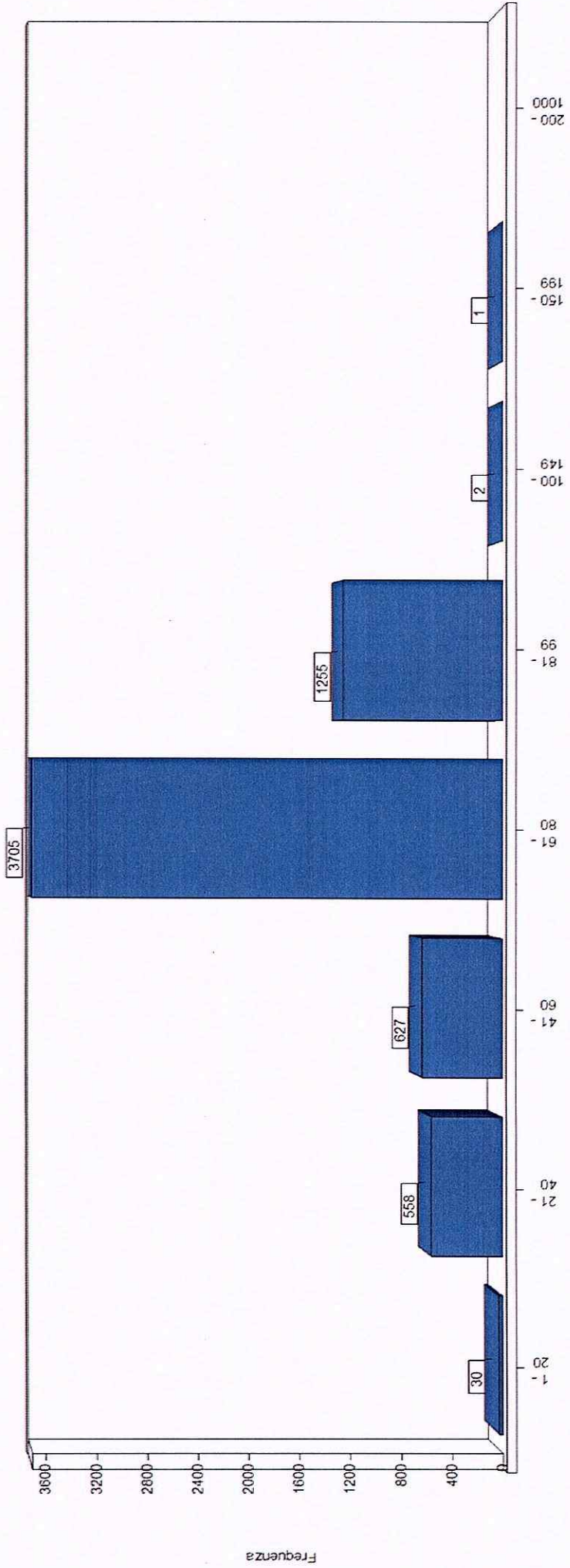




<b>GETRAG</b>	<b>F M E A</b> Processo		Numero: Pagina: 1.2.1.1.1.1
Tipo/Modello/Produzione/Lotto: 7DCT300	Numero Disegno: Gearset 1A + 21A + 21H + 32C Stato modifica: -	Responsabile: Getrag Ditta: Getrag	Emesso: 31/08/2015
FMEA/Elemento: GEARSET 7DCT300	Codice dell'operazione: Tutte Stato modifica: -	Responsabile: Papagna, Oscuro, Nitti, Cicirelli, Tanzi T., Terlizese, 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	GIS1 Item Number: 28.04	Page: 1 / 2
Dept.: WLP	Date Revised: 14.05.2018	GIS2 Classification: Confidential	Retention Start Date (Year): 2017

### Actions ongoing for RPN > 100:

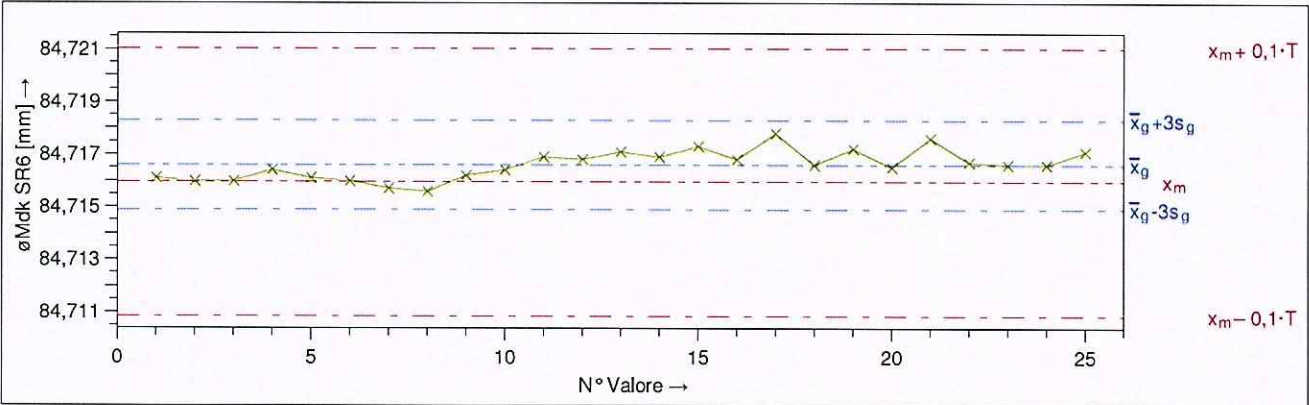
Chr. Classification	Project	Component	Operation	Chr. Description	Actual RPN			Action	Resp.	Due date	Min. RPN expected			
					S	O	D				S	O	D	
<M>	DCT300	SG1	Hard Turning	Clutch body Height	7	4	4	112	Pierro	31-May-18	7	2	5	(70)
<M>	DCT300	SGRv	Hard Turning	Clutch body Height	7	3	5	105	Pierro	30-Jun-18	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)

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



# Capacità strumenti di misura

Data/ora	15/06/2018	Nome oper.	mario.bozza	Reparto/Area/Prod.	WLQ	Posto di prova	Dentatura SR6
Calibro		Master			Caratteristica		
Desc. calibro	Banchetto in acciaio	Desc. mast.	SR6	Desc. Car.	øMdk SR6		
N° calibro	MVZ 406001 020	N° master	MVZ 400656 002	N° Caratt.	2511125450_32C		
Ris. calibro	0,0001	Valore reale mast.	84,716	Val. Nom.	84,7245	LSS	84,7500 $\hat{=} 0,0255$
Caus. Pr.	Cg CgK	Unità di misura	mm	Unità di r	mm	LSI	84,6990 $\hat{=} -0,0255$
Nota							

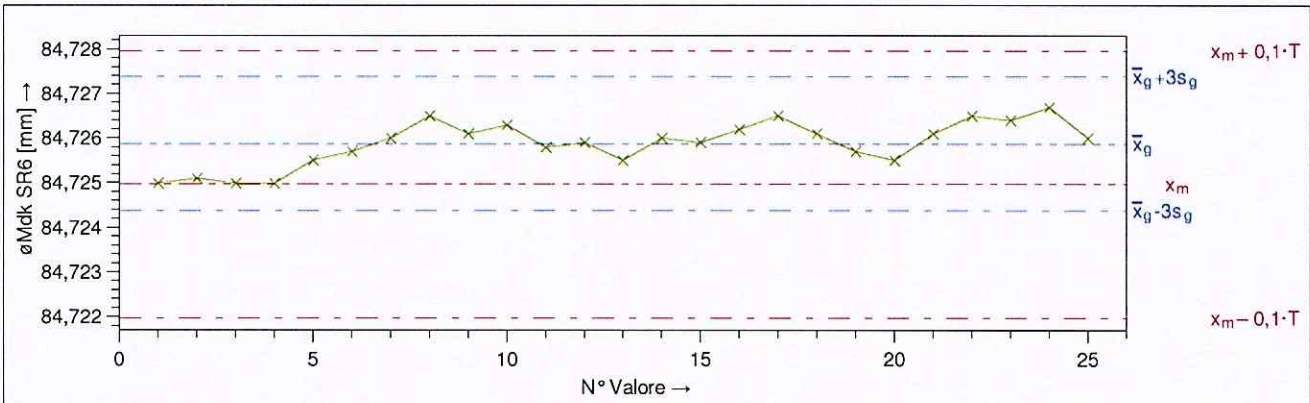


i	x <sub>i</sub>	i	x <sub>i</sub>	i	x <sub>i</sub>	i	x <sub>i</sub>	i	x <sub>i</sub>
1	84,7161	6	84,7160	11	84,7169	16	84,7168	21	84,7176
2	84,7160	7	84,7157	12	84,7168	17	84,7178	22	84,7167
3	84,7160	8	84,7156	13	84,7171	18	84,7166	23	84,7166
4	84,7164	9	84,7162	14	84,7169	19	84,7172	24	84,7166
5	84,7161	10	84,7164	15	84,7173	20	84,7165	25	84,7171

Valori a disegno		Valori Calcolati		Statistiche	
x <sub>m</sub> +0,1·T	= 84,721100	x <sub>maxg</sub>	= 84,7178	$\bar{x}_g+3s_g$	= 84,718299
x <sub>m</sub>	= 84,716000	x <sub>ming</sub>	= 84,7156	$\bar{x}_g$	= 84,716600
x <sub>m</sub> -0,1·T	= 84,710900	R <sub>g</sub>	= 0,0022	$\bar{x}_g-3s_g$	= 84,714901
0,2·T	= 0,010200	n <sub>tot</sub>	= 25	6s <sub>g</sub>	= 0,003399
T	= 0,0510			s <sub>g</sub>	= 0,000566
Unità di misura	= mm			Bi	= 0,00060000
				n <sub>eff</sub>	= 25
Test per Bias				Risultati del test : significativo (α ≤ 0,1%)	
Bias		=	1,18%		
Minimo riferimento per sistema di misura capace					
Risoluzione	%RE =	0,20%		T <sub>min</sub> (%RE)	= 0,00200
$C_g = \frac{0,2 \cdot T}{4 \cdot s_g}$	=	3,24 ≤ 4,50 ≤ 5,77		T <sub>min</sub> (C <sub>g</sub> )	= 0,0151
$C_{gk} = \frac{0,1 \cdot T -  \bar{x}_g - x_m }{2 \cdot s_g}$	=	2,84 ≤ 3,97 ≤ 5,10		T <sub>min</sub> (C <sub>gk</sub> )	= 0,0211
Sistema di misura capace (%RE,min,C <sub>g</sub> ,C <sub>gk</sub> )					
☐ GETRAG MSA 2017: Capability of measuring system (Type-1 Study)					



Data/ora	12/06/2018	Nome oper.	mario.bozza	Reparto/Area/Prod.	WLQ	Posto di prova	Dentatura SR6
Calibro		Master			Caratteristica		
Desc. calibro	Banchetto in acciaio	Desc. mast.	SR6	Desc. Car.	øMdk SR6		
N° calibro	MVZ 406001 019	N° master	MVZ 400656 001	N° Caratt.	2511125450_32C		
Ris. calibro	0,0001	Valore reale mast.	84,725	Val. Nom. 85,1800	LSS	85,1950	$\hat{=} 0,0150$
Caus. Pr.	Cg CgK	Unità di misura	mm	Unità di r mm	LSI	85,1650	$\hat{=} -0,0150$
Nota							



i	x <sub>i</sub>	i	x <sub>i</sub>	i	x <sub>i</sub>	i	x <sub>i</sub>	i	x <sub>i</sub>
1	84,7250	6	84,7257	11	84,7258	16	84,7262	21	84,7261
2	84,7251	7	84,7260	12	84,7259	17	84,7265	22	84,7265
3	84,7250	8	84,7265	13	84,7255	18	84,7261	23	84,7264
4	84,7250	9	84,7261	14	84,7260	19	84,7257	24	84,7267
5	84,7255	10	84,7263	15	84,7259	20	84,7255	25	84,7260

Valori a disegno		Valori Calcolati		Statistiche	
x <sub>m</sub> +0,1·T	= 84,728000	x <sub>max g</sub>	= 84,7267	$\bar{x}_g+3s_g$	= 84,727380
x <sub>m</sub>	= 84,725000	x <sub>min g</sub>	= 84,7250	$\bar{x}_g$	= 84,725880
x <sub>m</sub> -0,1·T	= 84,722000	R <sub>g</sub>	= 0,0017	$\bar{x}_g-3s_g$	= 84,724380
0,2·T	= 0,006000	n <sub>tot</sub>	= 25	6s <sub>g</sub>	= 0,003000
T	= 0,0300			s <sub>g</sub>	= 0,000500
Unità di misura	= mm			Bi	= 0,00088000
				n <sub>eff</sub>	= 25
Test per Bias				Risultati del test : significativo (α ≤ 0,1%)	
Bias		=	2,93%		
Minimo riferimento per sistema di misura capace					
Risoluzione	%RE =	0,33%		T <sub>min</sub> (%RE)	= 0,00200
$C_g = \frac{0,2 \cdot T}{4 \cdot s_g}$	=	2,16 ≤ 3,00 ≤ 3,84		T <sub>min</sub> (C <sub>g</sub> )	= 0,0133
$C_{gk} = \frac{0,1 \cdot T -  \bar{x}_g - x_m }{2 \cdot s_g}$	=	1,51 ≤ 2,12 ≤ 2,73		T <sub>min</sub> (C <sub>gk</sub> )	= 0,0221
Sistema di misura capace (%RE,min,C <sub>g</sub> ,C <sub>gk</sub> )					
<input type="checkbox"/> GETRAG MSA 2017: Capability of measuring system (Type-1 Study)					

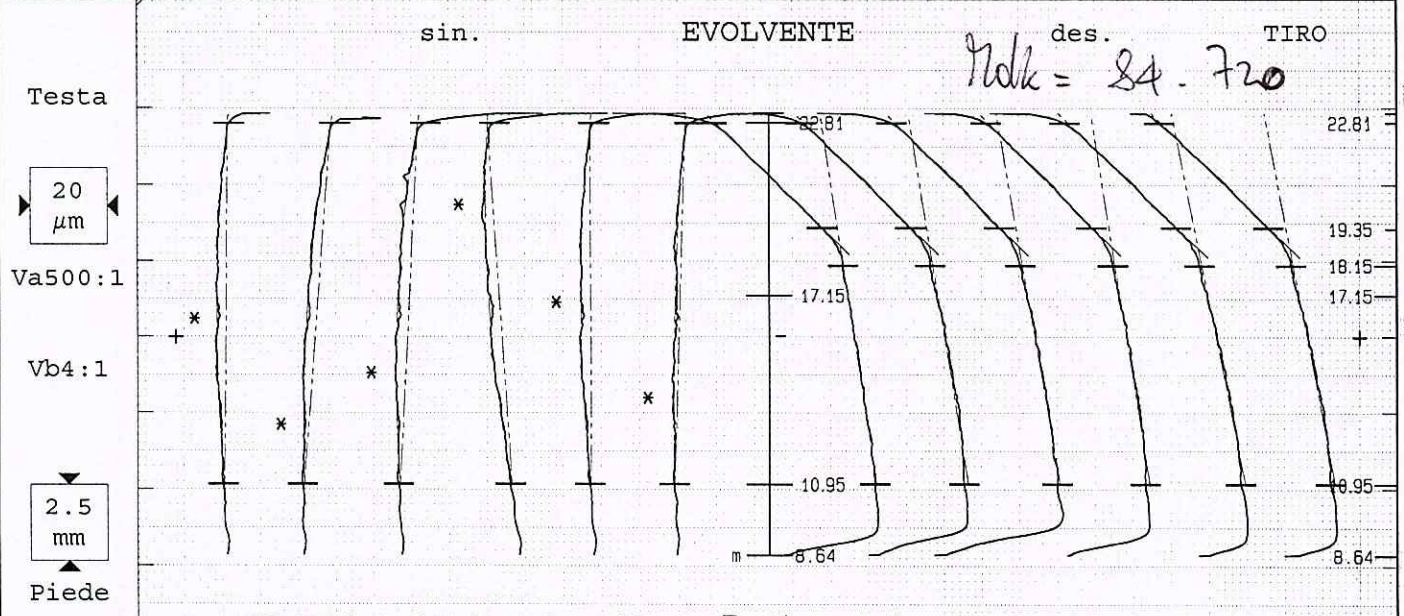




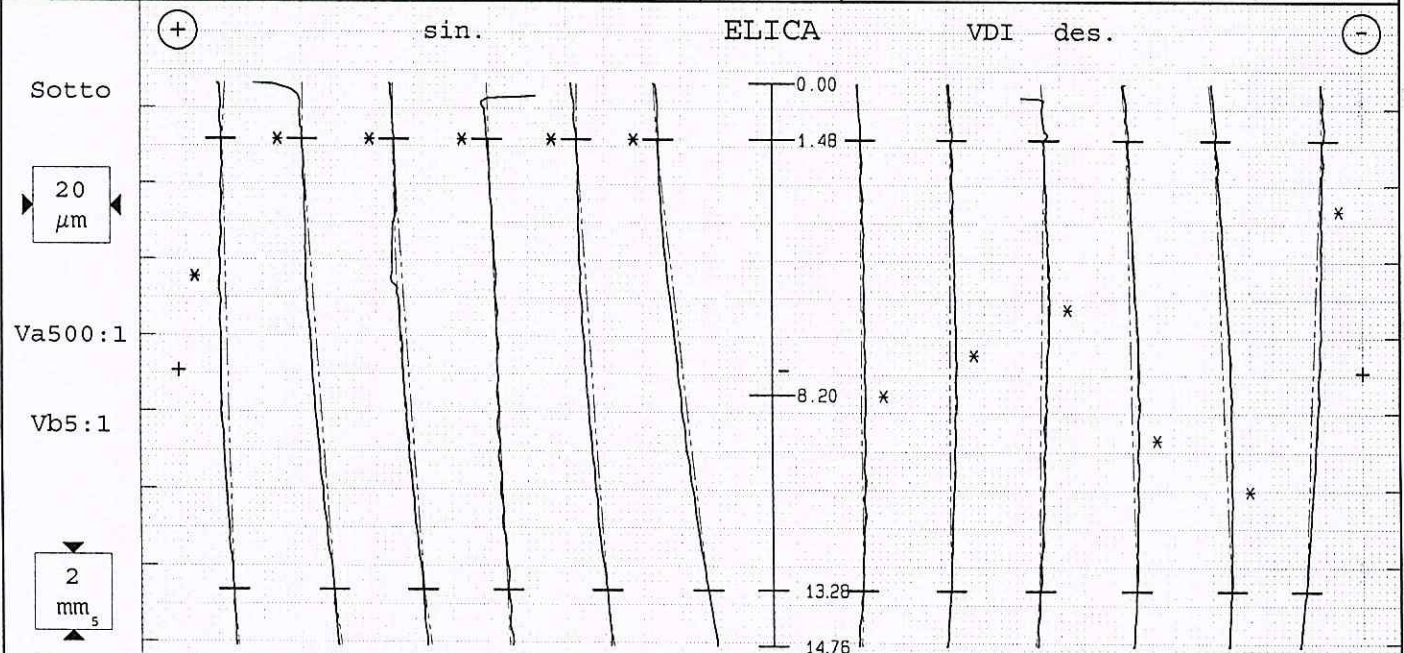
# Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416a04 0	PNC35 B4784	Controllore: Turno B	Data: 13.04.2018 21:33
Denominazione: SR6		Numero denti z 27	Largh. fasc. dent. b 14.76mm
Numero disegno.: D51.1.1254.50-ICA		Modulo m 2.35mm	Tratto evolv. La 11.86/7.2mm
Comessa/serie nr.: 1 - A		Angolo pressione 20°	Tratto elica L8 11.81mm
Masch. Nr.: M001	Spindel: Formata	Angolo elica -31°	Inizio elab. M1 10.95mm
Untersuchungszweck: Laufende Messung		Ø Base db 68.1349mm	Palpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base -28.946°	Fat. scor. pr. x .565



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
fH <sub>am</sub> ±6	-3.1	Var a 7.2								-18±6	Var a 3.7							-16.8	
fH <sub>a</sub> ±10	-3.1	-0.8	-7.1	-4.7	6.3	0.1	-2.8		-18±10	-14.4	-15.4	-16.3	-15.0	-18.7	-18.1	-16.8			
F <sub>a</sub>	5.4	2.6	8.7	7.5	6.6	2.9	4.4		5	2.8	2.9	1.9	3.0	1.6	2.0	2.4			
ff <sub>a</sub> 5	2.1	1.4	1.6	3.6	2.7	1.6	2.0		5	0.9	2.0	1.3	1.8	1.8	2.0	1.9			
Ca 1/5	2.7	2.4	2.7	3.0	2.9	2.6	1.3												
Ca									-35/-27	-28.0	-28.0	-27.3	-27.5	-27.8	-27.8	-27.8			
ff <sub>a</sub> f 3	1.6	1.4	1.3	1.8	2.3	1.8	0.2		3	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
P/T-Ø [mm]	68.283	[68.15/68.5]									82.578	[82.54/82.8]							



fH <sub>sm</sub> 10±6	8.3	Var β 6.7							±6	Var β 10.6							0.6
fH <sub>S</sub> 10±10	8.3	3.4	10.1	10.0	5.7	9.5	16.3	±10	0.7	-0.3	-2.0	2.9	5.1	-5.5	0.6		
F <sub>β</sub>	5.7	6.0	12.8	2.5	4.1	1.3	5.7		1.1	1.0	2.5	2.2	4.0	5.4	3.2		
ff <sub>β</sub> 5	1.0	0.8	0.6	2.1	1.4	0.6	0.8	5	0.8	0.8	1.1	0.9	0.8	0.9	0.9		
C <sub>β</sub> 1/5	1.7	1.8	1.7	1.7	0.1	1.6	1.4	1/5	0.9	1.5	1.6	1.7	1.8	1.6	1.7		
B <sub>d</sub>	-10.6														-2.7		

GCG 808006

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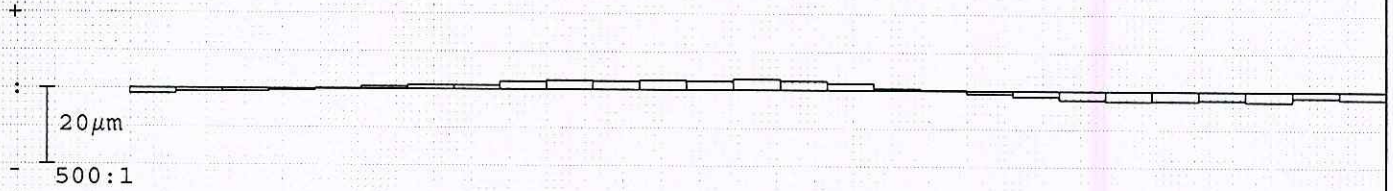


# Ruota cilindrica Divisione

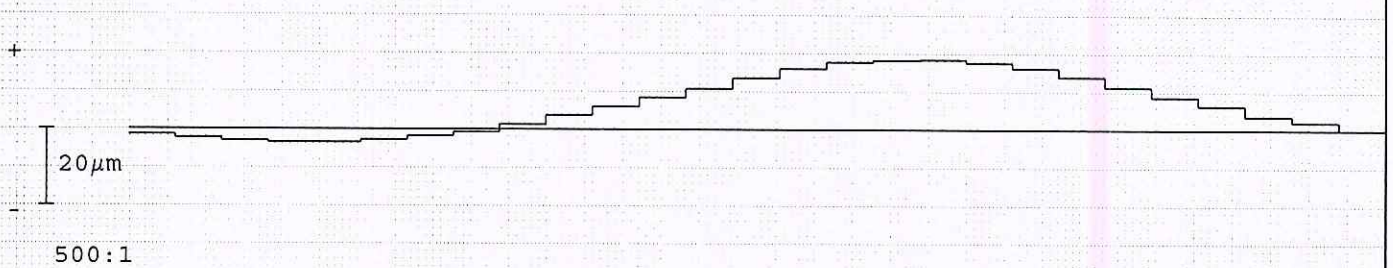


Nr. prog.: STI0416a04 0	PNC35 B4784	Controllore: Turno B	Data: 13.04.2018 21:33
Denominazione: SR6		Numero denti z 27	Angolo pressione 20°
Numero disegno.: D51.1.1254.50-ICA		Modulo m 2.35mm	Angolo elica -31°
Commessa/serie nr.: 1		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	spindel: Formelwerkzeug	Charge:	

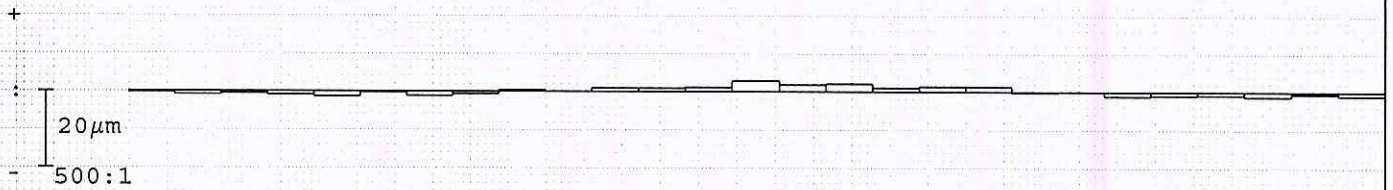
## Errori singoli di divisione fp fianco sinistro



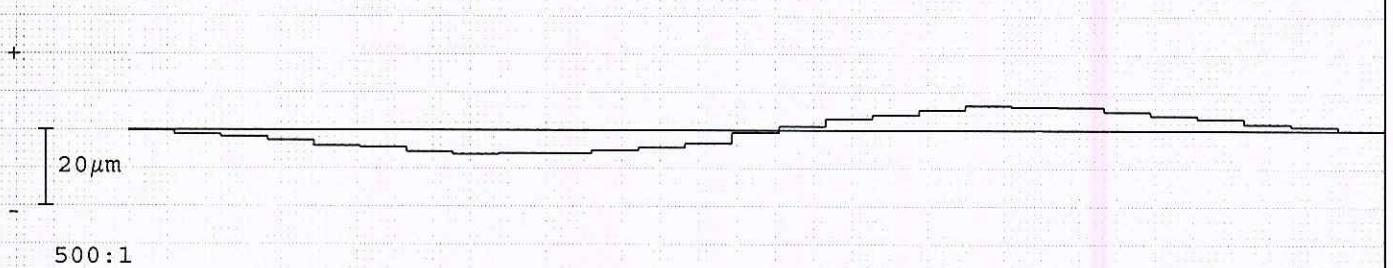
## Errore somma di divisione Fp fianco sinistro



## Errori singoli di divisione fp fianco destro

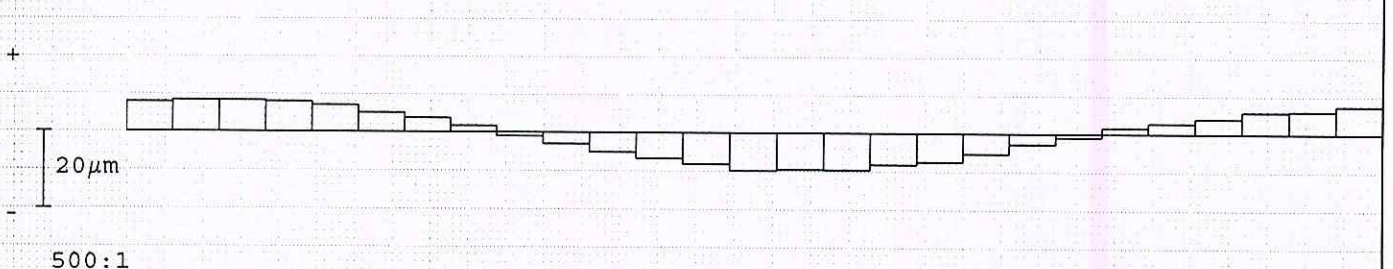


## Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 76.281 z=8.2mm	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		10.0		2.8		10.0	
Gr. salto di passo fu max	1.3		12.0		1.7		12.0	
Scarto di divisione Rp	5.5				4.2			
Err. globale di divisione Fp	21.9		45.0		12.9		45.0	
Err. cordale di divisione Fpz/8	7.6				6.5			

## Centricità Fr (Ø-sfera = 3.75mm) Ⓞ : 17.9µm

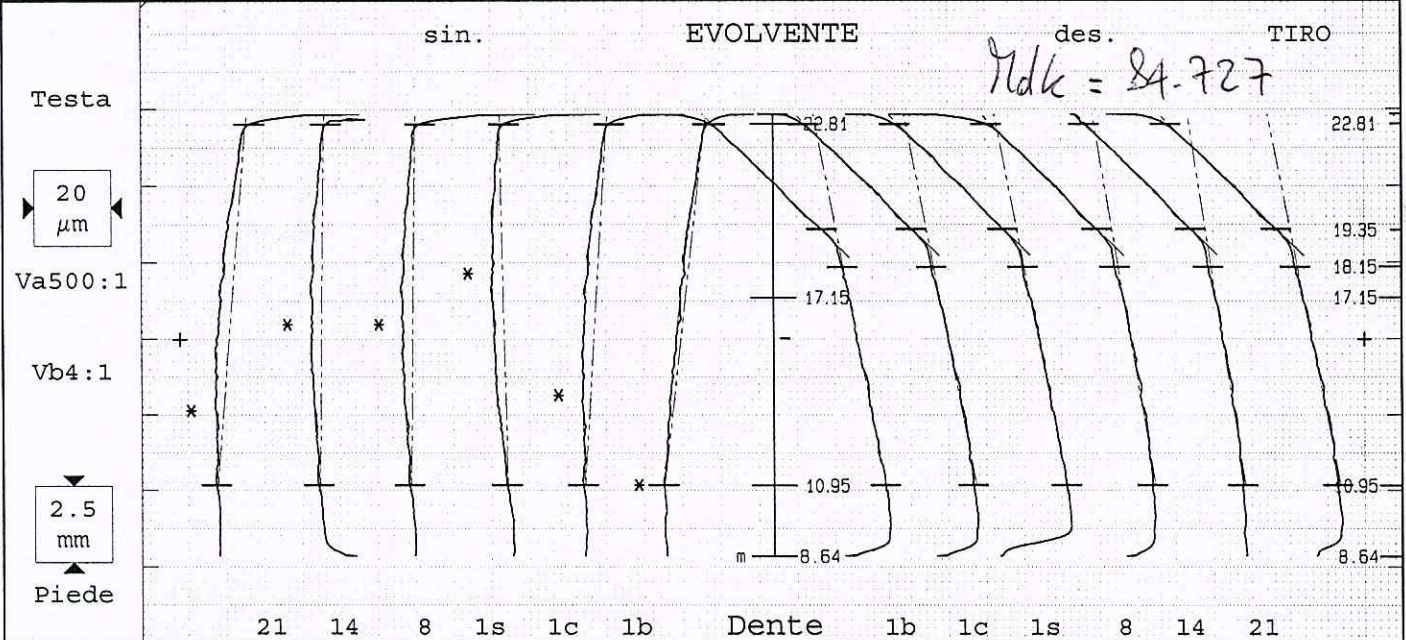


Err. di concentricità Fr	18.2	32.0	
Variab. spessore dente Rs			

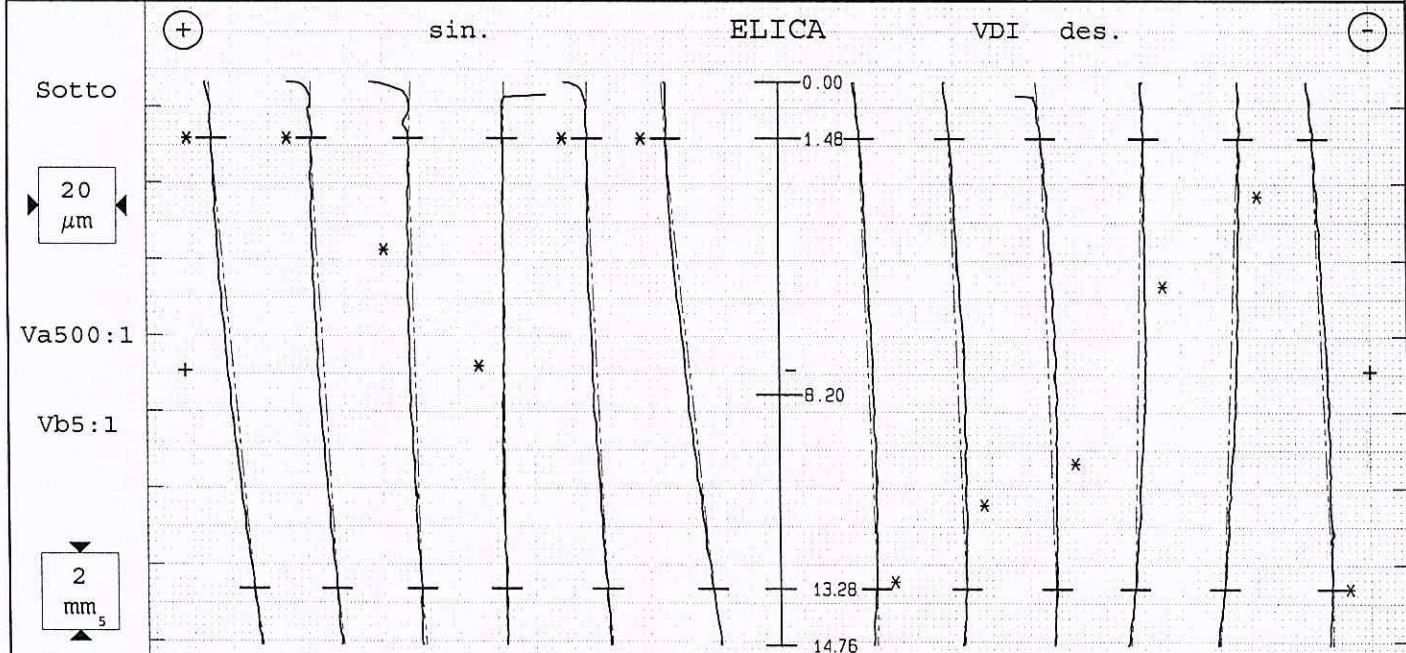
# Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416a04 0	PNC35 B4784	Controllore: Turno B	Data: 13.04.2018 21:58
Denominazione: SR6	Numero denti z 27	Largh.fasc.dent. b 14.76mm	
Numero disegno.: D51.1.1254.50-ICA	Modulo m 2.35mm	Tratto evolv. La 11.86/7.2mm	
Comessa/serie nr.: 3-2	Angolo pressione 20°	Tratto elica Ls 11.81mm	
Masch.Nr.: M001	Spindel: Formata a mano	Angolo elica -31°	Inizio elab. M1 10.95mm
Untersuchungszweck: Laufende Messung	Ø Base db 68.1349mm	Palpatore Ø (#2) 1mm	
Werkzeug: Charge:	Ang. Base -28.946°	Fat.scor.pr. x .565	



Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual
fH <sub>am</sub> ±6	-3.8	Var a 6.3								-18±6	Var a 3.9							-17.0	
fH <sub>a</sub> ±10	-3.8	-7.4	-1.1	-1.1	2.0	-5.7	-10.6		-18±10	-18.4	-18.5	-18.6	-16.0	-14.7	-18.6	-17.0			
F <sub>a</sub>	5.9	9.0	3.1	4.2	3.1	7.1	11.9			1.1	1.6	1.2	2.3	2.7	1.6	2.1			
ff <sub>a</sub> 5	1.6	1.6	1.2	2.0	1.7	1.4	1.5		5	0.9	1.6	1.1	1.7	1.5	1.5	1.6			
Ca 1/5	2.9	3.2	2.7	2.8	2.8	2.9	1.4												
Ca									-35/-27	-27.0	-26.7	-26.2	-27.3	-27.1	-26.7	-27.0			
ff <sub>a</sub> f 3	1.2	1.2	0.5	1.6	1.9	1.7	0.3		3	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
P/T-Ø [mm]	68.282	[68.15/68.5]									82.572	[82.54/82.8]							



N:Z	21	14	8	1t	1c	1p	Ø Dente	1p	1c	1t	8	14	21				
fH <sub>sm</sub> 10±6	7.9	Var β 10.1							±6	Var β 11.4							0.8
fH <sub>S</sub> 10±10	7.9	13.6	8.2	3.5	0.0	6.1	15.2	±10	5.3	5.1	4.1	-3.0	-5.2	6.2	0.8		
F <sub>β</sub>	6.6	4.3	6.1	10.1	9.1	5.8	3.9		4.1	4.0	4.0	3.2	4.8	5.1	4.3		
ff <sub>β</sub> 5	0.6	0.5	0.6	0.7	1.0	0.6	0.7	5	0.7	0.8	0.8	0.8	0.7	1.0	0.8		
CS 1/5	1.4	1.5	1.6	1.4	0.3	1.2	1.3	1/5	1.1	1.6	1.8	1.7	1.4	1.2	1.5		
Bd	-15.2														-1.2		

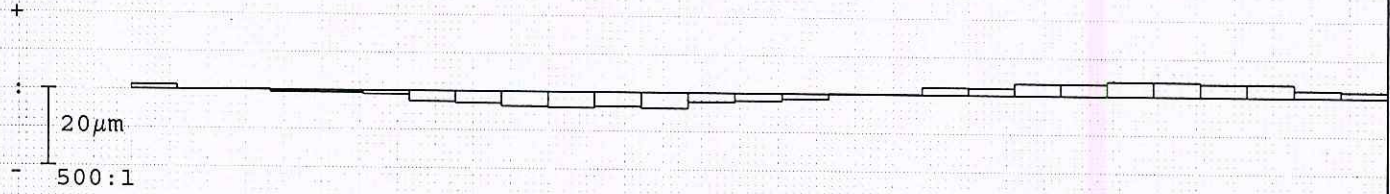


# Ruota cilindrica Divisione

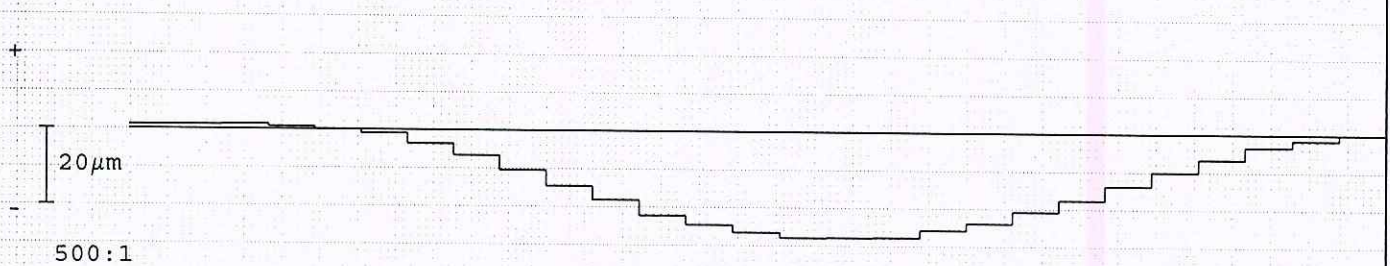


Nr. prog.: STI0416a04 0	PNC35 B4784	Controllore: Turno B	Data: 13.04.2018 21:58
Denominazione: SR6		Numero denti z 27	Angolo pressione 20°
Numero disegno.: D51.1.1254.50-ICA		Modulo m 2.35mm	Angolo elica -31°
Comessa/serie nr.: 3		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formtest	Bestellg:	Charge:

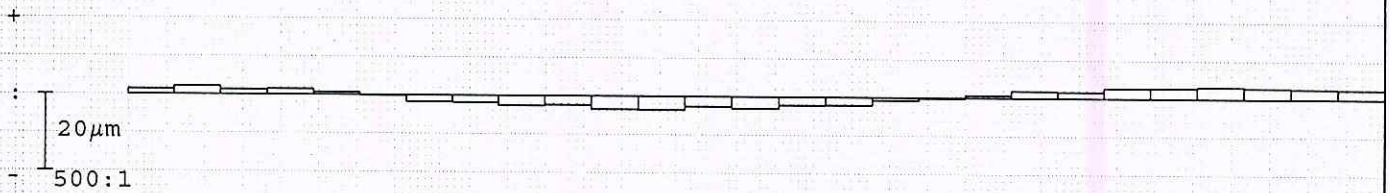
## Errori singoli di divisione fp fianco sinistro



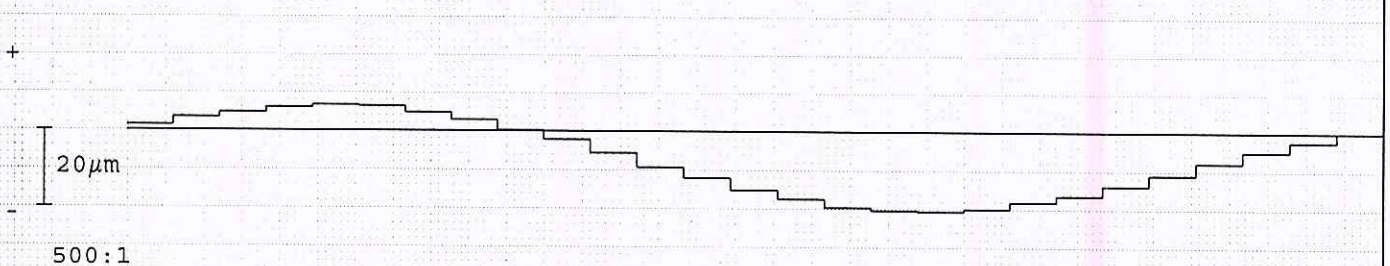
## Errore somma di divisione Fp fianco sinistro



## Errori singoli di divisione fp fianco destro



## Errore somma di divisione Fp fianco destro

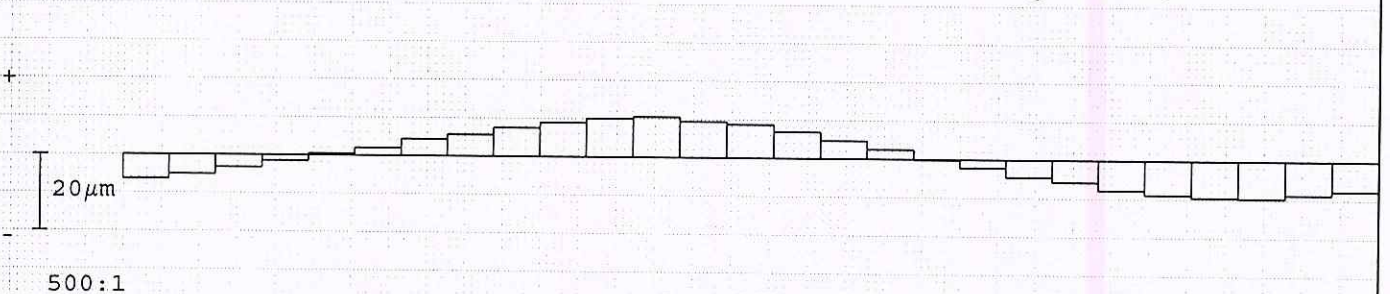


Corsa per misura divis.: 76.281 z=8.2mm

	fianco sinistro				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	4.1		10.0		3.6		10.0	
Gr. salto di passo fu max	1.8		12.0		1.5		12.0	
Scarto di divisione Rp	7.9				6.7			
Err. globale di divisione Fp	29.2		45.0		27.3		45.0	
Err. cordale di divisione Fpz/8	11.8				9.8			

Centricità Fr ( $\emptyset$ -sfera = 3.75mm)

⊙ : 19.1μm

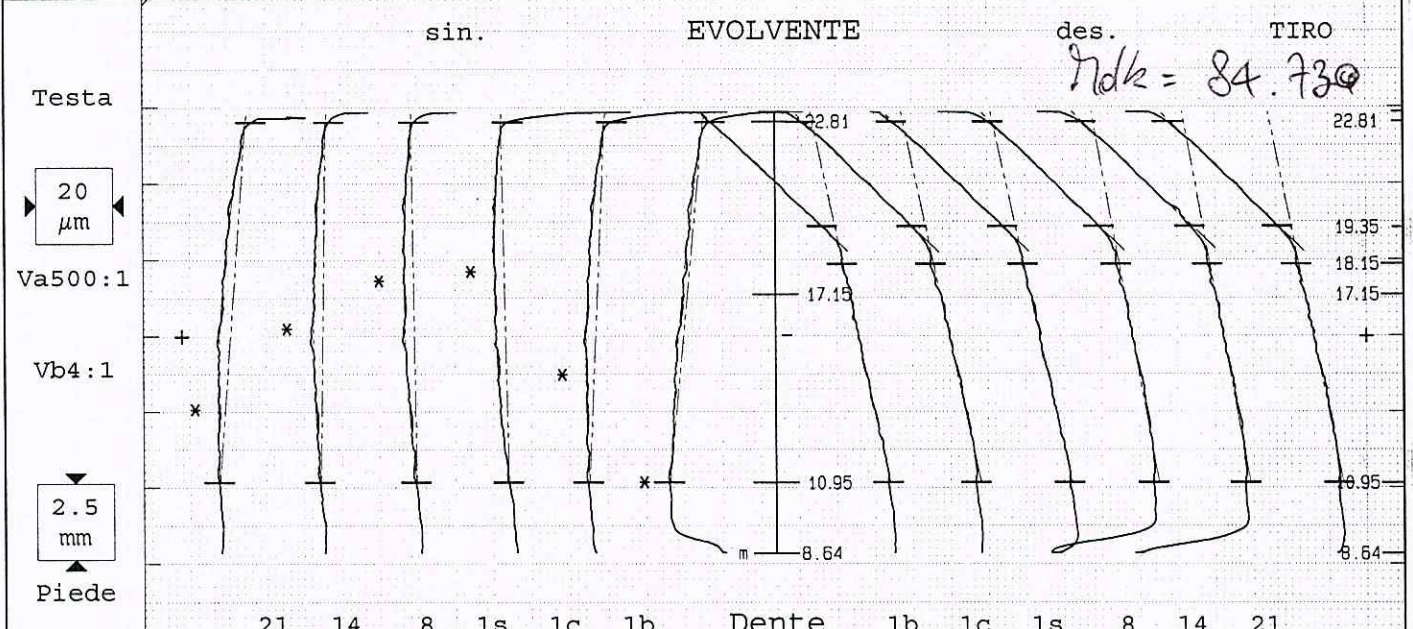


Err. di concentricità Fr	20.3	32.0	
Variab. spessore dente Rs			

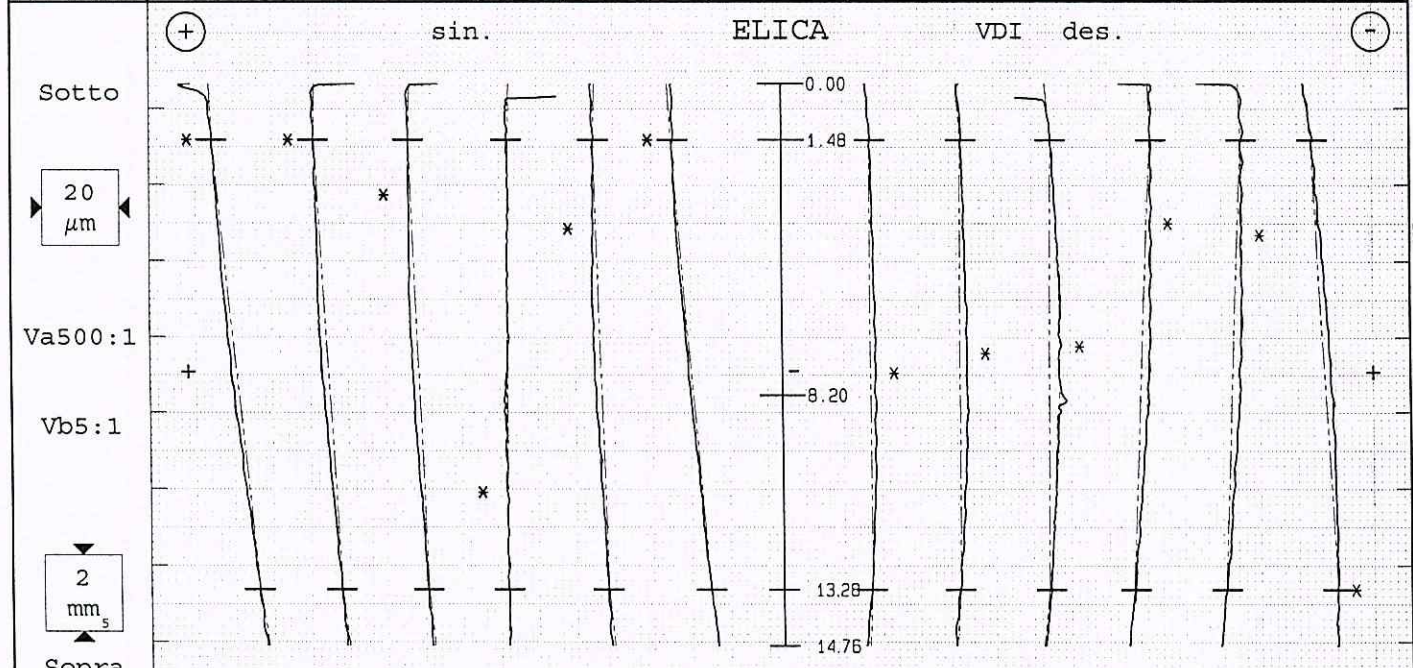
# Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416a04 0		PNC35 B4784		Controllore: Turno B		Data: 13.04.2018 22:03					
Denominazione: SR6		Numero denti z		27		Largh. fasc. dent. b		14.76mm			
Numero disegno.: D51.1.1254.50-ICA		Modulo m		2.35mm		Tratto evolv. La		11.86/7.2mm			
Commessa/serie nr.: 4 -3		Angolo pressione		20°		Tratto elica Ls		11.81mm			
Masch. Nr.: M001		Spindel: Formelettrolitica		-31°		Inizio elab. M1		10.95mm			
Untersuchungszweck: Laufende Messung		Ø Base db		68.1349mm		Palpatore Ø		#2) 1mm			
Werkzeug:		Charge:		Ang. Base		-28.946°		Fat. scor. pr. x		.565	



Tolerance	Medio	Val. misur [µm]								Qual	Tolerance	Val. misur [µm]								Medio	Qual	
fHm	±6	-2.8	Var a 8.1									-18±6	Var a 3.3								-18.4	
fHa	±10	-2.8	-6.9	-1.5	1.2	1.8	-4.1	-8.8		-18±10	-20.1	-20.2	-20.6	-16.9	-17.2	-19.1	-18.4					
Fa		5.7	9.1	4.1	2.6	3.2	6.9	11.1			1.8	2.3	2.0	2.5	2.2	1.9	2.2					
ffa	5	2.0	2.2	1.6	1.5	2.5	2.7	2.6		5	1.1	1.9	1.2	2.2	2.0	1.9	2.0					
Ca	1/5	2.7	2.9	2.6	2.5	2.6	2.6	1.4														
Ca										-35/-27	-26.5	-26.4	-26.4	-27.3	-26.8	-26.4	-26.7					
ffaaf	3	1.1	1.2	1.2	1.5	0.9	0.7	0.4		3	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
P/T-Ø [mm]		68.291				[68.15/68.5]					82.600				[82.54/82.8]							



N:Z	fHsm	fHs	Fß	ffaß	Cß	Bd	Val. misur [µm]								Qual	Tolerance	Val. misur [µm]								Medio	Qual
10±6	8.6	8.6	5.9	0.7	1.5	-13.0	Var ß 10.6									±6	Var ß 14.2								-0.9	
10±10	8.6	15.1	12.2	0.6	1.3		15.1	8.6	6.0	-0.7	4.5	12.3		±10	0.3	-0.5	-1.1	-5.9	-5.5	8.3	-0.9					
		5.9	12.2	1.8	4.0	9.8	5.6	1.8							0.7	1.5	3.5	5.5	5.1	6.9	4.8					
5		0.7	0.6	0.7	0.6	1.3	0.8	0.7		5	0.5	0.7	2.3	0.8	1.0	0.9	0.9									
1/5		1.5	1.3	1.6	1.6	0.3	1.5	0.7		1/5	1.4	1.9	2.7	1.9	1.9	1.6	1.8									

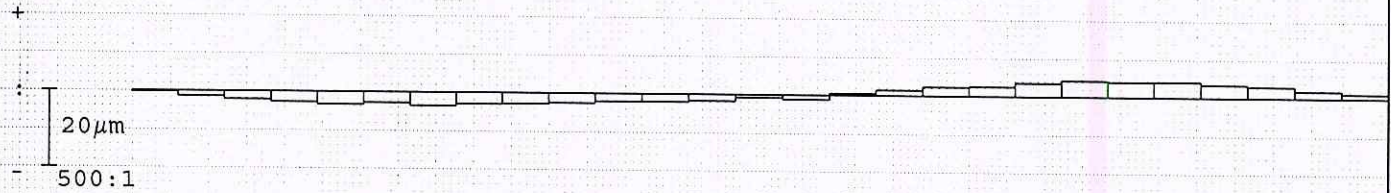


# Ruota cilindrica Divisione

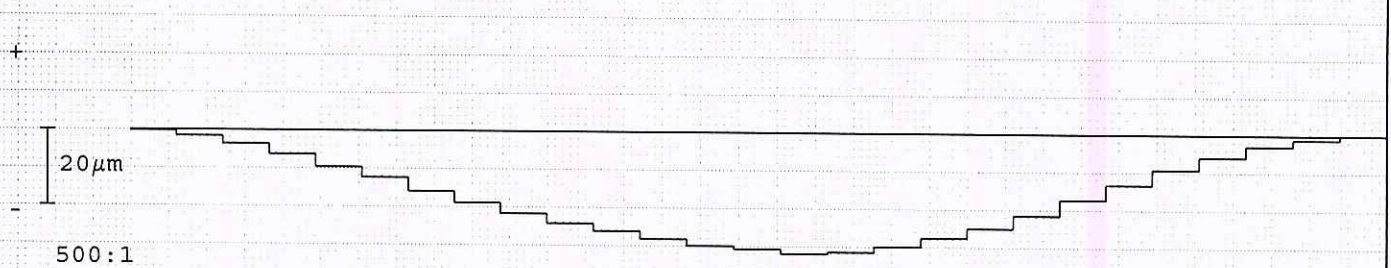


Nr. prog.: STI0416a04 0	PNC35 B4784	Controllore: Turno B	Data: 13.04.2018 22:03
Denominazione: SR6		Numero denti z 27	Angolo pressione 20°
Numero disegno.: D51.1.1254.50-ICA		Modulo m 2.35mm	Angolo elica -31°
Commissa/serie nr.: 4		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formnetzelg:	Charge:	

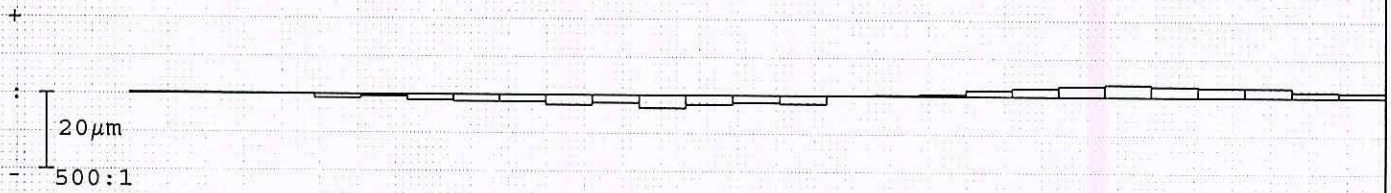
Errori singoli di divisione fp fianco sinistro



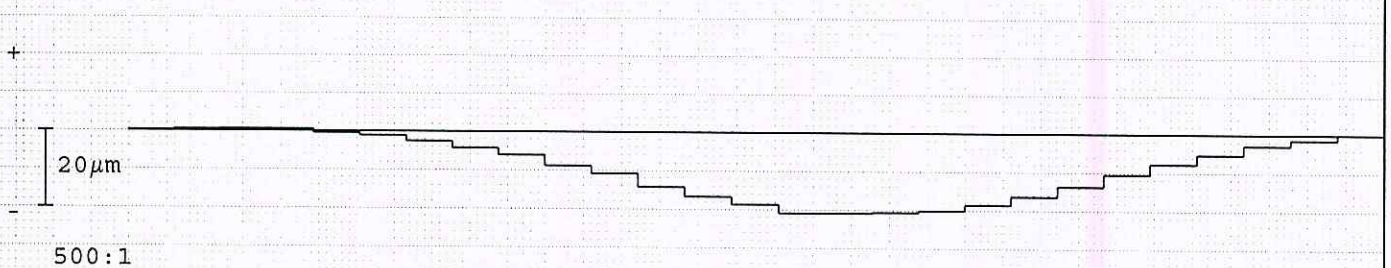
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

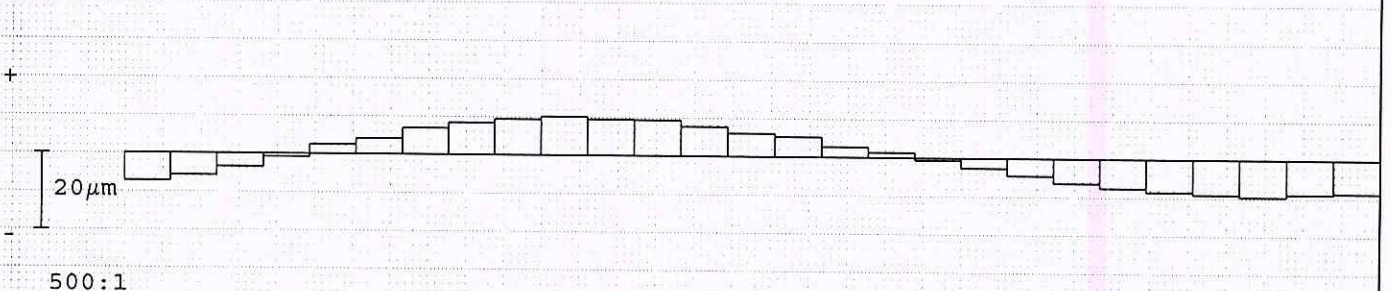


Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 76.281 z=8.2mm	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		10.0		3.4		10.0	
Gr. salto di passo fu max	1.6		12.0		2.2		12.0	
Scarto di divisione Rp	7.7				6.5			
Err. globale di divisione Fp	31.9		45.0		21.5		45.0	
Err. cordale di divisione Fpz/8	12.3				8.6			

Centricità Fr (Ø-sfera = 3.75mm)  $\odot$  : 19.3µm

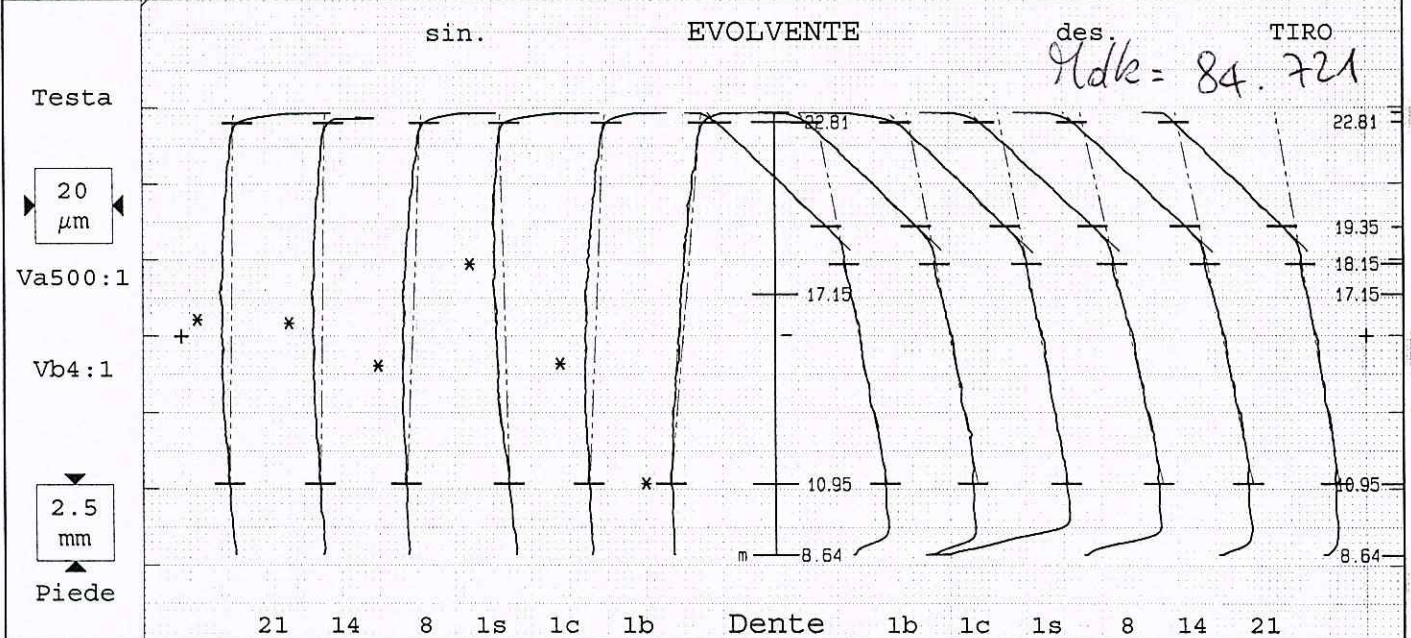


Err. di concentricità Fr	19.7	32.0	
Variab. spessore dente Rs			

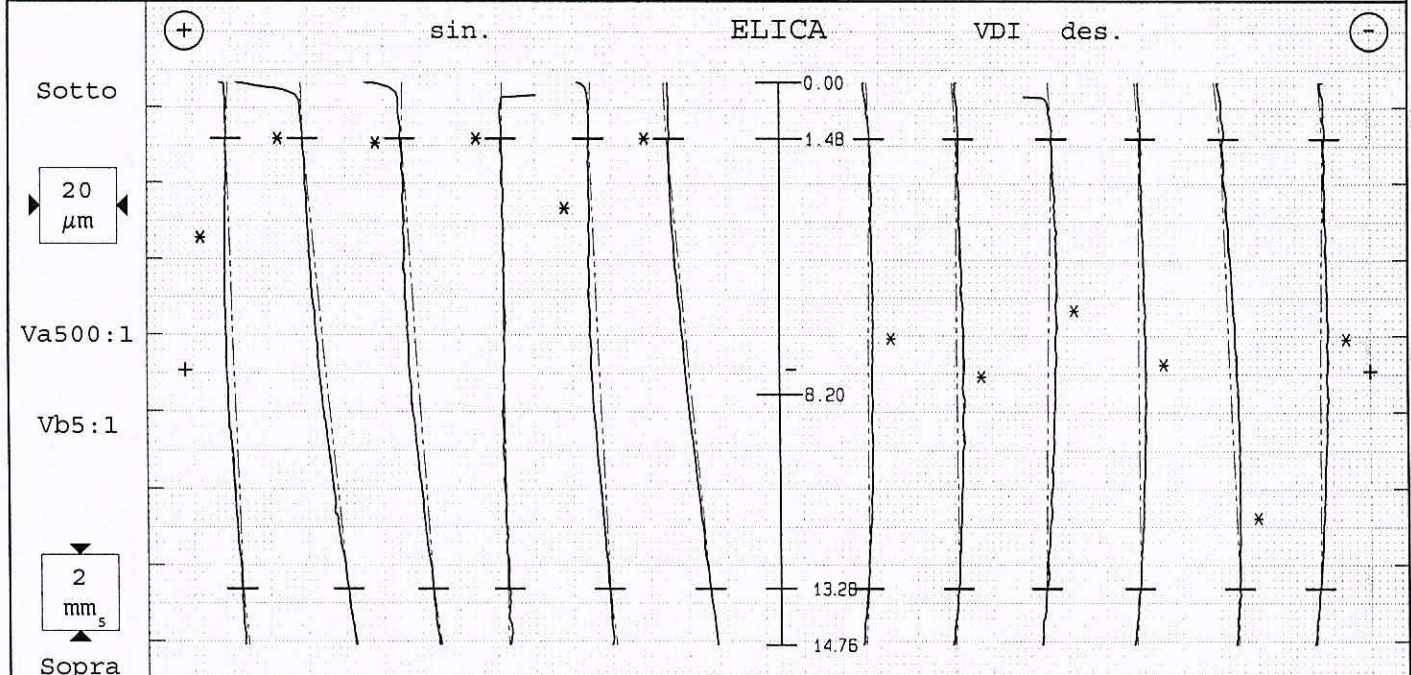
# Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416a04 0		PNC35 B4784		Controllore: Turno B		Data: 13.04.2018 22:10	
Denominazione: SR6		Numero denti z		27		Largh.fasc.dent. b 14.76mm	
Numero disegno.: D51.1.1254.50-ICA		Modulo m		2.35mm		Tratto evolv. La 11.86/7.2mm	
Commessa/serie nr.: 5-4		Angolo pressione		20°		Tratto elica Ls 11.81mm	
Masch.Nr.: M001		Spindel: Formelettrolitica		-31°		Inizio elab. M1 10.95mm	
Untersuchungszweck: Laufende Messung		Ø Base db		68.1349mm		Palpatore Ø (#2) 1mm	
Werkzeug: Charge:		Ang. Base		-28.946°		Fat.scor.pr. x .565	



Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual	
fHm ±6	-2.5	Var a 2.8								-18±6	Var a 4.7							-18.8		
fHa ±10	-2.5	-1.0	-1.2	-3.8	2.3	-3.8	-7.7		-18±10	-18.0	-18.0	-17.8	-21.0	-19.7	-16.3	-18.8				
Fa	4.5	3.8	3.6	5.4	3.7	5.3	8.9			1.1	2.2	1.4	2.5	2.1	2.5	2.3				
ffa	5	1.5	1.8	1.5	1.5	1.8	1.3	1.5	5	1.1	2.2	1.3	1.9	1.9	1.9	2.0				
Ca 1/5	2.7	2.6	2.6	2.7	2.7	2.8	1.4													
Ca									-35/-27	-26.4	-26.7	-27.0	-27.0	-27.4	-27.2	-27.1				
ffaf	3	1.3	0.8	1.5	1.6	1.2	1.4	0.2	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
P/T-Ø [mm]	68.287	[68.15/68.5]									82.579	[82.54/82.8]								



N:Z	21	14	8	1t	1c	1p	Ø Dente	1p	1c	1t	8	14	21				
fHs ±10	9.1	Var β 9.3							±6	Var β 6.8							1.4
fHs 10±10	9.1	5.2	14.5	10.0	1.3	6.5	13.8	±10	-0.6	0.5	-2.3	0.1	5.9	-0.9	1.4		
Fβ	9.8	4.9	21.0	9.5	7.7	3.9	2.9		0.9	1.3	2.3	1.0	4.5	1.9	2.2		
ffβ	5	0.8	0.8	0.8	0.9	1.0	0.7	0.9	5	0.7	1.1	0.8	0.9	1.1	1.1		
Cβ 1/5	1.9	1.9	1.7	2.1	0.1	1.9	1.1		1/5	1.1	1.6	2.0	1.7	1.7	1.7		
Bd	-12.5														-1.7		

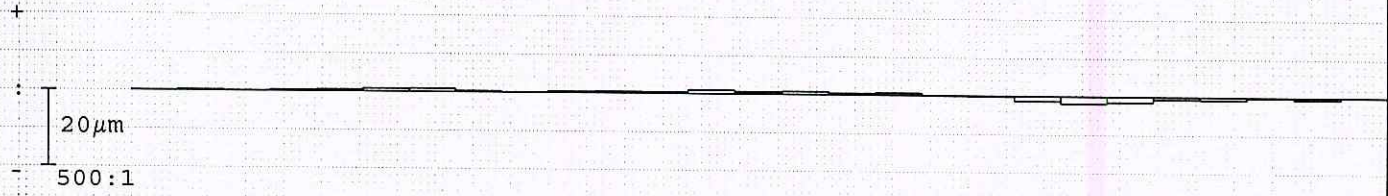


# Ruota cilindrica Divisione

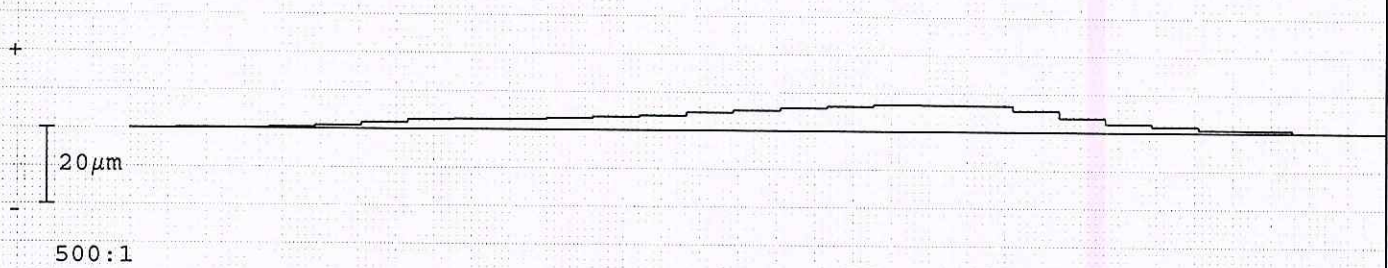


Nr. prog.: STI0416a04 0	PNC35 B4784	Controllore: Turno B	Data: 13.04.2018 22:10
Denominazione: SR6		Numero denti z 27	Angolo pressione 20°
Numero disegno.: D51.1.1254.50-ICA		Modulo m 2.35mm	Angolo elica -31°
Comessa/serie nr.: 5		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formelgetzelg:		Charge:

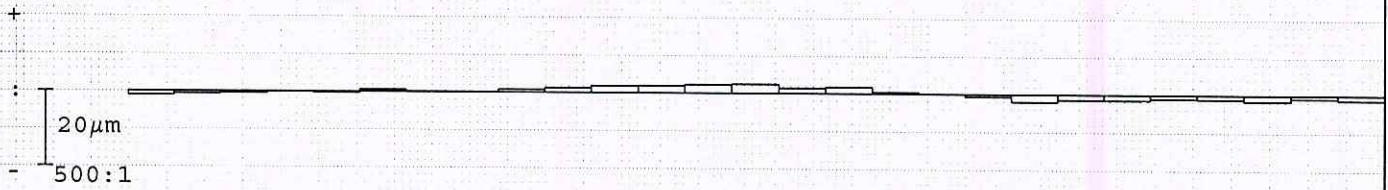
Errori singoli di divisione fp fianco sinistro



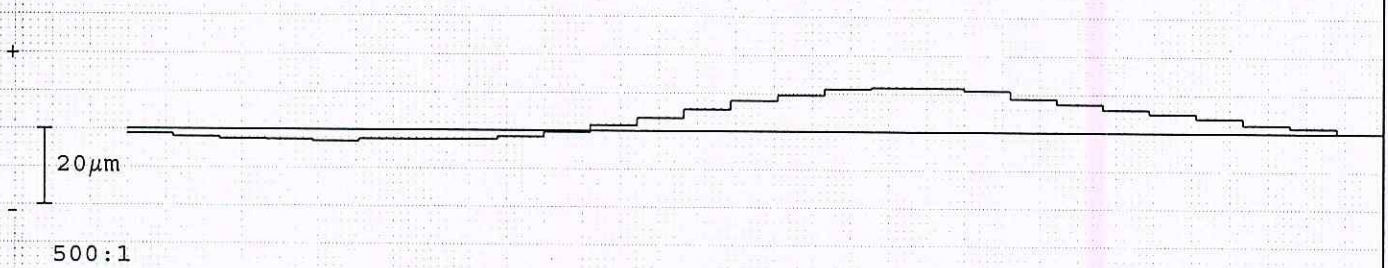
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



Errore somma di divisione Fp fianco destro

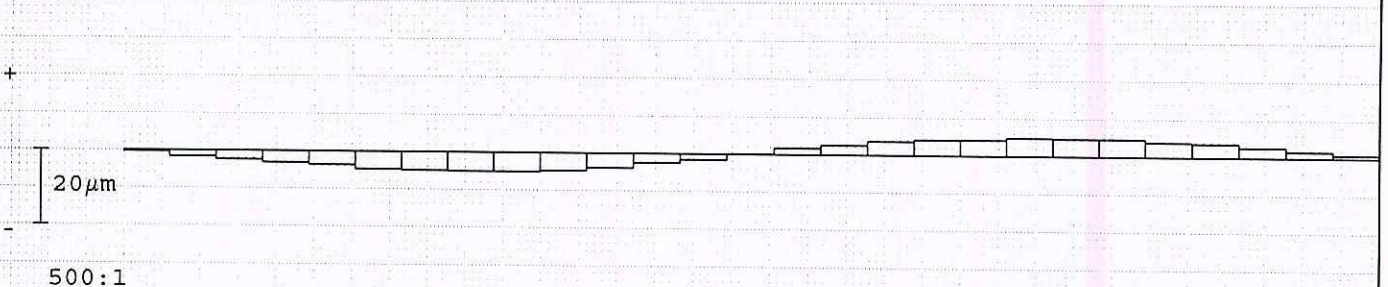


Corsa per misura divis.: 76.281 z=8.2mm

	fianco sinistro				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	1.9		10.0		2.4		10.0	
Gr. salto di passo fu max	1.1		12.0		1.4		12.0	
Scarto di divisione Rp	2.8				4.4			
Err. globale di divisione Fp	7.0		45.0		14.5		45.0	
Err. cordale di divisione Fpz/8	4.5				6.6			

Centricità Fr (Ø-sfera =3.75mm)

⊙ : 10µm



Err. di concentricità Fr		10.0	32.0	
Variab. spessore dente Rs				

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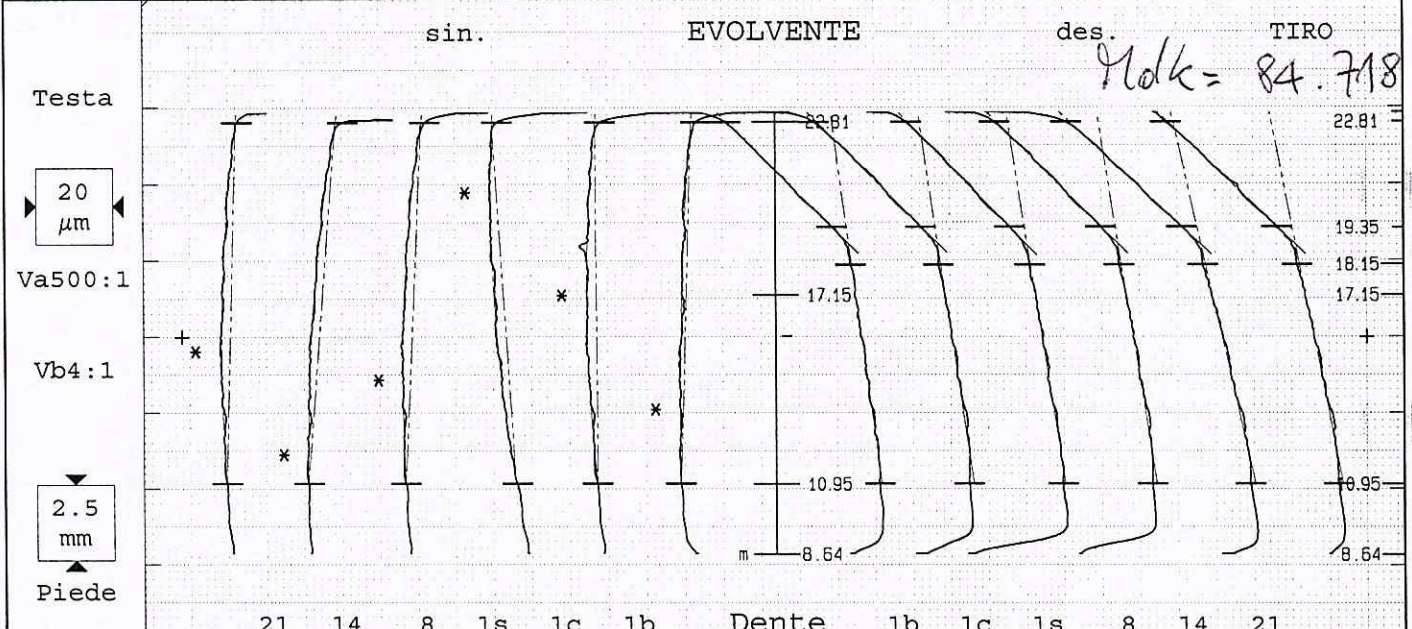
Docum.archiviato elettronicamente.Archiviazione cartacea non necessaria



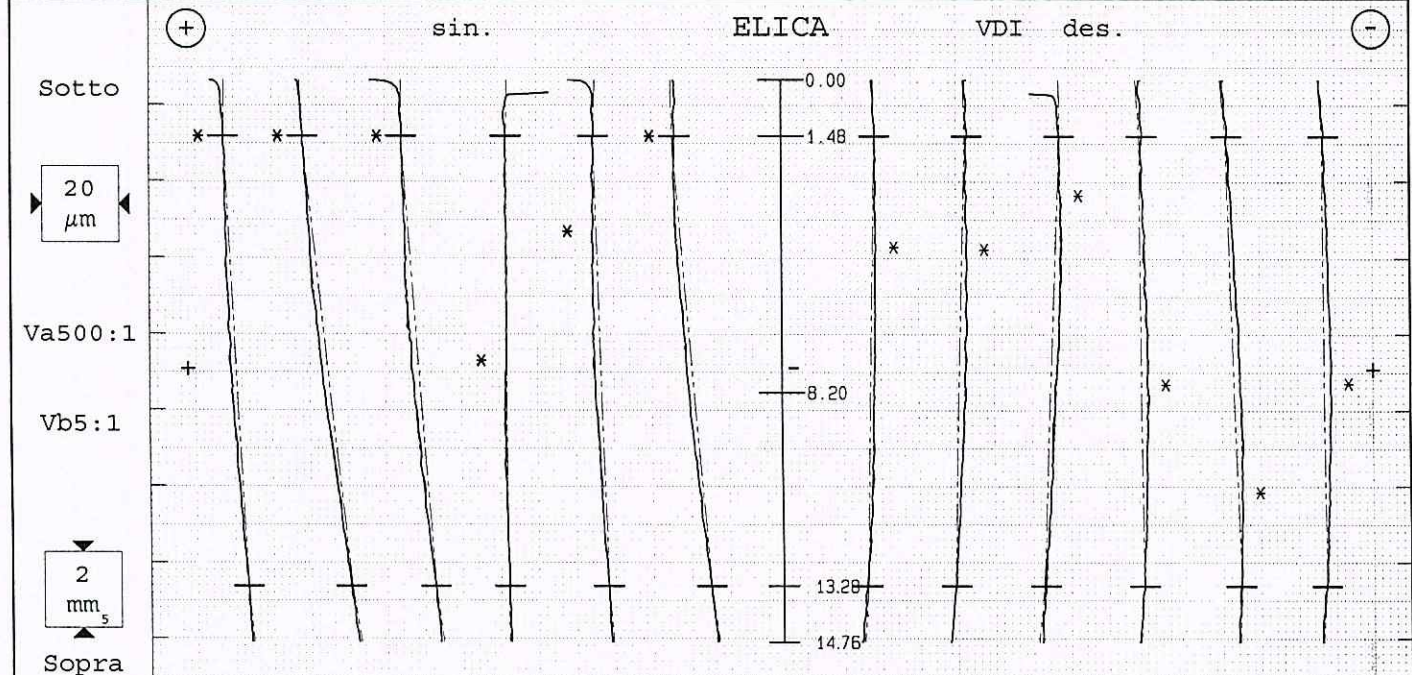
# Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0416a04 0	PNC35 B4784	Controllore: Turno B	Data: 13.04.2018 22:17
Denominazione: SR6		Numero denti z 27	Largh.fasc.dent. b 14.76mm
Numero disegno.: D51.1.1254.50-ICA		Modulo m 2.35mm	Tratto evolv. La 11.86/7.2mm
Commessa/serie nr.: 6-5		Angolo pressione 20°	Tratto elica Ls 11.81mm
Masch.Nr.: M001	Spindel: Formelettrolitica	Angolo elica -31°	Inizio elab. M1 10.95mm
Untersuchungszweck: Laufende Messung		Ø Base db 68.1349mm	Palpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base -28.946°	Fat.scor.pr. x .565



Tolerance	Medio	Val.misur [µm]							Qual	Tolerance	Val.misur [µm]							Medio	Qual
fHm ±6	-3.4	Var a 7.9								-18±6	Var a 7.2							-17.3	
fHa ±10	-3.4	-2.5	-7.4	-4.3	6.1	0.5	-2.9		-18±10	-12.9	-14.1	-15.0	-15.0	-21.3	-18.6	-17.3			
Fa	6.0	3.7	9.7	5.8	6.7	4.6	4.3			3.8	3.5	2.5	2.7	3.0	2.0	2.8			
ffa 5	2.2	1.2	2.5	1.5	1.8	3.4	1.9		5	1.1	2.1	1.3	2.0	2.2	2.1	2.1			
Ca 1/5	2.4	2.4	2.2	2.5	2.5	2.5	1.2												
Ca									-35/-27	-27.7	-27.3	-26.7	-27.1	-27.4	-27.5	-27.3			
ffaaf 3	0.5	0.5	0.3	0.5	0.6	0.9	0.1		3	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
P/T-Ø [mm]	68.278	[68.15/68.5]								82.594	[82.54/82.8]								



N:Z		21	14	8	1t	1c	1p	Ø Dente	1p	1c	1t	8	14	21				
fHsm 10±6	9.5	Var β 11.5								±6	Var β 8.6							0.6
fHS 10±10	9.5	7.4	15.8	10.6	0.0	4.3	12.1		±10	-2.8	-4.0	-5.9	0.8	4.6	0.8	0.6		
Fβ	5.9	3.3	5.6	8.6	8.8	6.1	1.8			2.7	4.1	4.3	1.3	3.5	1.2	2.5		
ffβ 5	0.9	0.8	0.8	1.0	0.8	0.8	1.0		5	0.7	0.9	1.0	1.1	0.8	0.6	0.9		
Cβ 1/5	1.5	1.3	1.5	1.7	0.3	1.5	1.5		1/5	1.1	1.6	1.6	1.6	1.6	1.7	1.6		
Bd	-12.1															-3.1		

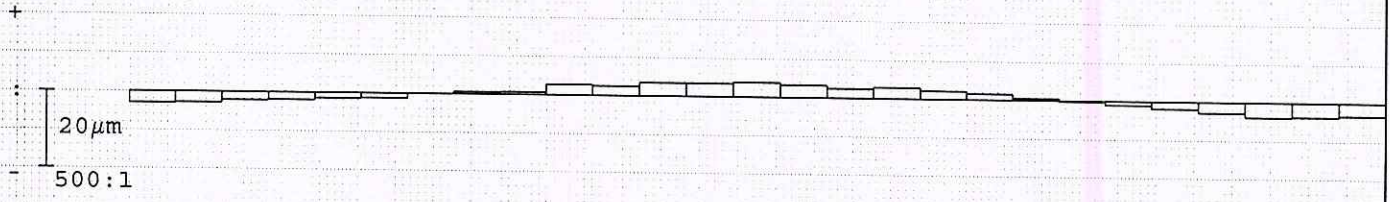


# Ruota cilindrica Divisione

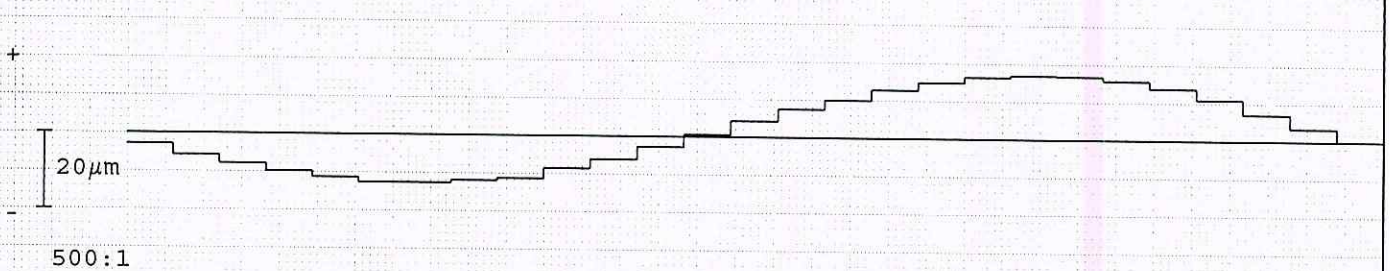


Nr. prog.: STI0416a04 0	PNC35 B4784	Controllore: Turno B	Data: 13.04.2018 22:17
Denominazione: SR6		Numero denti z 27	Angolo pressione 20°
Numero disegno.: D51.1.1254.50-ICA		Modulo m 2.35mm	Angolo elica -31°
Commessa/serie nr.: 6		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formnet	Gr. Kzwdg:	Charge:

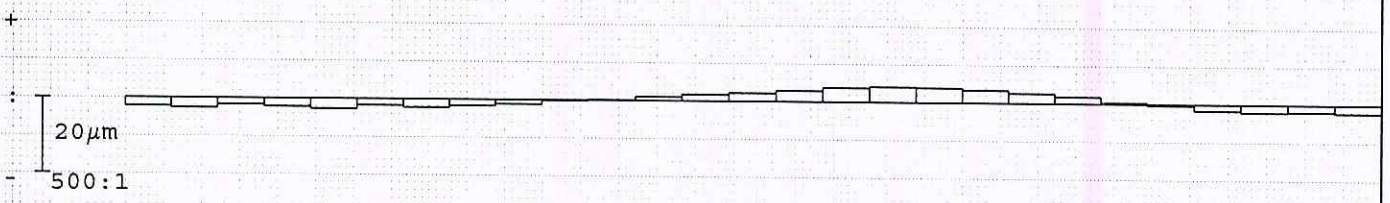
Errori singoli di divisione fp fianco sinistro



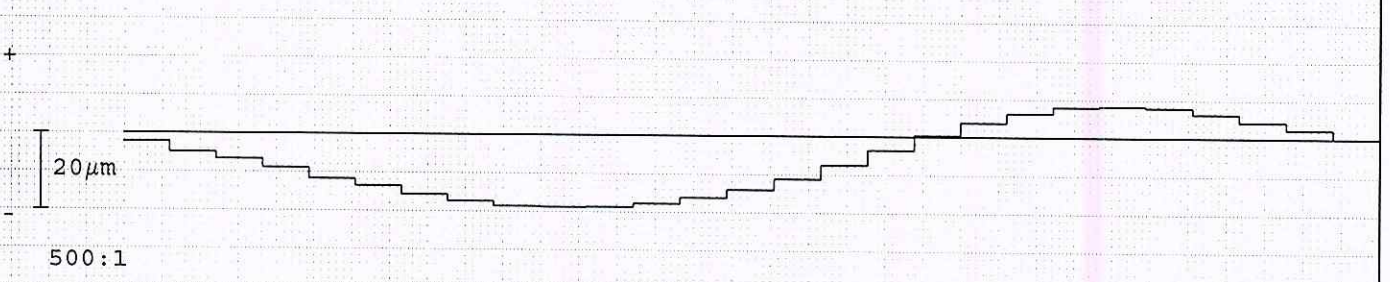
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro



Errore somma di divisione Fp fianco destro

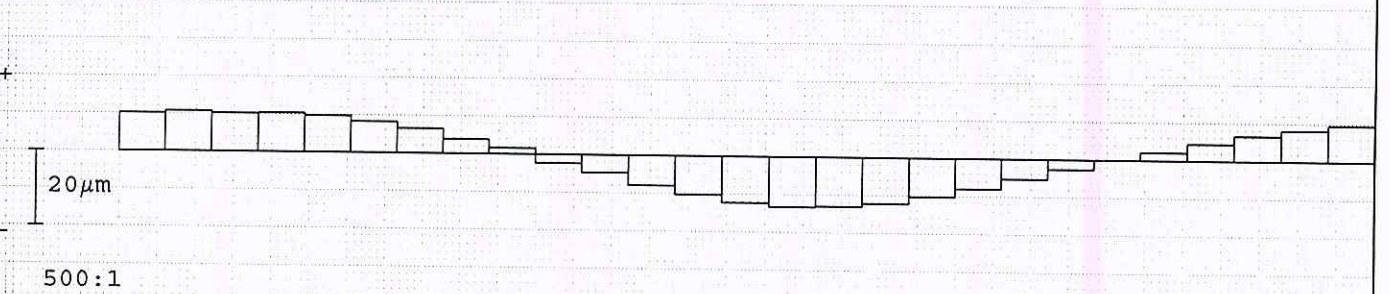


Corsa per misura divis.: 76.281 z=8.2mm

	fianco sinistro				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	3.8		10.0		4.0		10.0	
Gr. salto di passo fu max	2.0		12.0		1.5		12.0	
Scarto di divisione Rp	7.5				6.8			
Err. globale di divisione Fp	29.5		45.0		27.0		45.0	
Err. cordale di divisione Fpz/8	10.8				11.5			

Centricità Fr (Ø-sfera = 3.75mm)

⊙ : 23.7 μm



Err. di concentricità Fr	24.0	32.0	
Variaz. spessore dente Rs			

Docum.archiviato elettronicamente.Archiviazione cartacea non necessaria

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**REPORT 18/076**

Date: 14/05/2018  
Author: F. Abbaticchio

<b>Reason for analysis:</b> <i>Motivo dell'indagine:</i>	PPAP
---	------

<b>Requester:</b> <i>Richiedente:</i>	WLQ - M. Vicenti
--	------------------

<b>Part Name:</b> <i>Nome particolare:</i>	SG6
<b>Material:</b> <i>Materiale:</i>	GCG_805000 Part 2
<b>State of part:</b> <i>Stato del particolare:</i>	Finito

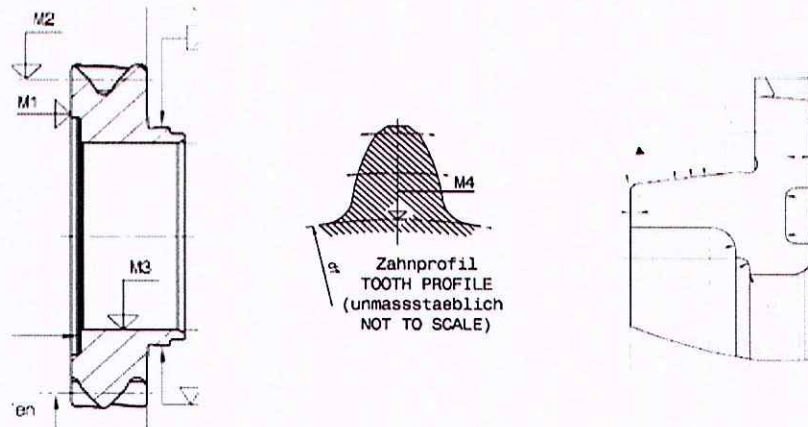
<b>P/N:</b>	251.1.1253.50
<b>S/N:</b>	-
<b>Customer:</b> <i>Cliente:</i>	

<b>Result:</b> <i>Risultato:</i>	<b>OK</b>
-------------------------------------	-----------

<b>Distribution list:</b> <i>Lista di distribuzione:</i>	WLQ - M. Vicenti
---	------------------

<b>Notes:</b> <i>Note:</i>	Gearset 32C
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**Drawing**



Picture 1: posizioni di misura a disegno.

**Surface hardness verification (verifica durezza superficiale)**

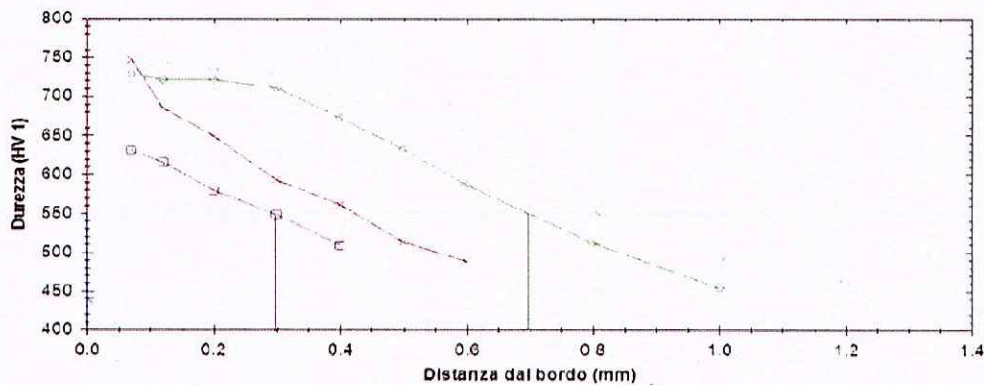
Component	Scale	Position	Measured Value	Range
Gear	HRC	M1	61.5	-
Gear	HRA	M1	81.7	80.5 + 2.5

REPORT 18/076

Date: 14/05/2018  
Author: F. Abbaticchio

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

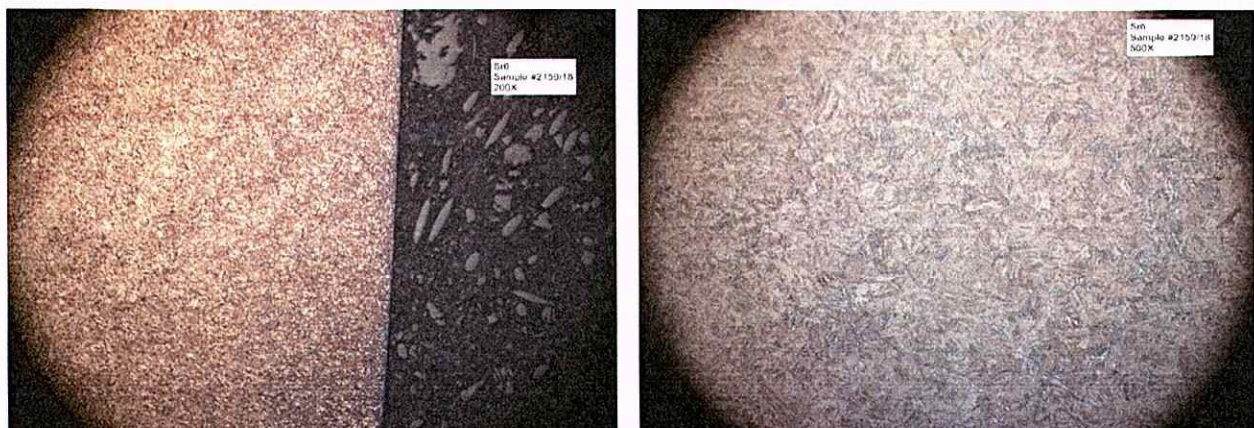
Component	Scale	Sample #	Position	Measured Value	Range
Gear	CHD 550 HV1	2159/18	M2 (tooth flank)	0.81	0.5+0.4 mm
Gear	CHD 550 HV1	2159/18	M3	0.70	min 0.3 mm
Gear	Core hardness HV10	2159/18	M4 (tooth core)	440	≥ 300
Clutch ring	CHD 550 HV1	2160/18	M1 (face)	0.43	0.3+0.4 mm
Clutch ring	CHD 550 HV1	2160/18	M2 (cone)	0.30	min 0.1 mm



Picture 2: profili di durezza.

*Microstructure analysis (analisi della microstruttura)*

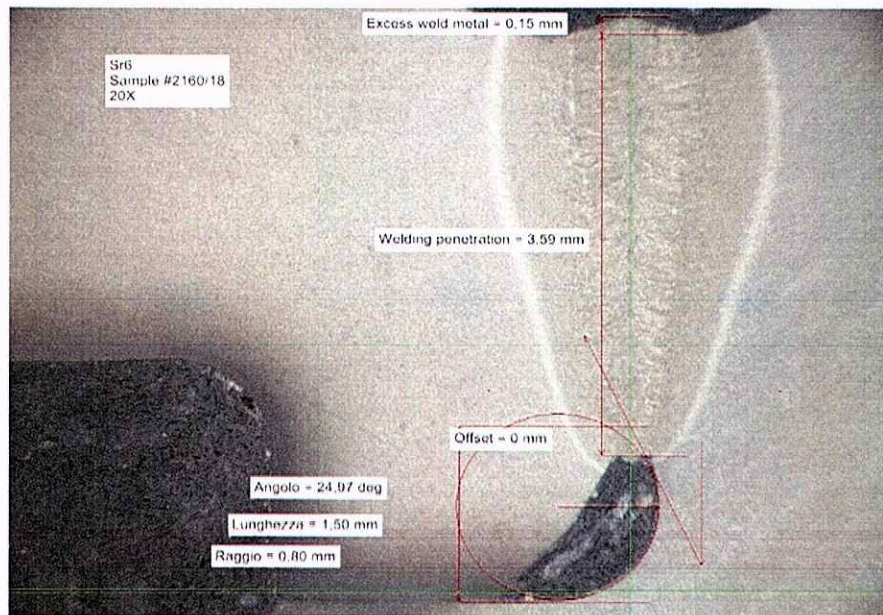
Sample #	2159/18
Shaft - Tooth flank surface structure:	Martensite e austenite residua (5%)
Shaft - Tooth base core structure:	Martensite, bainite



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

*Analysis at Stereomicroscope (Analisi allo Stereomicroscopio)*

Feature	Unit	Sample #	Measured Value	Range
Radial offset	mm	2160/18	0.00	max 0.1
Penetration	mm	2160/18	3.59	min 2.8
Excess weld metal	mm	2160/18	0.15	max 0.5



**Picture 4: sezione saldatura OK**



Part Submission Warrant



Part Name <u>Schaltrad 6.Gang</u>		Cust. Part Number <u>251.1.1254.80</u>
Shown on Drawing No. <u>251.1.1254.80</u>		Org. Part Number _____
Engineering Change Level <u>- / T72596</u>		Dated <u>16. Okt 17</u>
Additional Engineering Changes <u>SEI No. 0 72563 - 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>5500040246 / 04.12.2017</u>	Weight (kg) <u>0,530 kg</u>
Checking Aid No. <u>-</u>	Checking Aid Engineering Change Level <u>-</u>	Dated <u>-</u>
<b>ORGANIZATION MANUFACTURING INFORMATION</b>		<b>CUSTOMER SUBMITTAL INFORMATION</b>
<u>SEISSENSCHMIDT GmbH</u>		<u>Getrag B.V &amp; Co.KG</u>
Organization Name & Supplier/Vendor Code		Customer Name/Division
<u>DAIMLERSTRASSE 11</u>		<u>Frau Petra Braun</u>
Street Address		Buyer/Buyer Code
<u>PLETTENBENRW</u>	<u>58840</u>	<u>GERMANY</u>
City	Region	Postal Code
		Country
		<u>251er Getriebe</u>
		Application
<b>MATERIALS REPORTING</b>		
Has customer-required Substances of Concern information been reported? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> n/a		
Submitted by IMDS or other customer format: <u>IMDS</u>		
<u>729959894</u>		
Are polymeric parts identified with appropriate ISO marking codes? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> n/a		
<b>REASON FOR SUBMISSION (Check at least one)</b>		
<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	
<b>REQUESTED SUBMISSION LEVEL (Check one)</b>		
<input type="checkbox"/> Level 1 - Warrant only (and for designated appearance items, an Appearance Approval Report) submitted to customer.		
<input type="checkbox"/> Level 2 - Warrant with product samples and limited supporting data submitted to customer.		
<input checked="" type="checkbox"/> Level 3 - Warrant with product samples and complete supporting data submitted to customer.		
<input type="checkbox"/> Level 4 - Warrant and other requirements as defined by customer.		
<input type="checkbox"/> Level 5 - Warrant with product samples and complete supporting data reviewed at organization's manufacturing location.		
<b>SUBMISSION RESULTS</b>		
The results for <input checked="" type="checkbox"/> dimensional measurements <input checked="" type="checkbox"/> material and functional tests <input type="checkbox"/> appearance criteria <input type="checkbox"/> statistical process package		
These results meet all drawing and specification requirements: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If "NO" - Explanation Required)		
Mold / Cavity / Production Process <u>B 800</u>		
<b>DECLARATION</b>		
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 <u>820 / 8</u> 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: <u>"Abweichender Stahlieferant zum Serienprozess. Siehe BAW Antrag"</u>		
Is each Customer Tool properly tagged and numbered? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> n/a <input type="checkbox"/> Photo attached <input type="checkbox"/> Yes		
Organization Authorized Signature <u>i.A. A. Suliani</u>		Date <u>20. Mrz 18</u>
Print Name <u>B.Jungwirt / A. Suliani</u>	Phone No. <u>0049 2391 915-2103</u>	Fax No. <u>0049 2391 915-197</u>
Title <u>Quality Management</u>	E-mail <u>a.suliani@seissenschmidt.com</u>	
<b>FOR CUSTOMER USE ONLY (IF APPLICABLE)</b>		
Part Warrant Disposition: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected <input checked="" type="checkbox"/> Other <u>Approved with conditions (Deviation 80442)</u>		
Customer Signature <u>i.A. Wladimir</u>	Date <u>16.04.2018</u>	
Print Name <u>Wladimir Tefke / J. Wenz</u>	Customer Tracking Number (optional) <u>18-00372</u>	

based on CFG-1001 PPAV Version 4

GETRAG B.V. & Co. KG

Hermann-Hagenmeyer-Straße  
74199 Unterguppenbach

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 80442

**Deviation Type** Process/tools out of specification **Release No**

**Part No.** 2511125480 **Part Name** Speed Gear 6th

**Supplier Type** EP **Product Line** 7DCT300

**Location** Bari **Supplier Name** Seissenschmidt GmbH - no location

**Deviation Title** Alternative Steel supplier for PPAP Parts

**Quantity** 400 **Start Date** 26.03.2018 **End Date** 24.06.2018

**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 production will be produced with raw Material from Lech. Both material are according to the drawing and the GCG\_805000\_02\_20MnCrS5Material 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

**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**

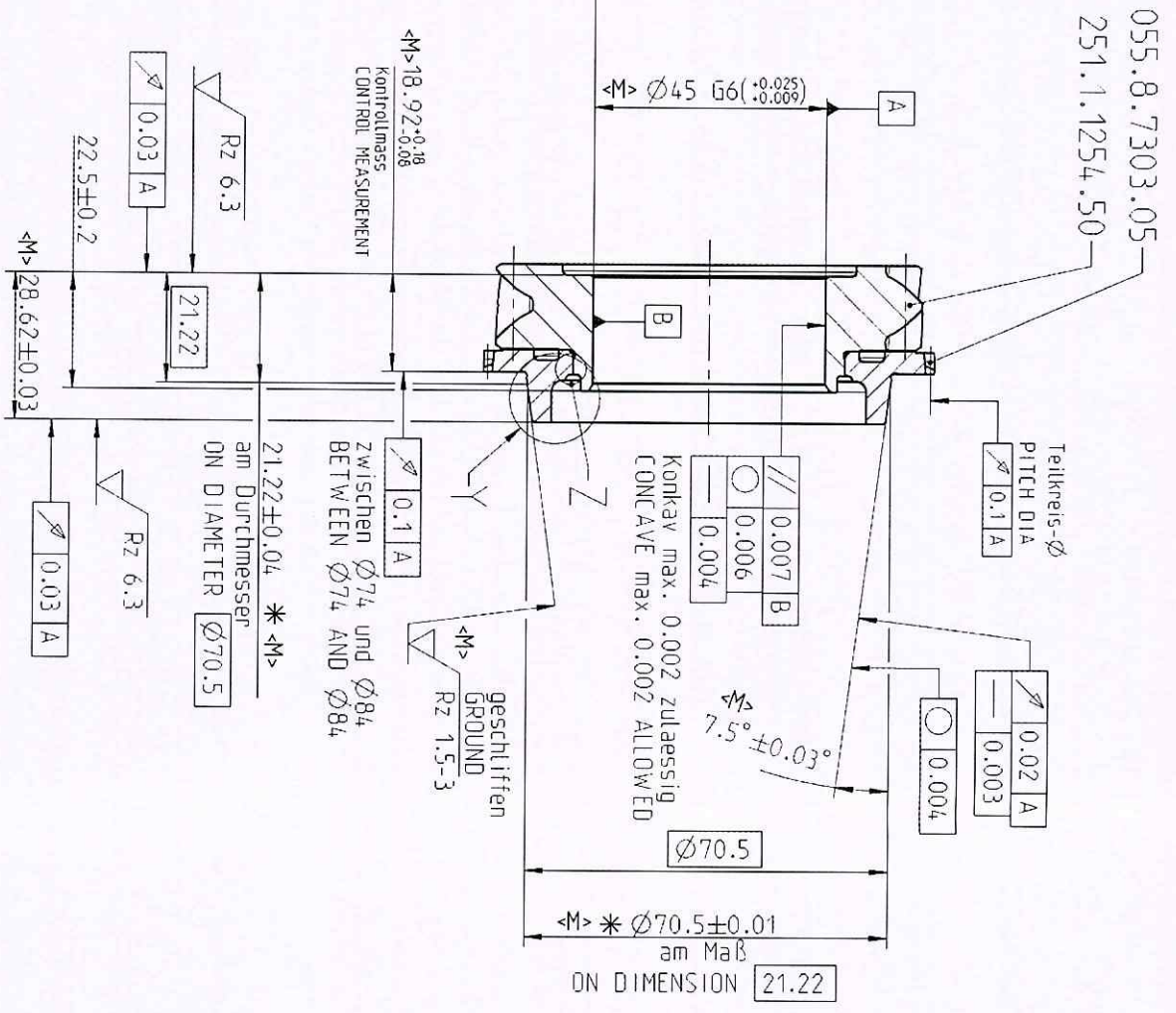
**Deviations for Critical Characteristics < C > are not allowed.  
Permanent delegation of authority is not allowed.**

	<i>Approver</i>	<i>Status</i>	<i>Signed</i>	<i>Comment</i>
Supplier Representative	Michael.Kullik; Kelvin.Bruder	Bruder, Kelvin	approved	26. Mrz. 18
PD Representative	Gennaro.Pierro	Pierro, Gennaro	approved	26. Mrz. 18
QEHS Manager	Franco.Spezzacatena	Camarda, Ettore	approved	26. Mrz. 18
Production Manager	Wolfgang.Mueller2@magna.com ; ettore.camarda	Spezzacatena, Franco	approved	13. Apr. 18
Plant Manager	Bob.Taylor	Taylor, Bob	approved	13. Apr. 18
Plattform Director	Stephane.Duminy2@magna.com	Duminy, Stephane	approved	16. Apr. 18
VP Operations	Michele.Zimmermann	Zimmermann, Michele	approved	16. Apr. 18
int/ext Customer (QEHS Manager)				

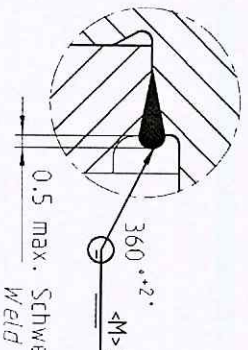




<M>Kurzwelligkeit ausgewertet mit  
 Fourier-Analyse,  
 Auswertung 5. bis 300. Ordnung  
 RTA-Toleranzband  
 SHORT WAVINESS INTERPRETED  
 USING FOURIER-ANALYSIS  
 EVALUATION 5. TO 300. ORDER  
 RTA-TOLERANCE RANGE  
 nD = 0.7  
 K = 0.6  
 R = 8  
 Nadellaufbahn  
 NEEDLE TRACK  
 Rz 3  
 Rmax 4



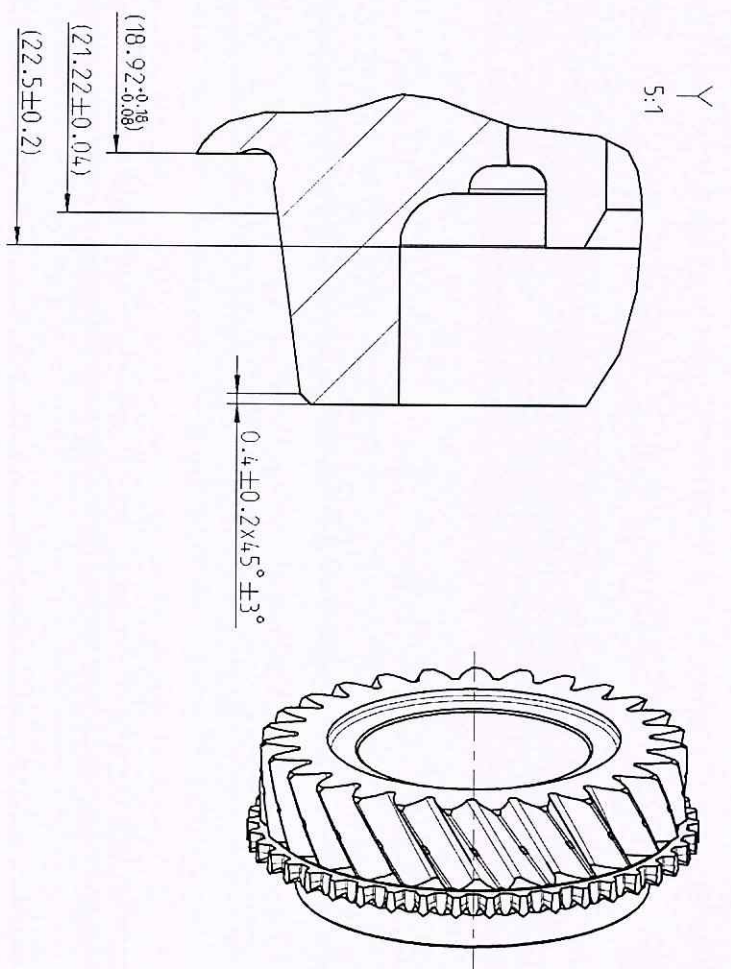
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 unmassstäblich  
 not to scale



Prozess ISO 4063 - 521  
 wahlweise/OPTIONAL 522

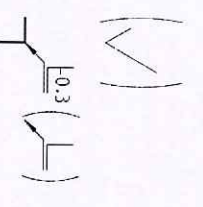
<M>CHECKED ACCORDING ENGINEERING SPECIFICATION  
 S 357R-7M161-AA. DEVIATION FROM THIS SPECIFICATION  
 LONGITUDINAL MICRO CRACKS IN THE WELDING MATERIAL ARE  
 PERMISSIBLE TO A TOTAL OF 2% AROUND THE CIRCUMFERENCE.

\* wahlweise Messung  
 OPTIONAL MEASUREMENT



Technische Sauberkeit / TECHNICAL CLEANLINESS:  
 Es gelten die Sauberkeitsanforderungen nach GN 4340-1  
 CLEANLINESS REQUIREMENTS OF THE GN 4340-1 HAVE TO BE ABIDED

Nähere Angaben zur Verzahnung  
 siehe Verzahnungsblatt  
 251.1.1254.50  
 FURTHER GEAR DATA SEE  
 DATA SHEET NUMBER  
 251.1.1254.50



CAD Freigeber CAD Freigeber	10 <H> 0 <C> 0 PTC	GCG- 803001	0 <C> PTC	10 <H> 0 <C> PTC	10 <H> 0 <C> PTC
Massstab / SCALE M: 1:1 (--)	CAD Freigeber	CAD Freigeber	CAD Freigeber	CAD Freigeber	CAD Freigeber
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