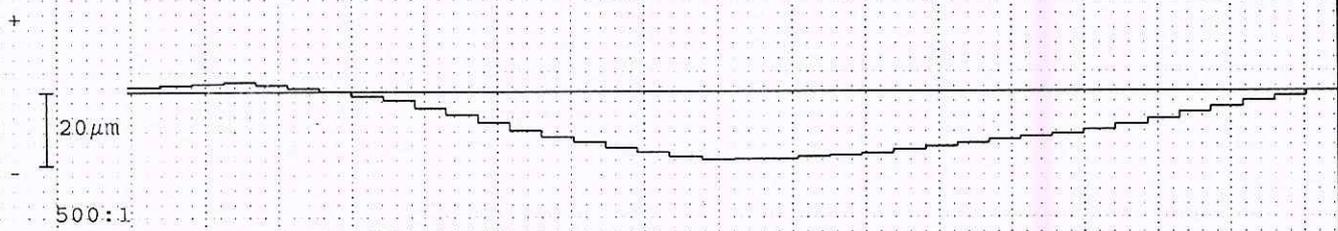


Nr. prog.: STI0416b04 0	P26 B7590	Controllore: turno d	Data: 09.05.2018 11:32
Denominazione: SR5		Numero denti z 38	Angolo pressione 17.5°
Numero disegno.: D51.1.1252.50-ICA		Modulo m 2mm	Angolo elica -33°
Comessa/serie nr.: 1		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Form	Zeug:	Charge:

Errori singoli di divisione fp fianco sinistro



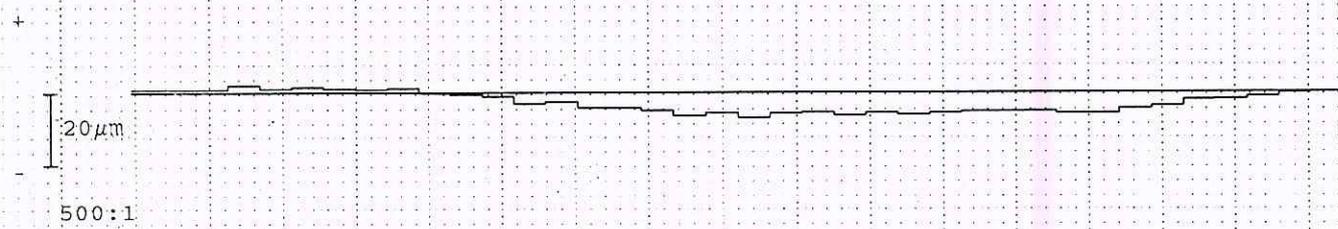
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



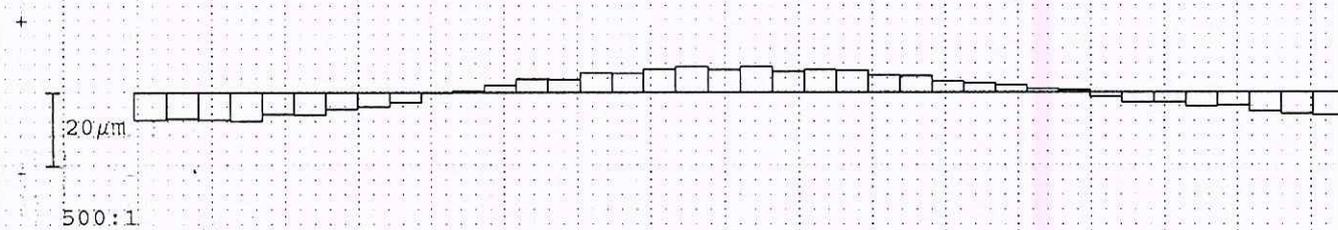
Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 93.51 z=7.5mm	fianco sinistro				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	2.2		10.0		1.9		10.0	
Gr. salto di passo fu max	1.1		12.0		2.4		12.0	
Scarto di divisione Rp	4.1				3.5			
Err. globale di divisione Fp	21.2		45.0		8.9		45.0	
Err. cordale di divisione Fpz/θ	10.0				4.6			

Centricità Fr (Ø-sfera = 3mm)

⊙ : 13.8μm



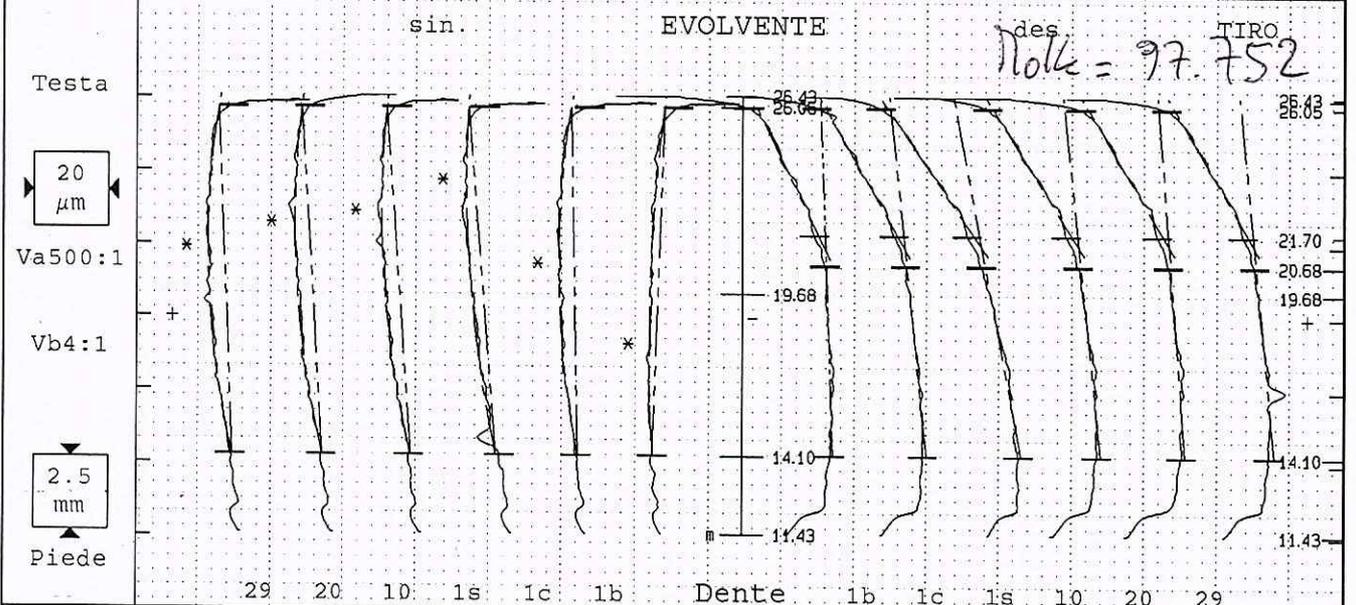
Err. di concentricità Fr	14.9	32.0	
Variaz. spessore dente Rs			

Docum.archiviato elettronicamente. Archiviazione cartacea non necessaria

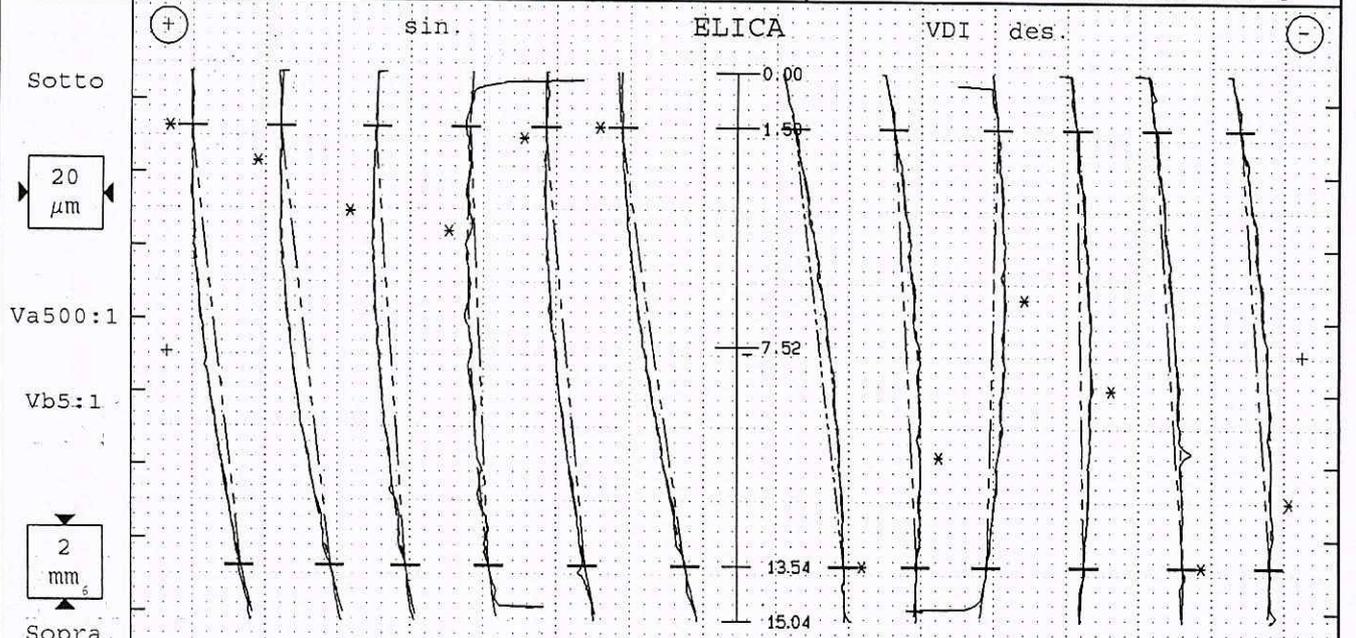
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0		P26 B7590		Controllore: turno d		Data: 09.05.2018 11:43	
Denominazione: SR5		Numero denti z		38		Largh.fasc.dent. b	
Numero disegno.: D51.1.1252.50-ICA		Modulo m		2mm		Tratto evolv. La	
Commissa/serie nr.: 2		Angolo pressione		17.5°		Tratto elica Ls	
Masch.Nr.: M001		Spindel: Forme		Ang. elica		-33°	
Inizio elab. M1		14.1mm		Palpatore Ø		#2) 1mm	
Untersuchungszweck: Laufende Messung		Ø Base db		84.8232mm		Fat.scor.pr. x	
Werkzeug: Charge:		Ang. Base		-31.294°		1.187	



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual	
fH _{dm}	±6	4.5	Var a 4.7								-11±6	Var a 2.8							-9.2	
fH _a	±10	4.5	3.6	5.7	6.6	7.5	1.9	-3.3		-11±10	-3.5	-10.1	-18.0	-10.0	-7.3	-9.3	-9.2			
F _α		7.9	6.8	8.4	8.3	9.5	7.9	7.5			4.7	2.0	4.7	2.7	3.5	6.6	3.7			
f _{fα}	5	4.9	5.3	4.0	4.2	8.4	5.9	4.7	5	1.9	1.8	2.5	2.4	2.6	6.3	3.3				
c _α	1/5	4.3	4.6	4.3	4.1	3.2	4.2	2.3												
Ca									-19/-11	-17.5	-17.9	-19.1	-19.7	-19.5	-18.3	-18.9				
f _{fαf}	3	1.7	1.7	1.6	2.1	0.0	1.5	0.6	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
P/T-ø [mm]										100.144	[100.14/100.4]									



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual	
fH _{sm}	10±6	14.6	Var B 6.9								12±6	Var B 7.6							7.6	
fH _s	10±10	14.6	17.0	17.3	10.4	6.5	13.7	21.7		12±10	17.1	8.1	-3.6	2.6	9.5	10.2	7.6			
F _β		5.0	6.1	7.0	3.1	3.9	3.6	9.4			5.5	5.1	12.9	8.0	4.4	3.6	5.3			
f _{fβ}	5	1.4	1.1	1.4	1.7	2.4	1.3	1.4	5	1.2	1.4	1.4	1.2	3.5	1.4	1.9				
cs	1/5	3.5	3.4	4.1	3.4	2.5	2.9	2.6	1/5	2.7	3.2	3.3	2.8	1.8	2.9	2.7				
Bd		-15.2														-20.7				

CGG 808006

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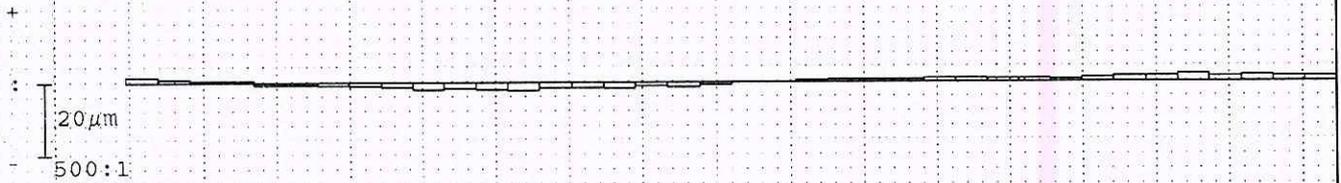


Ruota cilindrica Divisione

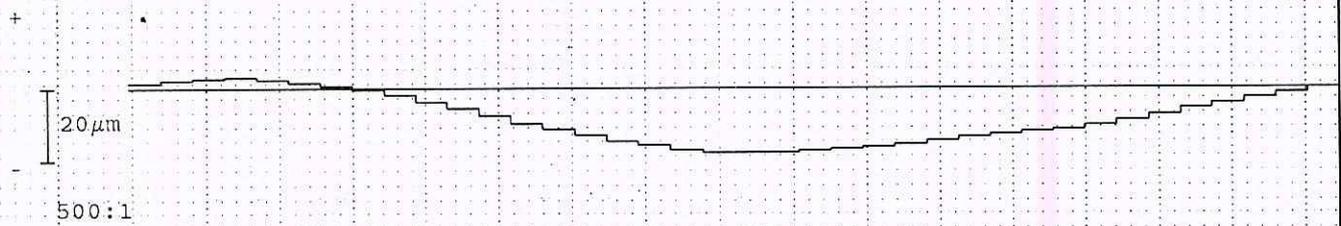


Nr. prog.: STI0416b04 0	P26 B7590	Controllore: turno d	Data: 09.05.2018 11:43
Denominazione: SR5		Numero denti z 38	Angolo pressione 17.5°
Numero disegno.: D51.1.1252.50-ICA		Modulo m 2mm	Angolo elica -33°
Commessa/serie nr.: 2		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Form	Edg:	Charge:

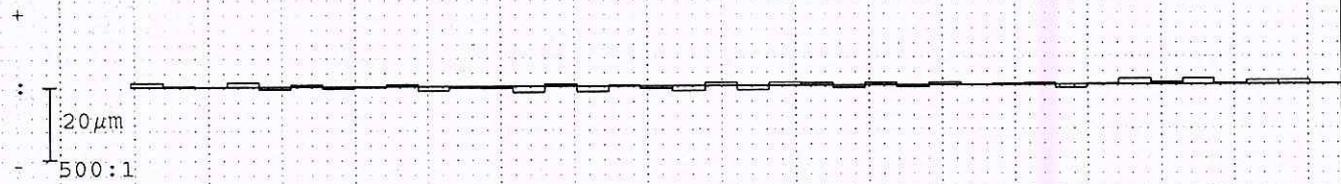
Errori singoli di divisione fp fianco sinistro



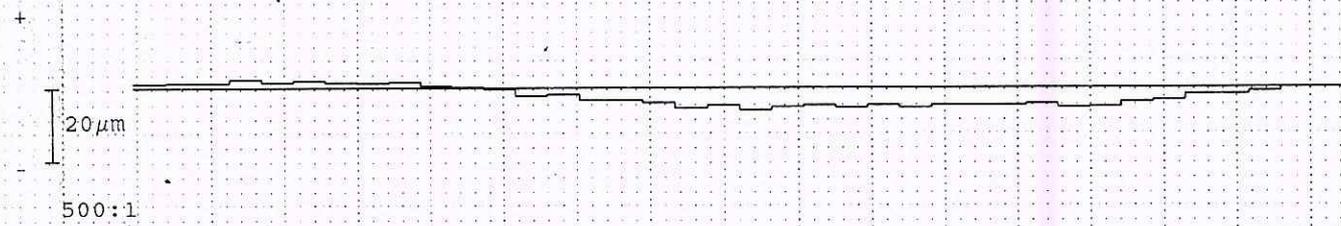
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



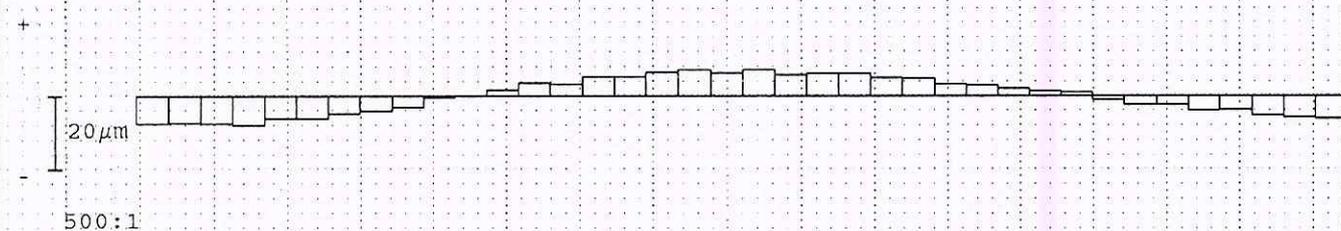
Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 93.51 z=7.5mm	fianco sinistro				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	2.2		10.0		1.7		10.0	
Gr. salto di passo fu max	1.3		12.0		2.2		12.0	
Scarto di divisione Rp	4.1				3.1			
Err. globale di divisione Fp	20.9		45.0		8.4		45.0	
Err. cordale di divisione Fp2/8	9.6				4.3			

Centricità Fr (Ø-sfera =3mm)

⊙ : 13.9µm



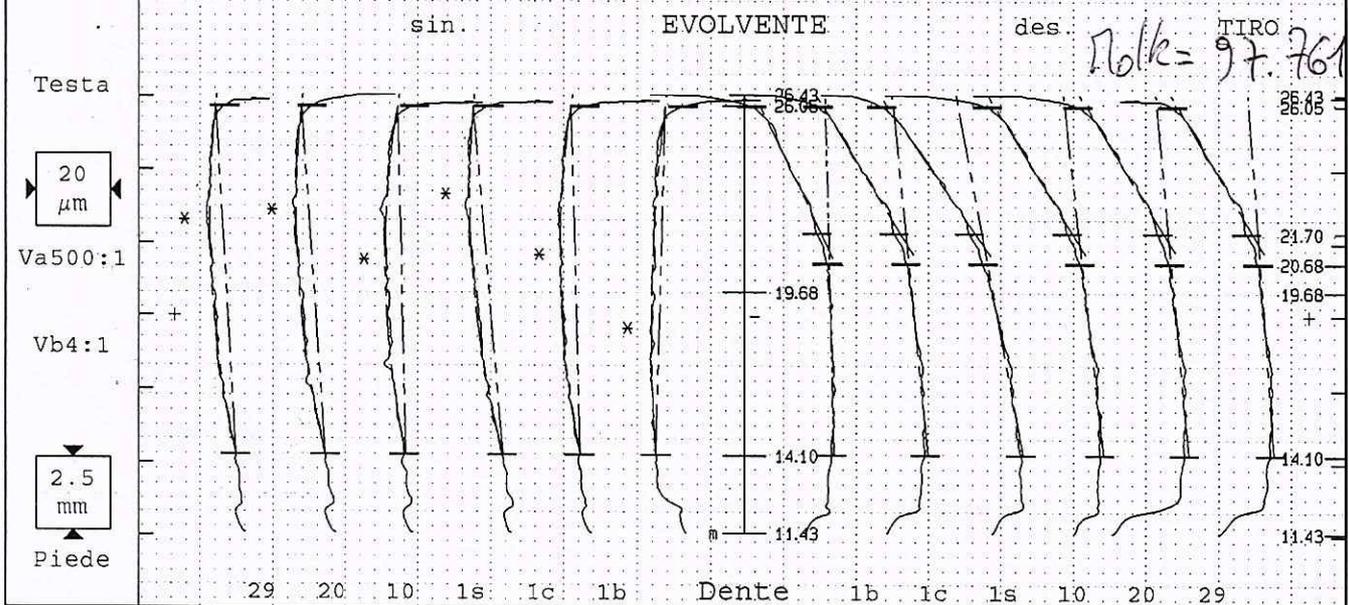
Err. di concentricità Fr	15.1	32.0	
Variaz. spessore dente Rs			

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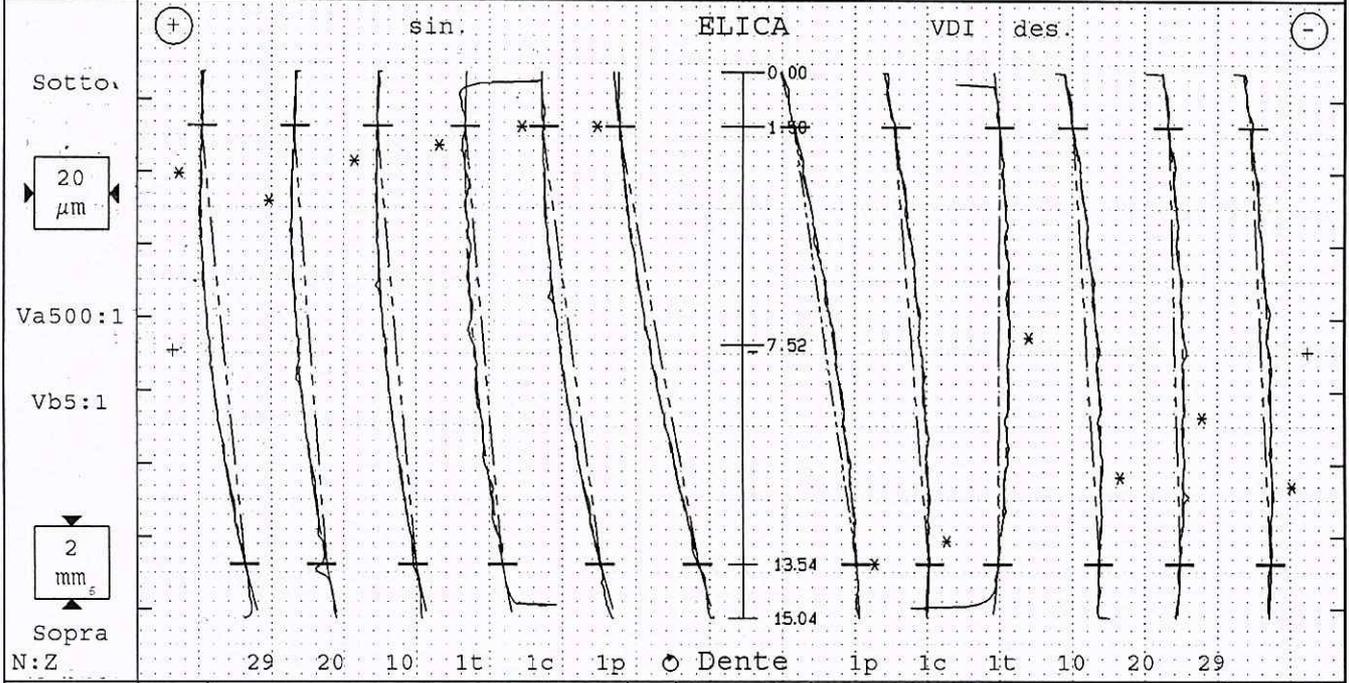
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0		P26 B7590		Controllore: turno d		Data: 09.05.2018 09:23	
Denominazione: SR5		Numero denti z		38		Largh. fasc. dent. b	
Numero disegno: D51.1.1252.50-ICA		Modulo m		2mm		Tratto evolv. La	
Commissa/serie nr.: 3		Angolo pressione		17.5°		Tratto elica LS	
Masch. Nr.: M001		Spindel: FORM. 66		Elicalelica		-33°	
Inizio elab. M1		14.1mm		Palpatore Ø		#2) 1mm	
Untersuchungszweck: Laufende Messung		Ø Base db		84.8232mm		Fat. scor. pr. x	
Werkzeug:		Charge:		Ang. Base		-31.294°	
						1.187	



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
fH _{sm} ±6	4.2	Var a 4.3								-11±6	Var a 3.6							-9.0	
fH _α ±10	4.2	5.5	6.5	2.2	8.0	2.5	-2.6		-11±10	-2.5	-9.7	-17.9	-10.6	-8.7	-7.0	-9.0			
F _α	7.6	7.2	8.1	8.7	9.2	6.5	8.2			5.0	2.3	4.7	2.4	3.1	3.0	2.7			
f _{fα} 5	4.7	3.3	4.2	6.5	5.4	4.6	5.9		5	1.5	2.0	2.6	2.3	2.5	2.1	2.2			
C _α 1/5	4.2	3.9	4.1	4.5	4.0	4.1	2.3												
Ca									-19/-11	17.8	18.8	19.3	19.1	18.8	18.8	18.9			
f _{fαε} 3	1.5	1.2	1.3	1.8	1.4	1.6	0.2		3	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
P/T-Ø [mm]										100.146 [100.14/100.4]									



Tolerance	Medio	Var β							Qual	Tolerance	Var β							Medio	Qual
fH _{sm} 10±6	14.9	8.5								12±6	8.3							8.0	
fH _α 10±10	14.9	15.1	11.3	13.4	12.6	19.8	27.1		12±10	21.6	12.1	-0.4	9.0	3.8	7.0	8.0			
F _α	5.4	5.4	3.6	4.5	4.4	8.0	13.1			7.6	2.3	10.4	4.2	7.5	4.9	4.7			
f _{fα} 5	1.7	1.0	2.1	1.8	2.1	2.0	1.1		5	1.4	1.3	1.5	1.4	2.3	1.4	1.6			
C _α 1/5	3.5	3.9	3.5	3.2	2.8	3.3	2.6		1/5	2.4	2.7	2.8	3.0	2.3	2.1	2.5			
B _d	-14.5															-22.0			

GCG 808006

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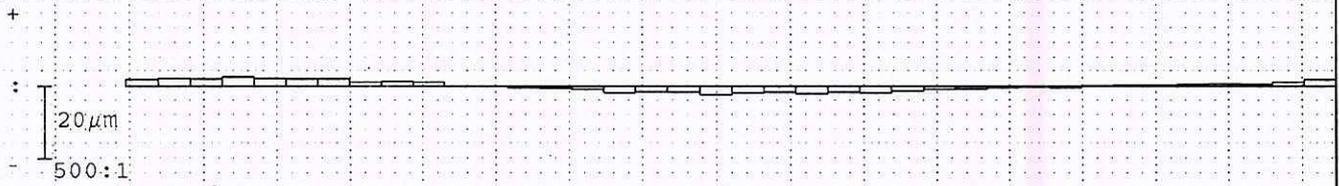


Ruota cilindrica Divisione

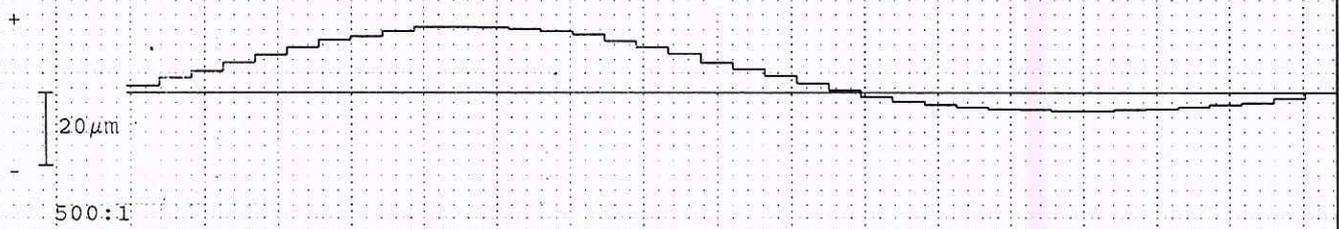


Nr. prog.: STI0416b04 0	P26 B7590	Controllore: turno d	Data: 09.05.2018 09:23
Denominazione: SR5		Numero denti z 38	Angolo pressione 17.5°
Numero disegno: D51.1.1252.50-ICA		Modulo m 2mm	Angolo elica -33°
Commessa/serie nr.: 3		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Form	GrZedg:	Charge:

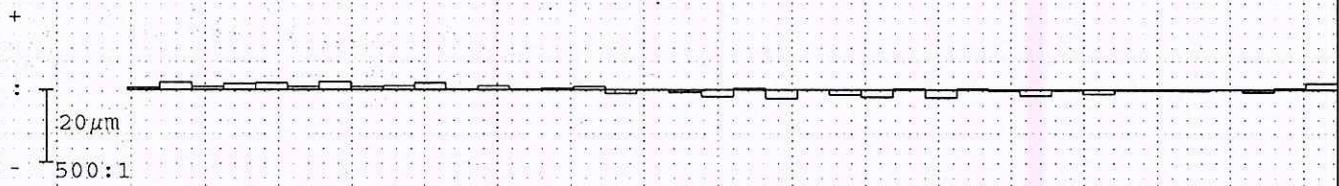
Errori singoli di divisione fp fianco sinistro



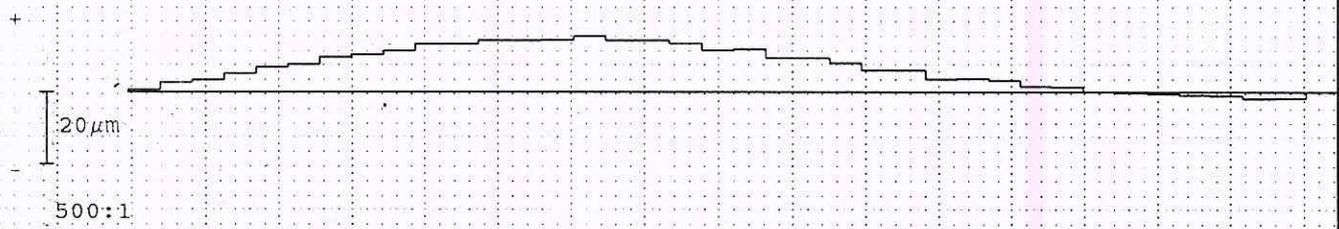
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

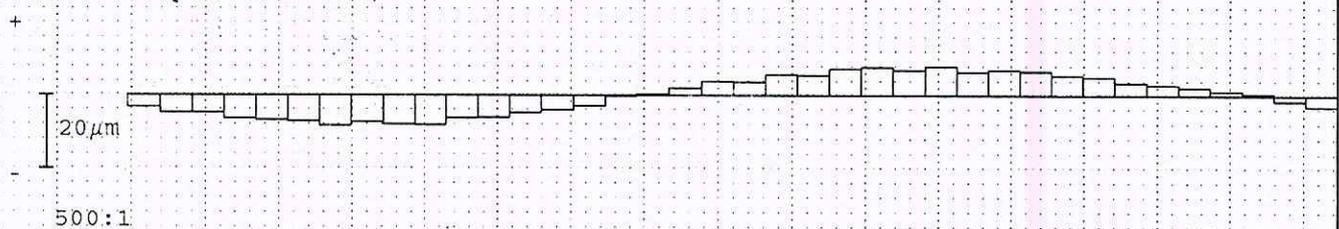


Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 93.51 z=7.5mm		fianco sinistro				fianco destro / TIRO			
		Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione	fp max	2.5		10.0		2.4		10.0	
Gr. salto di passo	fu max	1.2		12.0		2.7		12.0	
Scarto di divisione	Rp	4.9				4.4			
Err. globale di divisione	Fp	23.1		45.0		17.2		45.0	
Err. cordale di divisione	Fpz/8	10.4				7.0			

Centricità Fr (Ø-sfera = 3mm) ⊙ : 15.2µm



Err. di concentricità	Fr	16.2	32.0	
Variaz. spessore dente	Rs			

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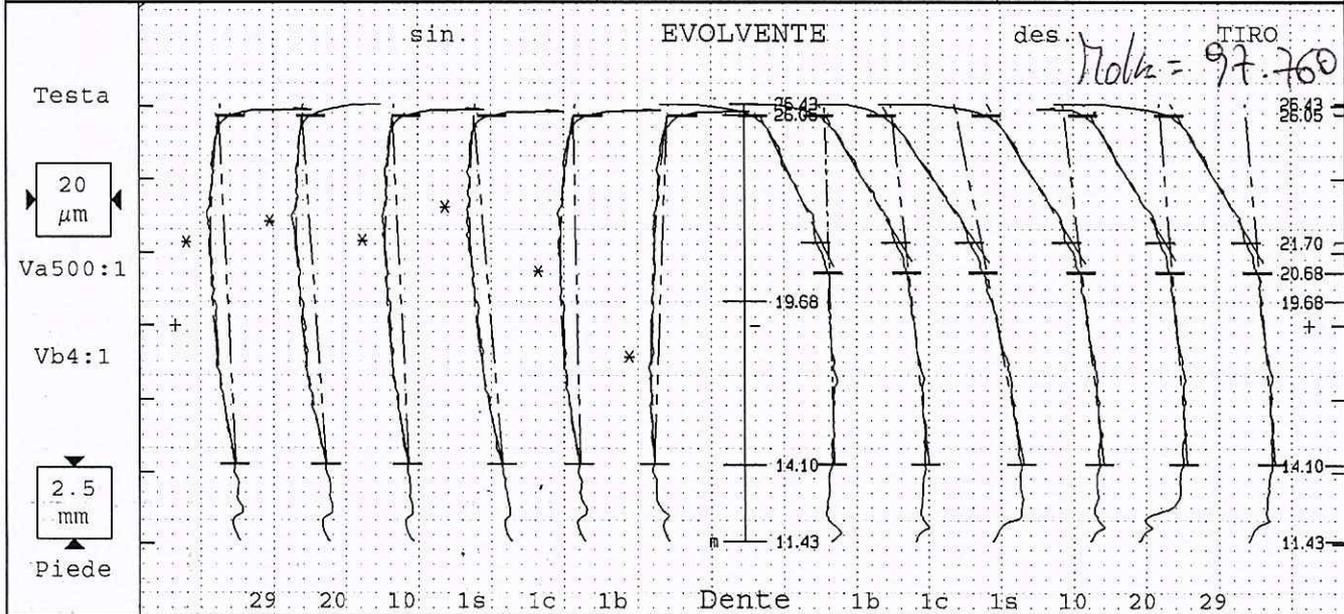


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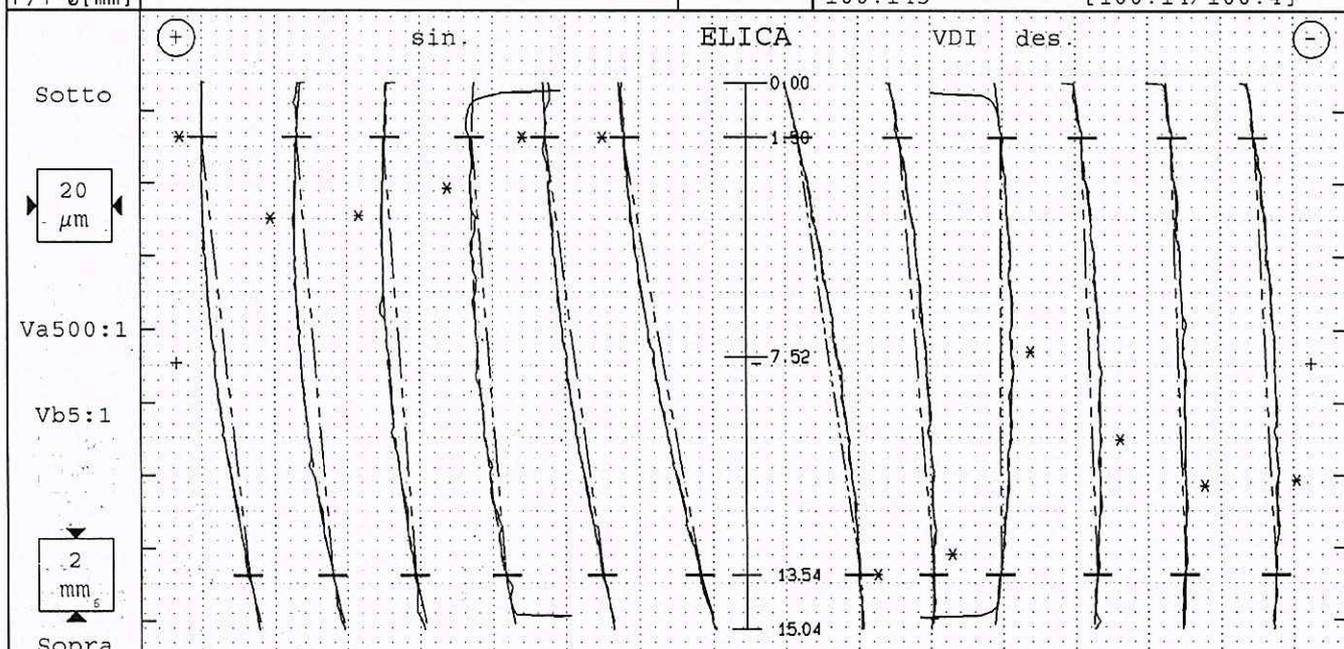
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 B7590	Controllore: turno d	Data: 09.05.2018 09:31
Denominazione: SR5		Numero denti z 38	Largh. fasc. dent. b 15.04mm
Numero disegno: D51.1.1252.50-ICA		Modulo m 2mm	Tratto evolv. La 11.95/6.58mm
Comessa/serie nr.: 4		Angolo pressione 17.5°	Tratto elica Ls 12.03mm
Masch. Nr.: M001	Spindel: Formn. elica	-33°	Inizio elab. M1 14.1mm
Untersuchungszweck: Laufende Messung	Ø Base db 84.8232mm		Palpatore Ø (#2) 1mm
Werkzeug: Charge:	Ang. Base -31.294°		Fat. scor. pr. x 1.187



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
fH _{am} ±6	4.4	Var a 4.7								-11±6	Var a 3.4							-9.1	
fH _α ±10	4.4	4.6	6.6	4.4	7.7	1.9	-3.5		-11±10	-2.6	-10.2	-18.4	-10.8	-7.4	-7.9	-9.1			
F _α	7.2	6.7	8.7	6.0	8.9	7.5	8.4			5.2	2.5	4.6	2.1	3.1	2.9	2.7			
ff _α 5	4.6	4.4	3.9	4.8	5.9	5.2	5.3		5	2.0	2.3	2.2	2.1	2.4	2.1	2.2			
C _α 1/5	4.1	4.2	4.1	3.8	4.1	4.4	2.3												
Ca									-19/-11	-17.3	-18.6	-19.2	-18.2	-18.1	-18.1	-18.3			
ffa _f 3	1.7	1.9	1.5	1.7	1.1	1.8	0.6		3	1.2	0.0	0.0	0.0	0.0	0.0	0.0			
P/T-ø [mm]										100.145	[100.14/100.4]								



N:Z	fH _{sm} 10±6	14.7	Var β 8.5								12±6	Var β 7.1							7.3
fH _β 10±10	14.7	16.3	12.3	10.9	11.2	19.4	26.3		12±10	21.5	11.9	-0.4	5.2	4.8	7.1	7.3			
F _β	5.2	5.2	4.1	3.7	3.5	7.8	12.7			7.5	2.4	10.7	5.9	6.5	4.6	4.9			
ff _β 5	1.5	1.1	1.6	1.9	1.9	1.4	1.1		5	1.2	1.2	1.2	1.3	1.6	1.2	1.3			
C _β 1/5	3.3	3.2	4.0	3.4	3.0	2.5	2.7		1/5	2.3	2.6	3.1	2.7	1.6	2.5	2.4			
Bc		-15.1														-21.9			

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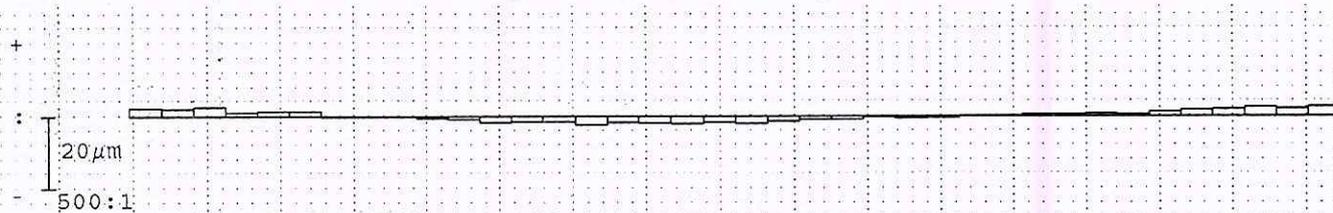


Ruota cilindrica Divisione

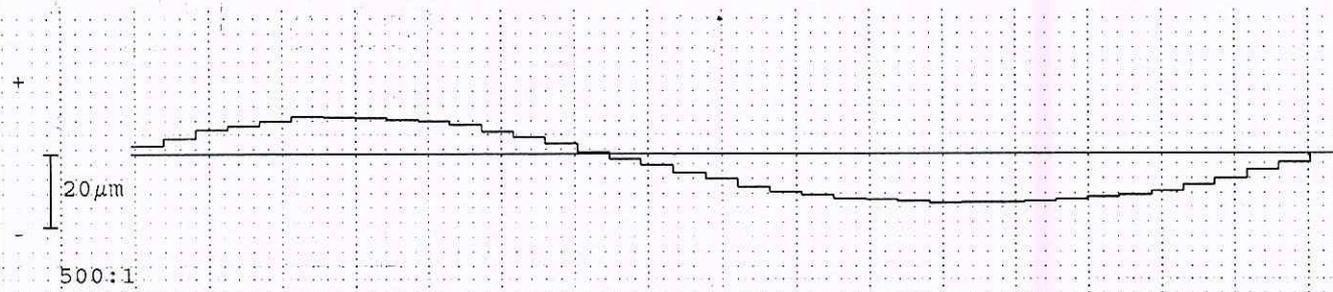


Nr. prog.: STI0416b04 0	P26 B7590	Controllore: turno d	Data: 09.05.2018 09:31
Denominazione: SR5		Numero denti z 38	Angolo pressione 17.5°
Numero disegno.: D51.1.1252.50-ICA		Modulo m 2mm	Angolo elica -33°
Commessa/serie nr.: 4		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formm	Charge:	

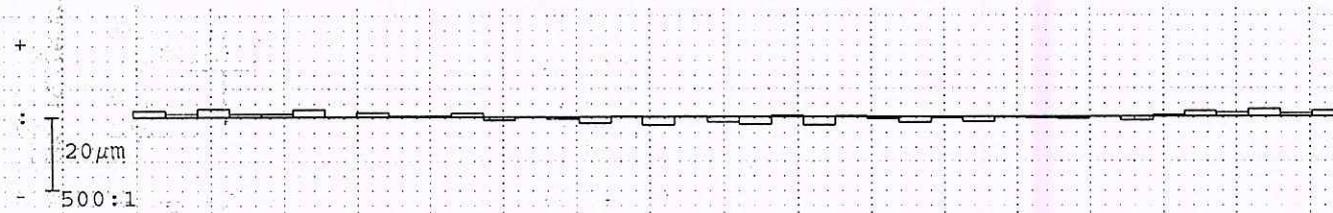
Errori singoli di divisione fp fianco sinistro



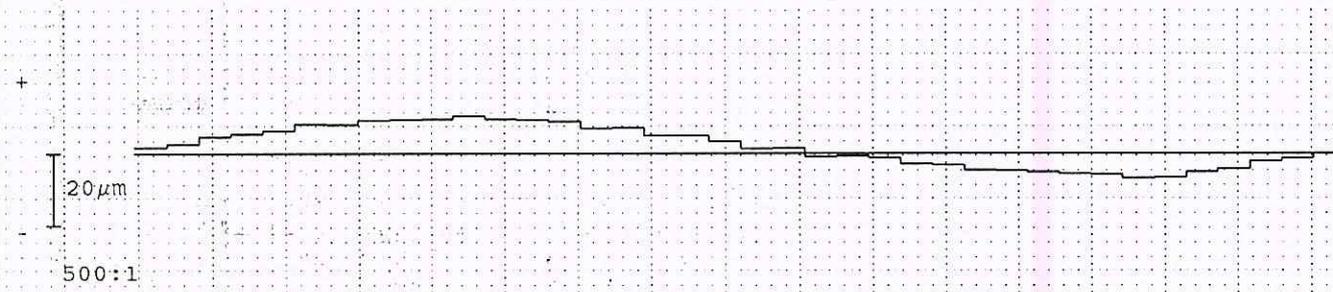
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

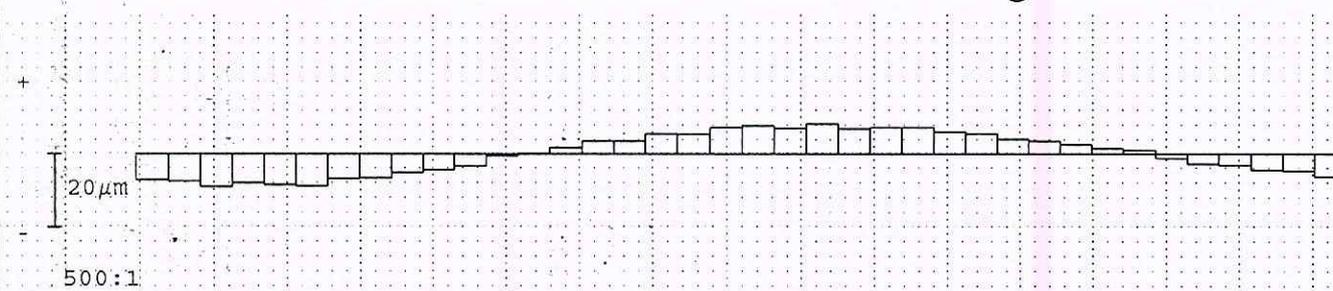


Errore somma di divisione Fp fianco destro



	fianco sinistro				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	2.5		10.0		2.3		10.0	
Gr. salto di passo fu max	1.5		12.0		2.5		12.0	
Scarto di divisione Rp	5.0				4.4			
Err. globale di divisione Fp	23.8		45.0		17.2		45.0	
Err. cordale di divisione Fpz/8	11.1				6.8			

Centricità Fr (Ø-sfera = 3mm) Ⓞ : 16µm

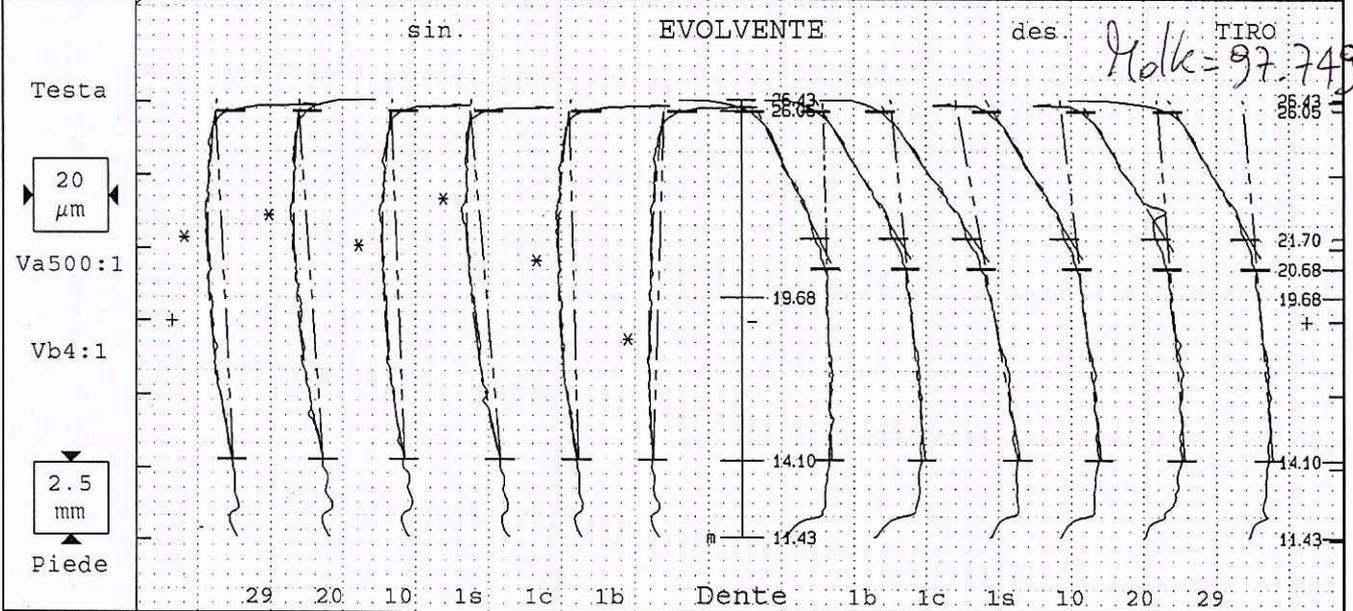


Err. di concentricità Fr	17.2	32.0	
Variab. spessore dente Rs			

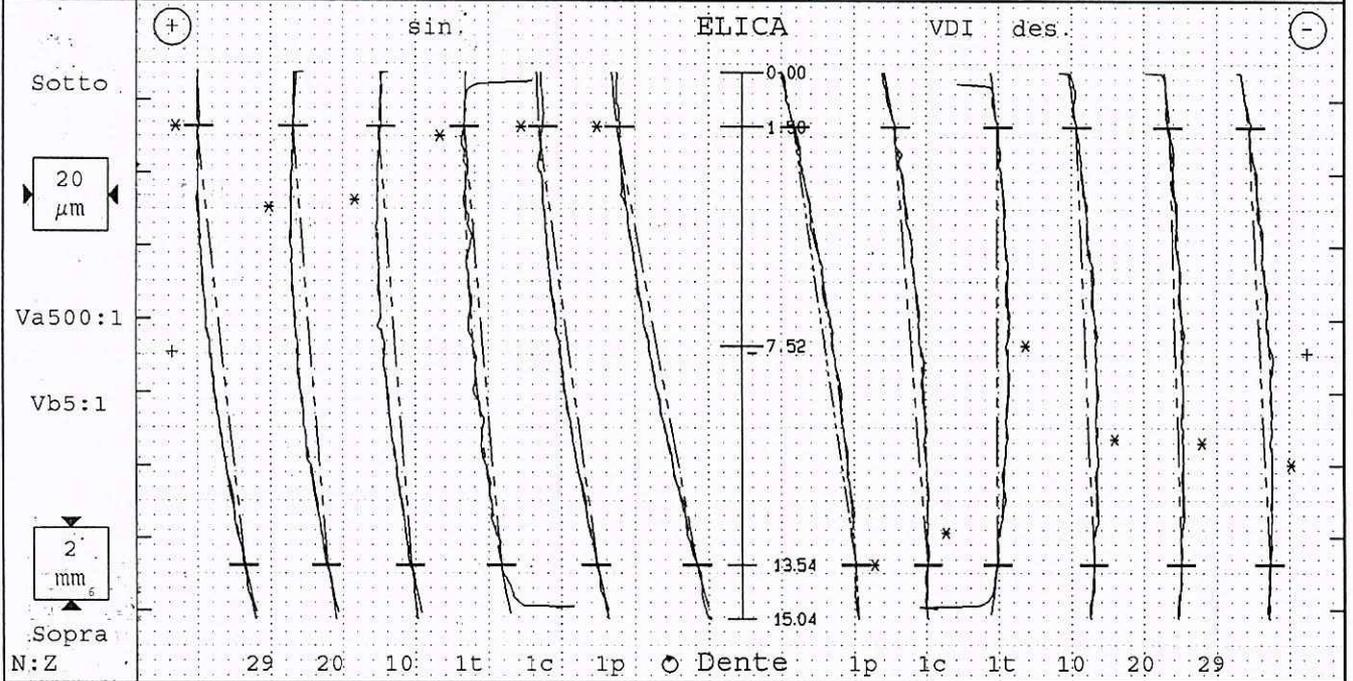
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 B7590	Controllore: turno d	Data: 09.05.2018 09:37
Denominazione: SR5		Numero denti z 38	Largh. fasc. dent. b 15.04mm
Numero disegno.: D51.1.1252.50-ICA		Modulo m 2mm	Tratto evolv. La 11.95/6.58mm
Commessa/serie nr.: 5		Angolo pressione 17.5°	Tratto elica L _B 12.03mm
Masch. Nr.: M001	Spindel: Formm	Angolo elica -33°	Inizio elab. M1 14.1mm
Untersuchungszweck: Laufende Messung		Ø Base db 84.8232mm	Palpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base -31.294°	Fat. scor. pr. x 1.187



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
fH _{em} ±6	4.3	Var a 4.2								-11±6	Var a 3.4							-8.9	
fH _a ±10	4.3	4.7	6.6	3.6	8.1	2.4	-2.9		-11±10	-2.3	-9.3	-17.2	-10.9	-7.5	-8.0	-8.9			
F _d	7.0	6.4	8.2	5.9	9.6	7.5	8.7			5.4	2.4	4.5	2.1	3.6	2.9	2.8			
f _{fα} 5	4.7	5.3	3.6	4.4	6.4	5.6	6.2		5	1.5	1.9	2.6	2.1	2.4	2.0	2.1			
C _α 1/5	4.1	4.2	4.1	4.0	4.1	4.2	2.4												
Ca									-19/-11	-18.4	-18.6	-19.3	-18.6	-17.7	-18.4	-18.3			
f _{fαf} 3	1.7	1.7	1.7	1.7	1.7	1.8	0.6		3	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
P/T-Ø [mm]										100.147 [100.14/100.4]									



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
fH _{em} 10±6	14.8	Var β 8.6								12±6	Var β 7.7							7.3	
fH _s 10±10	14.8	16.4	11.9	11.2	12.4	19.8	27.0		12±10	21.3	11.7	-0.1	6.1	4.0	7.3	7.3			
F _s	5.2	5.7	3.4	3.5	4.0	8.2	13.5			7.3	2.5	9.8	5.7	6.8	4.8	5.0			
f _{fβ} 5	1.4	1.1	0.9	1.6	2.3	1.9	1.7		5	1.5	1.5	1.4	1.2	1.3	1.5	1.4			
C _β 1/5	3.3	3.3	3.8	3.4	2.6	2.6	2.3		1/5	2.3	2.7	3.1	2.8	1.8	2.7	2.5			
B _d	-14.6															-21.4			

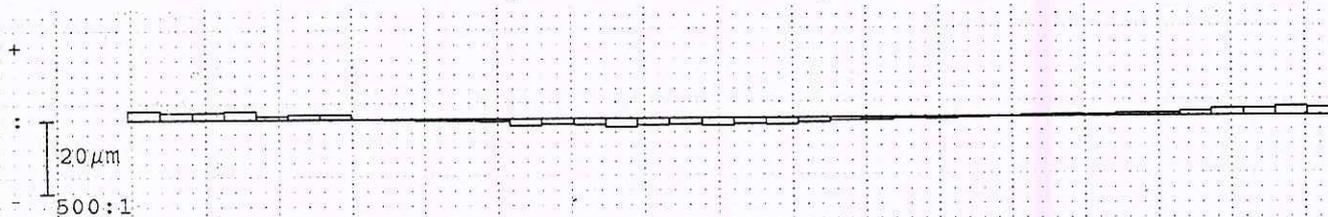


Ruota cilindrica Divisione

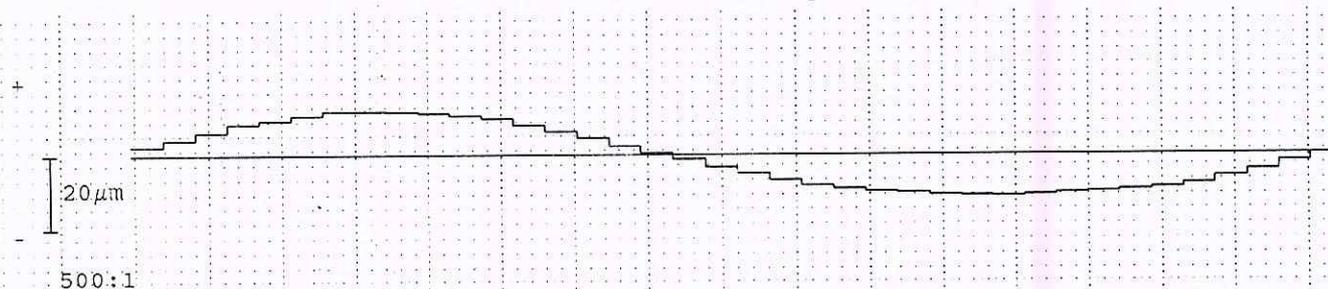


Nr. prog.: STI0416b04 0	P26 B7590	Controllore: turno d	Data: 09.05.2018 09:37
Denominazione: SR5		Numero denti z 38	Angolo pressione 17.5°
Numero disegno: D51.1.1252.50-ICA		Modulo m 2mm	Angolo elica -33°
Comessa/serie nr.: 5		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: FORM 0612edg	Charge:	

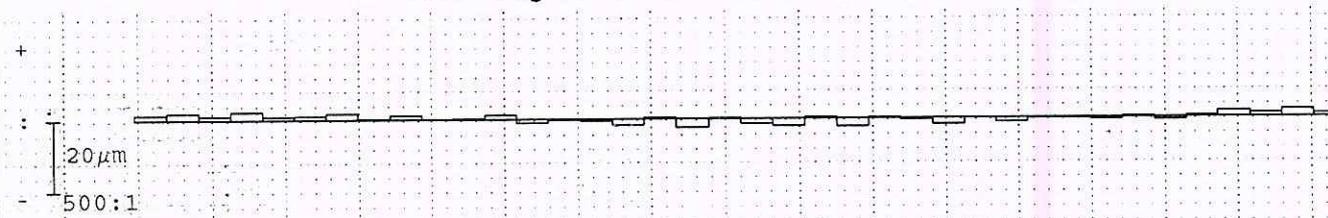
Errori singoli di divisione fp fianco sinistro



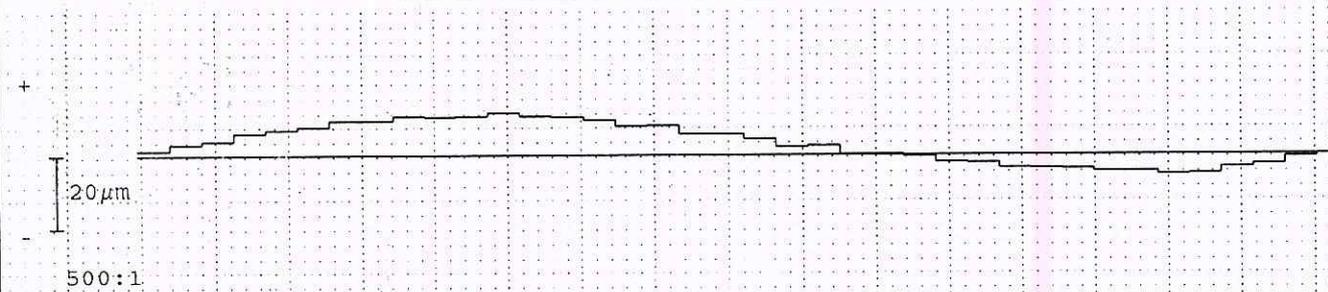
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

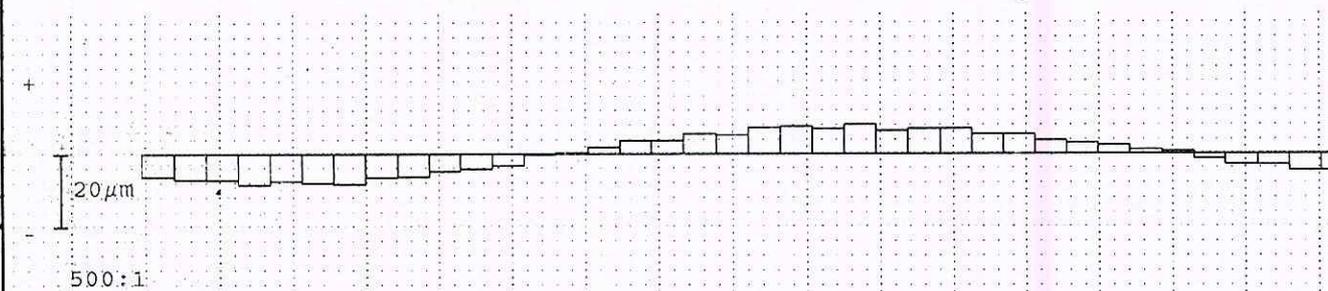


Errore somma di divisione Fp fianco destro



Correa per misura divis.: 93.51 z=7.5mm		fianco sinistro				fianco destro / TIRO			
		Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione	Fp max	2.4		10.0		2.4		10.0	
Gr. salto di passo	fu max	1.3		12.0		2.6		12.0	
Scarto di divisione	Rp	4.8				4.4			
Err. globale di divisione	Fp	23.3		45.0		17.1		45.0	
Err. cordale di divisione	Fpz/8	10.6				6.8			

Centricità Fr (Ø-sfera = 3mm) ⊙ : 15.3µm



Err. di concentricità	Fr	16.5	32.0	
Variaz. spessore dente	Rs			

Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601265	Controllore: Turno A	Data: 08.05.2018 14:18
Denominazione: SR5		Numero denti z 38	Largh.fasc.dent. b 15.04mm
Numero disegno.: 1252.50-ICA-PIEDE		Modulo m 2mm	Tratto evolv. La 11.95/6.58mm
Comessa/serie nr.: 1		Angolo pressione 17°30'00"	Tratto elica L& 12.03mm
Masch.Nr.: M001	Spindel: Formn	Angolo elica -33°00'00"	Inizio elab. M1 14.1mm
Untersuchungszweck: Laufende Messung		Ø Base db 84.8232mm	Palpatore Ø (#5).5mm
Werkzeug:	Charge:	Ang. Base -31°17'39"	Fat.scor.pr. x 1.187

	TIRO
	Piede-Ø: 86.679mm [86.58/86.9]

	VDI
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Ruota cilindrica Evolvente/Elica



Nr. prog.:	STI0416b04 0	P26 601265	Controllore:	Turno A	Data:	08.05.2018 14:21
Denominazione:	SR5		Numero denti z	38	Largh.fasc.dent. b	15.04mm
Numero disegno.:	1252.50-ICA-PIEDE		Modulo m	2mm	Tratto evolv. La	11.95/6.58mm
Comessa/serie nr.:	2		Angolo pressione	17°30'00"	Tratto elica L&	12.03mm
Masch.Nr.:	M001	Spindel: Formnet	Angolo elica	-33°00'00"	Inizio elab. M1	14.1mm
Untersuchungszweck:	Laufende Messung		Ø Base db	84.8232mm	Palpatore Ø	(#5).5mm
Werkzeug:		Charge:	Ang. Base	-31°17'39"	Fat.scor.pr. x	1.187

TIRO

Piede-Ø: 86.651mm [86.58/86.9]

VDI

GCG 808006

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Ruota cilindrica Evolvente/Elica



Nr. prog.:	STI0416b04 0	P26 601265	Controllore:	Turno A	Data:	08.05.2018 14:25
Denominazione:	SR5		Numero denti z	38	Largh.fasc.dent. b	15.04mm
Numero disegno.:	1252.50-ICA-PIEDE		Modulo m	2mm	Tratto evolv. La	11.95/6.58mm
Commessa/serie nr.:	3		Angolo pressione	17°30'00"	Tratto elica L8	12.03mm
Masch.Nr.:	M001	Spindel: Formn	Angolo elica	-33°00'00"	Inizio elab. M1	14.1mm
Untersuchungszweck:	Laufende Messung		Ø Base db	84.8232mm	Palpatore Ø	(#5) .5mm
Werkzeug:	Charge:		Ang. Base	-31°17'39"	Fat.scor.pr. x	1.187

TIRO

Piede-Ø: 86.65mm [86.58/86.9]

VDI

Docum.archiviato elettronicamente.Archiviazione cartacea non necessaria

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Docum.archiviato elettronicamente.Archiviazione cartacea non necessaria

Ruota cilindrica Evolvente/Elica



Nr. prog.:	STI0416b04 0	P26 601265	Controllore:	Turno A	Data:	08.05.2018 14:27
Denominazione:	SR5		Numero denti z	38	Largh.fasc.dent. b	15.04mm
Numero disegno.:	1252.50-ICA-PIEDE		Modulo m	2mm	Tratto evolv. La	11.95/6.58mm
Commessa/serie nr.:	4		Angolo pressione	17°30'00"	Tratto elica L8	12.03mm
Masch.Nr.:	M001	Spindel: Formnest	Angolo elica	-33°00'00"	Inizio elab. M1	14.1mm
Untersuchungszweck:	Laufende Messung		Ø Base db	84.8232mm	Palpatore Ø	(#5).5mm
Werkzeug:		Charge:	Ang. Base	-31°17'39"	Fat.scor.pr. x	1.187

TIRO

Piede-Ø: 86.657mm [86.58/86.9]

VDI

GCG 808006

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Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416b04 0	P26 601265	Controllore: Turno A	Data: 08.05.2018 14:29
Denominazione: SR5		Numero denti z 38	Largh.fasc.dent. b 15.04mm
Numero disegno.: 1252.50-ICA-PIEDE		Modulo m 2mm	Tratto evolv. La 11.95/6.58mm
Commessa/serie nr.: 5		Angolo pressione 17°30'00"	Tratto elica L&S 12.03mm
Masch.Nr.: M001	Spindel: Formn	Angolo elica -33°00'00"	Inizio elab. M1 14.1mm
Untersuchungszweck: Laufende Messung		Ø Base db 84.8232mm	Palpatore Ø (#5) .5mm
Werkzeug:	Charge:	Ang. Base -31°17'39"	Fat.scor.pr. x 1.187

<p>Piede-Ø: 86.653mm [86.58/86.9]</p>	<p>TIRO</p>
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	<p>VDI</p>
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REPORT 18/079

Date: 15/05/2018
Author: F. Abbaticchio

Reason for analysis: PPAP
Motivo dell'indagine:

Requester: WLQ - M. Vicenti
Richiedente:

Part Name: SG5
Nome particolare:
Material: GCG_805000 Part 2
Materiale:
State of part: Finito
Stato del particolare:

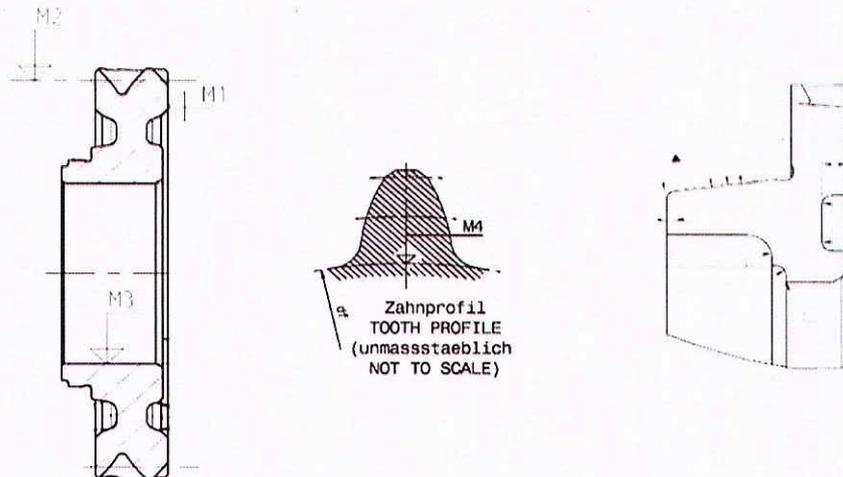
P/N: 251.1.1251.50
S/N: -
Customer: -
Cliente:

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)

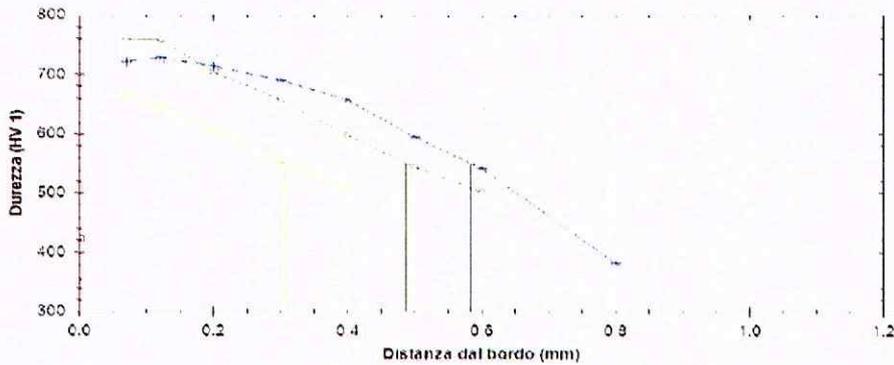
Component	Scale	Position	Measured Value	Range
Gear	HRC	M1	61.4	-
Gear	HRA	M1	81.4	80.5 + 2.5

REPORT 18/079

Date: 15/05/2018
 Author: F. Abbaticchio

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

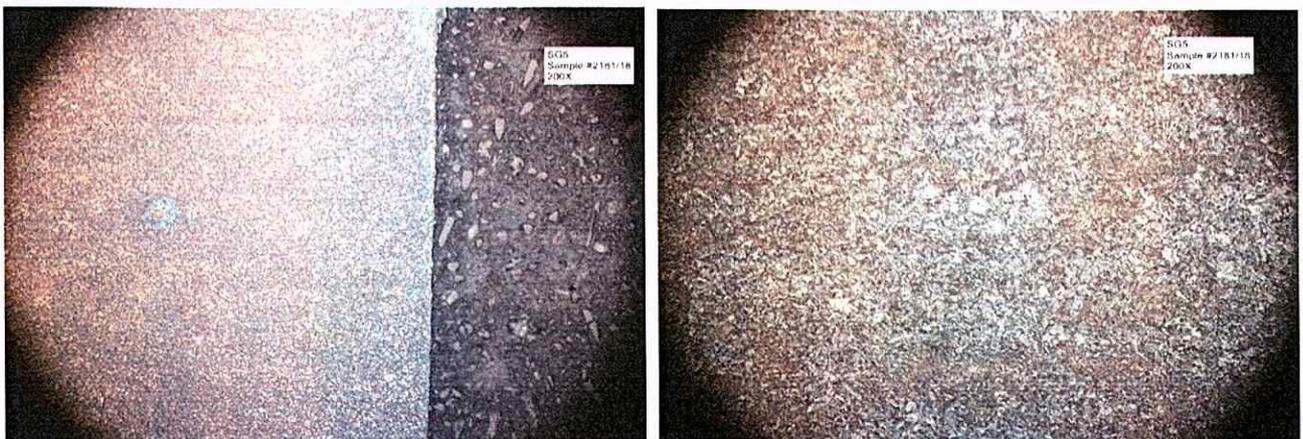
Component	Scale	Sample #	Position	Measured Value	Range
Gear	CHD 550 HV1	2181/18	M2 (tooth flank)	0.79	0.5+0.4 mm
Gear	CHD 550 HV1	2181/18	M3 (bore)	0.58	min 0.3 mm
Gear	Core hardness HV10	2181/18	M4 (tooth core)	353	≥ 300
Clutch ring	CHD 550 HV1	2181/18	M1 (face)	0.49	0.3+0.4 mm
Clutch ring	CHD 550 HV1	2181/18	M2 (cone)	0.31	min 0.1 mm



Picture 1: profili di durezza.

Microstructure analysis (analisi della microstruttura)

Sample #	2181/18
Shaft - Tooth flank surface structure:	Martensite e austenite residua (5%)
Shaft - Tooth base core structure:	Martensite, bainite



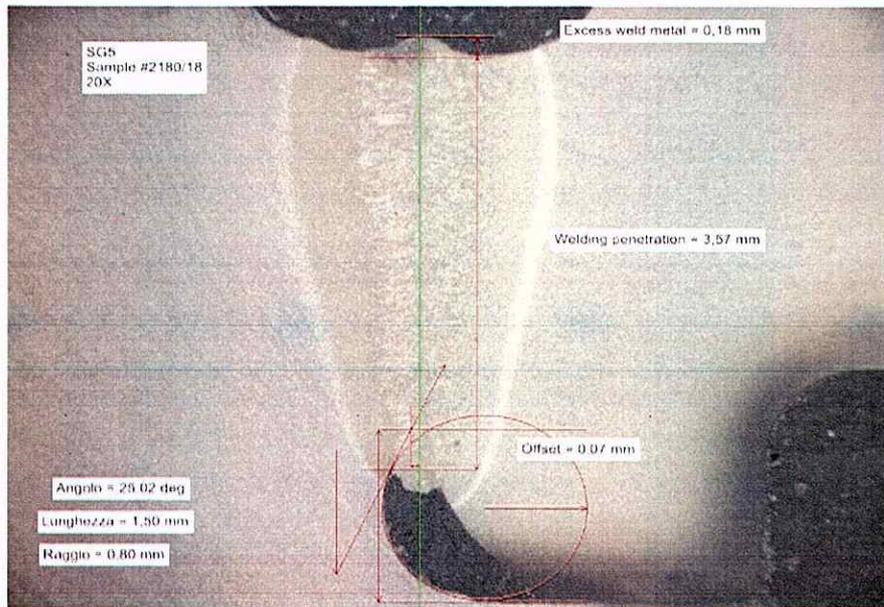
Picture 2: Microstruttura sul fianco dente (a sinistra) ed a cuore sulla base dente (a destra).

REPORT 18/079

Date: 15/05/2018
Author: F. Abbaticchio

Analysis at Stereomicroscope (Analisi allo Stereomicroscopio)

Feature	Unit	Sample #	Measured Value	Range
Radial offset	mm	2180/18	0.07	max 0.1
Penetration	mm	2180/18	3.57	min 2.8
Excess weld metal	mm	2180/18	0.18	max 0.5



Picture 3: sezione saldatura OK

Analisi di similitudine Ppk

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

Macchina da confrontare: SLW11009
Capability da confrontare Nr.: 06/02/2017

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

Codice Pezzo di riferimento: 251.1.1090.50

Partnumber in esame: 251.1.1252.50

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						
DIMENSIONEN					DIMENSIONEN						
Merkmal	Einheit	Nominale		Deviazione ammessa in %	Nominale		Deviazione %	i.O./n.i.O.			
numero denti Z	---	40			38			i.O.			
diam.primitivo - Ø	mm	81.023			84.823			i.O.			
Altezza dentatura	mm	5.9			6.75			i.O.			
diam.testa - Ø (da)	mm	95.50			100.40			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	93.8505	0.073	2.87		97.725	0.06	1.67	i.O.	2.36	
Fr (Eccentricità)	µm	0	28	1.67		0	32	1.67	i.O.	1.91	
	µm								---		
	µm								---		
	µm								---		
	µm								---		
	µm								---		
	µm								---		

Part Submission Warrant



Part Name <u>Schaltrad 5.Gang</u>		Cust. Part Number <u>251.1.1252.80</u>
Shown on Drawing No. <u>251.1.1252.80</u>		Org. Part Number _____
Engineering Change Level <u>- / T72596</u>		Dated <u>16. Okt 17</u>
Additional Engineering Changes <u>SEI No. 0 72562 - 90A Index: -</u>		Dated <u>03. Jan 18</u>
Safety and/or Government Regulation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Purchase Order No. <u>5500040245 / 04.12.2017</u>	Weight (kg) <u>0,710 kg</u>
Checking Aid No. _____	Checking Aid Engineering Change Level _____	Dated _____

<p>ORGANIZATION MANUFACTURING INFORMATION</p> <p><u>SEISSENSCHMIDT GmbH</u> Organization Name & Supplier/Vendor Code</p> <p><u>DAIMLERSTRASSE 11</u> Street Address</p> <p><u>PLETTENBENRW 58840 GERMANY</u> City Region Postal Code Country</p>	<p>CUSTOMER SUBMITTAL INFORMATION</p> <p><u>Getrag B.V & Co.KG</u> Customer Name/Division</p> <p><u>Frau Petra Braun</u> Buyer/Buyer Code</p> <p><u>251er Getriebe</u> Application</p>
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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: IMDS
729960836

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"/> Engineering Change(s) <input type="checkbox"/> Tooling: Transfer, Replacement, Refurbishment, or additional <input type="checkbox"/> Correction of Discrepancy <input type="checkbox"/> Tooling Inactive > than 1 year	<input type="checkbox"/> Change to Optional Construction or Material <input type="checkbox"/> Supplier or Material Source Change <input type="checkbox"/> Change in Part Processing <input type="checkbox"/> Parts Produced at Additional Location <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 B 800

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 820 / 8 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: "Abweichender Stahlieferant zum Serienprozess. Siehe BAW Antrag"

Is each Customer Tool property tagged and numbered? Yes No n/a Photo attached Yes

Organization Authorized Signature i.A. A. Suliani Date 23. Mrz 18

Print Name B.Jungwirt / A. Suliani Phone No. 0049 2391 915-2103 Fax No. 0049 2391 915-197

Title Quality Management E-mail a.suliani@seissenschmidt.com

FOR CUSTOMER USE ONLY (IF APPLICABLE)

Part Warrant Disposition: Approved Rejected Other Approved with conditions (Deviation 80456)

Customer Signature i.A. Wadim Date 16.04.2018

Print Name Wadim Tefke / J. Kirin Customer Tracking Number (optional) 18-00411

based on CFG-1001 PPAP Version 4

GETRAG B.V. & Co. KG

Hermann-Hagenmeyer-Straße
74199 Untergruppenbach

GCG_F11_2213_00 2007-05
VBoerkewitz/Q E Management

Date Issued: DD.MM.YYYY
Date Revised: DD.MM.YYYY

Retention:GIS 28.01/15
Security Class: Confidential



Status approved

Request and Approval / Anfrage und Genehmigung

Deviation No 80456

Deviation Type Process/tools out of specification **Release No**
Part No. 2511125280 **Part Name** speed gear 5th
Supplier Type EP **Product Line** 7DCT300
Location Bari **Supplier Name** Seissenschmidt GmbH - no location
Deviation Title Alternative Steel supplier for PPAP parts
Quantity 560 **Start Date** 03.04.2018 **End Date** 02.07.2018

Request Owner Tefke, Wadim

Description of Deviation

Due to the adjustet delivery situation, the PPAP parts are produced with raw material from GMH. The Parts for the serial prodiction will be produced with raw material from Lech. Both material are according to the drawing and the GCG_80500_02_20MnCrS5. Material certificate and PPAP Documents are available. PPAP only can be approved with conditions and the approval of the SRGA.

Customer Name Renault **Customer Approval?** No

Customer Notification / Approval required

to be checked by F. Spezzacatena / Plant quality as well as the Deviation 80442.

Description of Effect / Risk Evaluation

PD: Both suppliers are released as standard suppliers according GCG805000, risk to be evaluated by plant regarding finished part drawing and scrap rate.

Additional Controls required

**Deviations for Critical Characteristics < C > are not allowed.
Permanent delegation of authority is not allowed.**

	<i>Approver</i>	<i>Status</i>	<i>Signed</i>	<i>Comment</i>
Supplier Representative	Michael.Kullik; Kelvin.Bruder	Pierro, Gennaro	approved	29. Mrz. 18
PD Representative	Gennaro.Pierro	Bruder, Kelvin	approved	03. Apr. 18
QEHS Manager	Franco.Spezzacatena	Camarda, Ettore	approved	03. Apr. 18
Production Manager	Wolfgang.Mueller2@magna.com ; ettore.camarda	Bruder, Kelvin	approved	06. Apr. 18
Plant Manager	Bob.Taylor	Mueller, Wolfgang	approved	06. Apr. 18
Plattform Director	Stephane.Duminy2@magna.com	Spezzacatena, Franco	approved	13. Apr. 18
VP Operations	Michele.Zimmermann	Taylor, Bob	approved	13. Apr. 18
int/ext Customer (QEHS Manager)		Duminy, Stephane	approved	16. Apr. 18
		Zimmermann, Michele	approved	16. Apr. 18

