



3M457

Part Name: DG3-5/7 Cust. Part No.: 251.1.1220.35
 Shown on Drawing No.: 251.1.1220.35 Org. Part No.: 251.1.1220.35
 Engineering Change Level: 3 Index "-" (C005149_MIP_1) Dated: 21/07/2016
 Additional Engineering Changes: na Dated: na
 Safety and/or Government Regulation: Yes No Purchase Order No.: _____ Weight (kg): 1.289
 Checking Aid No.: na Checking Aid Engineering Change Level: na Dated: na

ORGANIZATION MANUFACTURING INFORMATION

CUSTOMER SUBMITTAL INFORMATION

Getrag S.p.A.
 Organization Name & Supplier / Supplier Code
Via dei Ciclamini, 4
 Street Address
Modugno (Ba) Puglia 70026 Italy
 City Region Postal Code Country

Bari assembly line (GPS4)
 Customer Name / Division
na
 Buyer / Buyer Code
DCT300
 Application

MATERIALS REPORTING

Has customer-required Substances of Concern information been reported? Yes No n/a
 Submitted by IMDS or other customer format: _____
 (IMDS=International Material Data System)

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

REASON FOR SUBMISSION (Check at least one)

- Initial Submission
- Engineering Change(s)
- Tooling: Transfer, Replacement, Refurbishment, or additional
- Correction of Discrepancy
- Tooling Inactive > than 1 year
- Change to Optional Construction or Material
- Supplier or Material Source Change
- Change in Part Processing
- Parts Produced at Other or Additional Location
- Other - please specify below (e.g. additional specific customer requirement or e.g. change of EP parts)

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 na

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 163 / 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: - First PPAP Submission (only differences from variant 251.6.1074.35).

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

Organization Authorized Signature: _____ Date: 10/01/2018

Print Name: Tursi Dario Maria Phone No.: +39 0805858360 Fax No.: _____

Title: 7DCT300 Launch Manager E-Mail: dario.tursi@magna.com

FOR CUSTOMER USE ONLY (If applicable))

Part Warrant Disposition: Approved Rejected Other _____

Customer Signature: _____ Date: 10.01.2018

Print Name: _____ Customer Tracking No.: _____

New P/N introduction - 1220.35

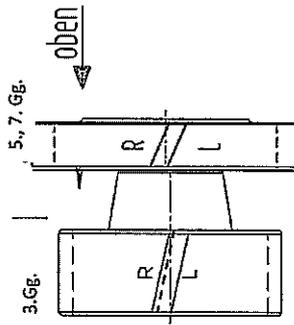
Short description: Initial PPAP (only differences from 1074)

PPAP Requirements		Required	Note	PPAP Docs updated
1	Design Records	Yes	Final Drawing + G.D. + VBZ	Yes
2	Authorized Engineering change documents	Yes	see dwg	Yes
3	Customer Engineering approval	n.a.		
4	DFMEA	NO		
5	Process flow diagram(s)	Yes		Yes
6	PFMEA	Yes		Yes
7	Control plan	Yes		Yes
8	Measurement system analysis studies	Yes	Studio Tipo 1 per MdK	Yes
9	Dimensional results	Yes		Yes
10	Records of Material / Performance test results	Yes	Metallurgical report	Yes
11	Initial process studies	Yes	Ppk for MdK and Fr	Yes
12	Qualified laboratory documentation	NO		
13	Appearance Approval Report (A.A.R.)	n.a.		
14	Sample Production Parts	Yes		Yes
15	Master sample	Yes		Yes
16	Checking aids	n.a.		
17	Customer-Specific Requirements	NO		
18	Part Submission Warrant (PSW)	Yes		Yes
Other requirements				
1	PSW Raw part	NO		
2	PSW E.P. part	Yes		Yes
3	PSW Engagement Rings	NO		

10/01/2018

STIRNRAD GEAR		Toleranzen der Verzahnung (DIN 3961 vom Aug. 1978) valid for values at individual tooth	
äußerverzähnt external	z	linke Fl. left flank	rechte Fl. right flank
Zähnezahl Number of teeth	53		
Modul Normal module	1.750000	f_{fa}	0.005
Eingriffswinkel Normal pressure angle	17° 30' 0"	Profil-Formabweichung Profile form error	f_{pb}
Schrägungswinkel Helix angle	30° 0' 0"	Profil-Gesamtabweichung Total profile error	f_p
Steigungsrichtung	RECHTS	Profil-Winkelabweichung Profile angle error	f_{p1}
Profilverschiebungsfaktor Addendum modification coeff.	x	Flanken-, Winkelabweichung Tooth alignment error	f_{p2}
Teilkreisdurchmesser Pitch diameter	d	Flanken-, Gesamtabweichung Total alignment error	f_{p3}
Kopfkreisdurchmesser Outside diameter	d_a	Flanken-, Formabweichung Longitudinal alignment error	f_{p4}
Kopfnutzkreis, theo. max. usable theo.	d_{a1}	Teilungsgesamtabweichung Cumulative circ. pitch error	F_{pk}
Kopfnutzkreis, theo. min. usable theo.	d_{a2}	Rundlaufabweichung Radial run-out	F_r
Teilkreisdurchmesser	d_f	Zahndickenschwankung Range of tooth thic kn. error	R_s
Grundkreisdurchmesser	d_b	Zwei-, Wälzabweichung Radial composite error	F_{r2}
Normalzahnstärke Normal tooth thickness	s_n	Zwei-, Wälzsprung Radial tooth to tooth comp. err.	f_r
Normalzahnstärke Normal tooth thickness	s_n	Melkkreis Krümmungsradius Radius of curvature meas. diam.	R_{mk}
Maßzahnezahl Number of teeth spanned	k		
Zahnweite Base tangent length	W_k		
Zahnweite Base tangent length	W_k		
Maßkugeldurchmesser Ball diameter	D_{Mk}		
Diam. Zweikugelmäß Measurement o. balls	M_{Mk}		
Diam. Zweikugelmäß Measurement o. balls	M_{Mk}		
Verdrehtflankenspiel Circumferential backlash	theo. 0.165		

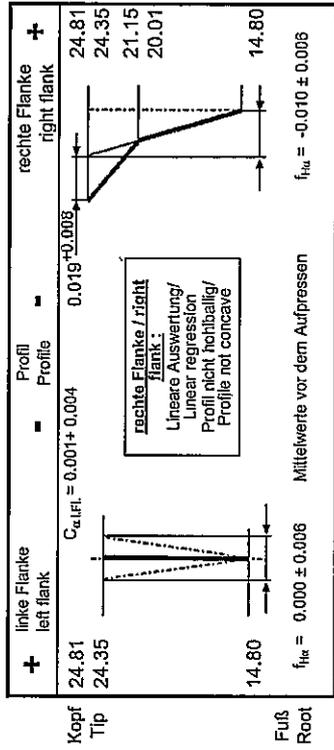
#Flanken- und Profilformabweichung f_{fa} und f_{fb} ausgewertet mit Fourier, Auswertung bis 30. Ordnung
 f Flank and profile form errors f_{fa} and f_{fb} evaluated using Fourier, Evaluation until 30th order
 $n0 = 7$
 $k = 7$
 $n0 = 7$
 $k = 7$
 # Teilungs-Einzelabweichung f_p ausgewertet mit Fourier, Auswertung bis 20. Ordnung
 # adjacent pitch error: evaluated using Fourier, Evaluation until 20th order
 $n0 = 7$
 $k = 7$



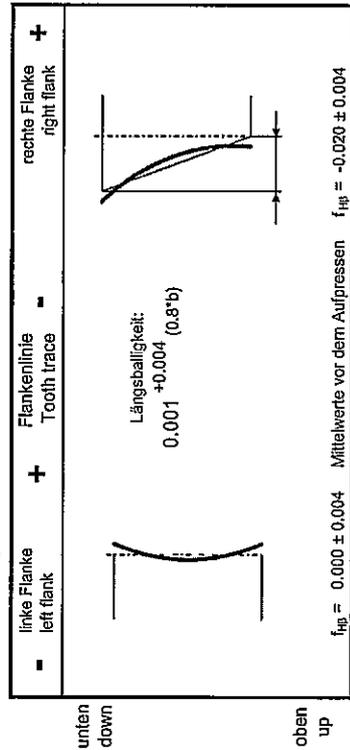
Bezugsprofil-Schleifscheibe
 Grinding tool data
 Schleifscheibenkopfhöhe $h_{p0.05} = 2.730$
 Grinding wheel tip height
 Schleifscheibenkopfradius $\rho_{p0.05} = 0.700$
 Grinding wheel tip radius
 Schleifdurchmesser = 103.43 -0.30 ≈ 11.94
 grinding diameter

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

Wkz-Profil siehe Werkzeugdatenblatt Nr. 251.1.1220.35
 For Tooth profile, see tool data sheet number



* Schreibbeginn
 * Start of checking
 $\varnothing = 103.43 - 0.30 \approx 11.94$



* f_{r2} (zwischen dnf und dem Schreibbeginn ds) max f_{r2} , jedoch 0.003 zulässig
 * f_r (between dnf and start of checking ds) max $f_r/2$, 0.003 allowable.

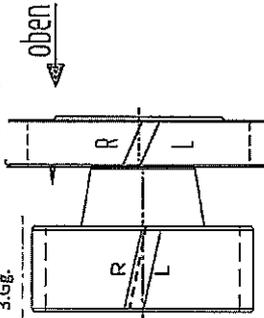
Profil- und Flankenlinienmessung nach G_808006 und VDI/VDI 2612
 Flankenlinienprüfbereich $L_p = 0.8 \cdot b$ hochgerechnet auf $1.0 \cdot b$
 Begriffe für Stirnrad nach DIN 868, 3960, 3998

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

Verteiler:	
	Schutzvermerk nach ISO 16016 beachten Protection per ISO 16016
	GETRAG GETRAG Getriebe- und Zahnradfabrik Hermann Hagenmeyer GmbH & Cie KG
	Remark:
	Ersatz für Erstverwendung bei Getriebeart: 251.
	Abbildungen sind unmaßstäblich. Diagrams not to scale.
	Verzahnungsblatt Endkontrolle Drawing number: Final Check Gear Data
	251.1.1220.35

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	
außenverzahnt external		linke Fl. left flank	rechte Fl. right flank
Zähnezahl Number of teeth	32		
Modul Normal module	2.100000	f_{α}	0.004
Eingriffswinkel Normal pressure angle	17° 30' 0"	F_{α}	
Schrägungswinkel Helix angle	30° 0' 0"	f_{α}	0.000 ± 0.005
Steigungsrichtung Hand of helix	RECHTS	f_{β}	± 0.008 ± 0.010
Profilschiebungsfaktor Addendum modification coeff.	0.300	f_{β}	0.000 ± 0.013
Teilkreisdurchmesser Pitch diameter	77.596	f_{β}	0.004
Kopfkreisdurchmesser Outside diameter	85.00 -0.26	F_{β}	0.050
Kopfnutzkreis, theo. max. d_{k1} Tip diam. usable theo.	84.45	F_{β}	
Kopfnutzkreis, theo. min. d_{k1} Tip diam. usable theo.	84.07	f_r	
Fußkreisdurchmesser Root diameter	71.30 -0.32	Meßkreis Krümmungsradius P_{Mk} Radius of curvature meas. diam.	14.80
Fußnutzkreisdurchmesser Root diameter usable	74.62		
Grundkreisradius Base circle radius	36.457		
Grundkreisdurchmesser Base diameter	72.914		
Normalzahnstärke Normal tooth thickness	3.696		
Normalzahnstärke Normal tooth thickness	3.666		
Meßzahnzahl Number of teeth spanned	6		
Zahnweite Base tangent length	35.941		
Zahnweite Base tangent length	35.912		
Meßkugeldurchmesser Ball diameter	3.0000		
Diam. Zweikugelmäß max. M_{dk} Measurement o. balls	81.344		
Diam. Zweikugelmäß min. M_{dk} Measurement o. balls	81.255		
Verdrehtflankenspiel Circumferential backlash	0.071		
	0.176		

3. Gg. 5., 7. Gg.



Handdurchmesser = 73.76 -0.30 ± 5.57
horling diameter

Flanken- und Profilmababweichung f_{α} und f_{β} ausgewertet mit Fourier, Auswertung bis 30. Ordnung

Flank and profile form errors f_{α} and f_{β} evaluated using Fourier, Evaluation until 30th order

f_{fb} $n_0 = ?$ $k = ?$

f_{α} $n_0 = ?$ $k = ?$

f_{β} $n_0 = ?$ $k = ?$

Teilungs-Einzelababweichung f_p ausgewertet mit Fourier, Auswertung bis 20. Ordnung

Adjacent pitch error evaluated using Fourier, Evaluation until 20th order

$n_0 = ?$ $k = ?$

$n_0 = ?$ $k = ?$

$n_0 = ?$ $k = ?$

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

Wkz-Profil siehe Werkzeugdatenblatt Nr. 251.1.1220.35
For Tooth profile, see tool data sheet number

+	linke Flanke left flank	Profil Profile	-	rechte Flanke right flank	+
Kopf Tip	21.30 20.92	$C_{\text{left}} = 0.001 \pm 0.004$		$C_{\text{right}} = 0.003 \pm 0.002$	21.30 20.92
Fuß Root	7.93				7.93
	$f_{\text{flc}} = 0.000 \pm 0.006$				$f_{\text{flc}} = + 0.005 \pm 0.006$
	Mittelwerte vor dem Aufpressen				

* Schreibbeginn $\varnothing = 73.76 - 0.30 \approx 5.57$
* Start of checking

+	linke Flanke left flank	Flankenlinie Tooth trace	-	rechte Flanke right flank	+
unten down					
oben up					
	$f_{\text{flp}} = 0.000 \pm 0.006$			$f_{\text{flp}} = - 0.010 \pm 0.006$	
	Mittelwerte vor dem Aufpressen				

Längshaltigkeit:

0.001 ± 0.004 (0.8*b)

Lead Twist l.Fl. $+0.017 \pm 0.008$

Lead Twist r.Fl. $+0.017 \pm 0.008$

(Lead Twist = $f_{\text{flc, up}}$ minus $f_{\text{flc, pool}}$)

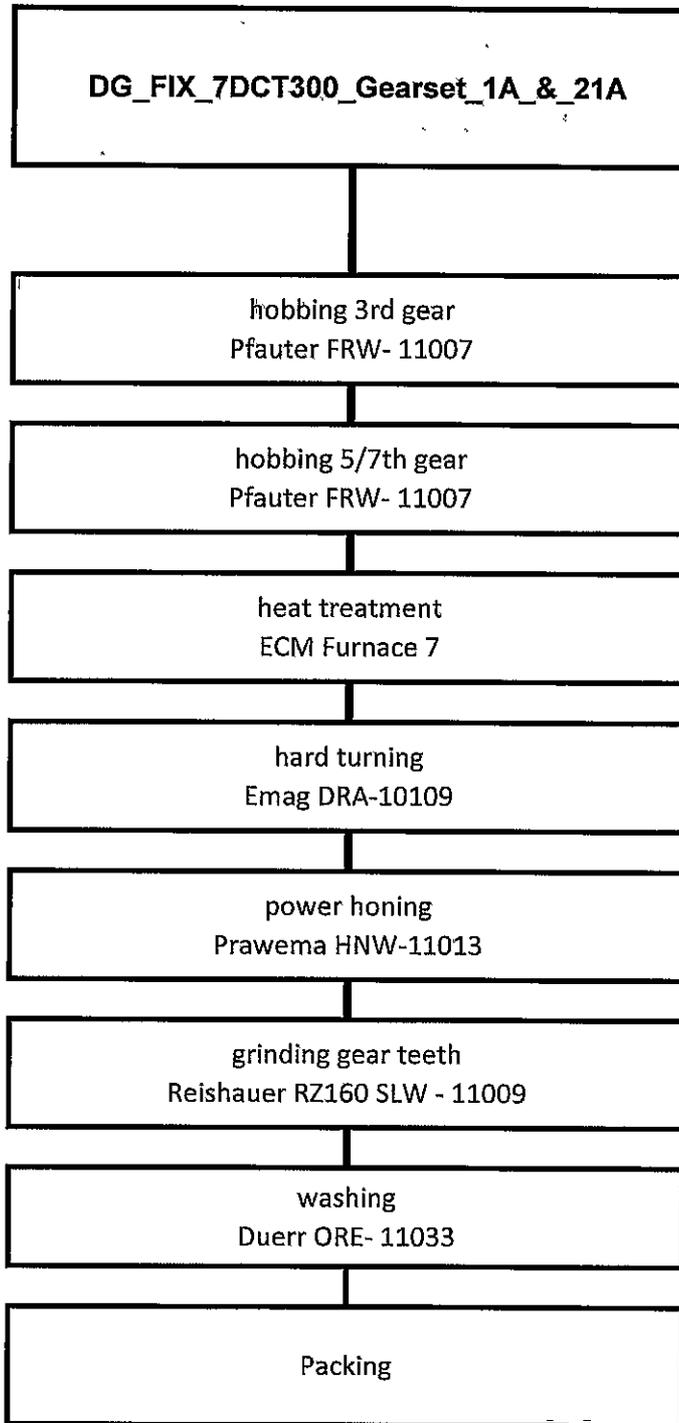
$f_{\text{flc, Top}}$ at P_{Mk} 20.62, $f_{\text{flc, Root}}$ at P_{Mk} 7.93

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

Profil- und Flankenliniennormung nach G_808006 und VDI/VDE 2612
Flankenlinienprüfbereich $L_{\text{p}} = 0.8*b$ hochgerechnet auf 1.0*b
Begriffe für Stirnräder nach DIN 868, 3950, 3998

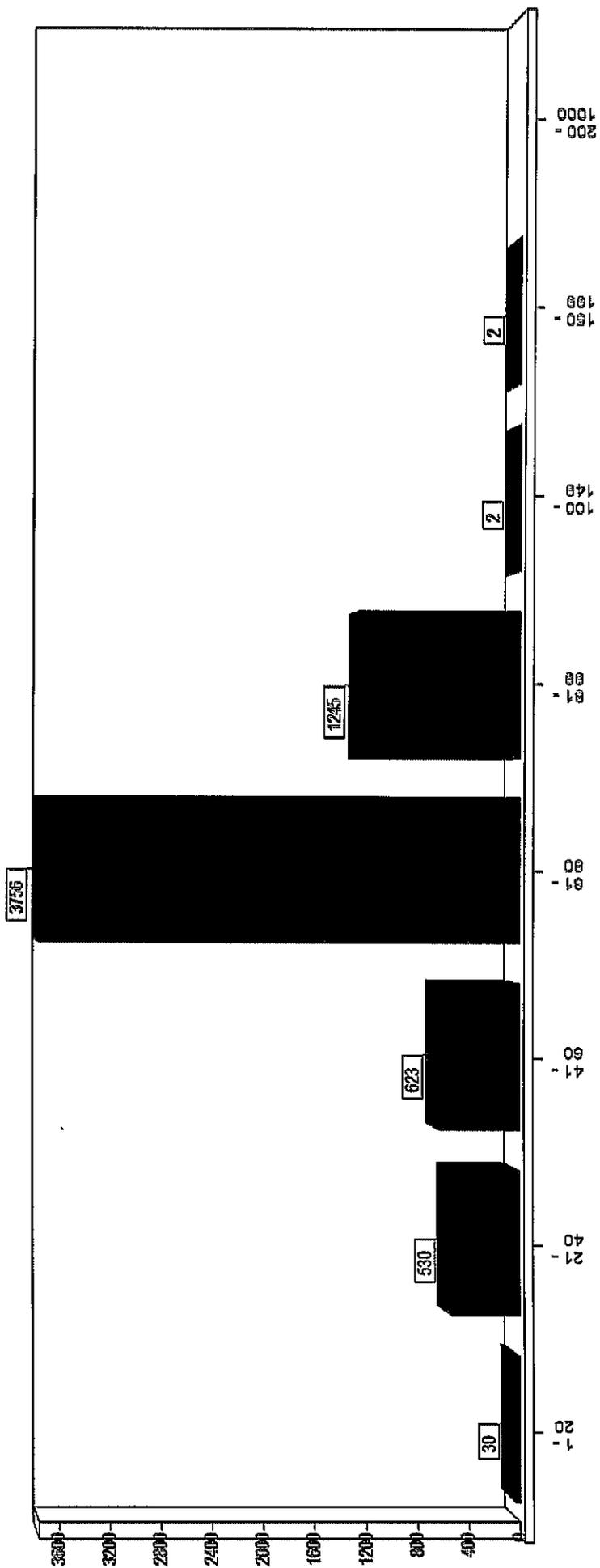
Profile and helix checking according to G_808006 and VDI/VDE 2612
Tooth trace testing area $L_{\text{p}} = 0.8*b$ calculated to 1.0*b
Terms of the tooth system according to DIN (German Industrial Standards) No. 868, 3950, 3998

Verteiler:		Schutzvermerk nach ISO 16016 beachten Protection per ISO 16016	
		GETRAG	
		GETRAG Getriebe- und Zahnradfabrik Hermann Hagemeyer GmbH & Cie KG	
Ersatz für Erstverwendung bei Getriebeartyp:		251	
Abbildungen sind unmaßstäblich. Diagrams not to scale.		Verzahnungsblatt Endkontrolle Final Check Gear Data	
Buch.	Anz.	Änd.Nr.	Datum
Zeichnungsnummer: Drawing number:		251.1.1220.35	



DCT300 – GEARSSET: PFMEA RPN Status

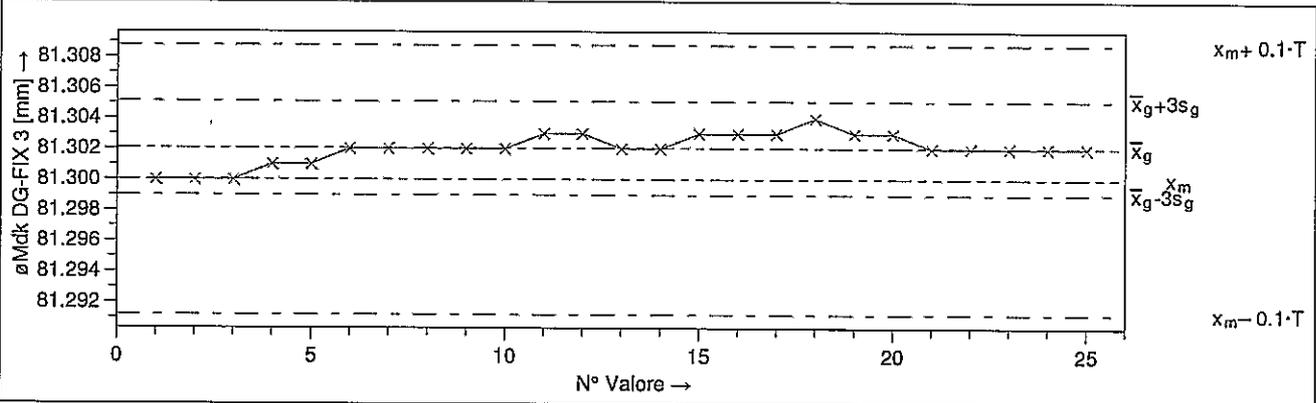
GETRAG		F M E A Processo		Numero: Pagina: Emesso:	1.2.1.1.1 31/03/2015
Tipo/Modello/Produzione/Lotto: 7DCT300		Numero Disegno: Gearset 1A + 21A Stato modifica:		Responsabile: Getrag Dilar: Getrag	
FMEA Elemento: GEARSSET 7DCT300		Codice dell'operazione: Titolo Stato modifica:		Emesso: Modificato: 13/01/2017 20/11/2017	
				Responsabile: Papagna, Osmano, Miti, Cichelli, Tanzi T., Terlizzone, Landolfina, Guarna, Sanbaldi, Caponio, Vicenti, Plesano, Pieno Dilar:	



Frequenza



Data/ora	11/11/2017	Nome oper.	G.Sette	Reparto/Area/Prod.	NN	Posto di prova	Rettifica denti CIV 617
Calibro		Master			Caratteristica		
Desc. calibro	Banchetto in acciaio	Desc. mast.	Master Mdk DG-FIX 3		Desc. Car.	øMdk DG-FIX 3	
N° calibro	MVZ 406001 011	N° master	TBD		N° Caratt.	2511122035	
Ris. calibro	0.001	Valore reale mast	81.3		Val. Nom	LSS	81.344 $\hat{=}$ 0.044
Caus. Pr.	Cg CgK	Unità di misura	mm		Unità di n mm	LSI	81.256 $\hat{=}$ -0.044
Nota	Banchetto øMdk MVZ 406001 011 per ruote dentate hard						



i	x _i	i	x _i	i	x _i	i	x _i	i	x _i
1	81.300	6	81.302	11	81.303	16	81.303	21	81.302
2	81.300	7	81.302	12	81.303	17	81.303	22	81.302
3	81.300	8	81.302	13	81.302	18	81.304	23	81.302
4	81.301	9	81.302	14	81.302	19	81.303	24	81.302
5	81.301	10	81.302	15	81.303	20	81.303	25	81.302

Valori a disegno		Valori Calcolati		Statistiche	
x _m +0.1·T	= 81.30880	x _{max g}	= 81.304	\bar{x}_g+3s_g	= 81.30510
x _m	= 81.30000	x _{min g}	= 81.300	\bar{x}_g	= 81.30204
x _m -0.1·T	= 81.29120	R _g	= 0.004	\bar{x}_g-3s_g	= 81.29898
0.2·T	= 0.01760	n _{tot}	= 25	6s _g	= 0.00612
T	= 0.088			s _g	= 0.00102
Unità di misura	= mm			Bi	= 0.0020400
				n _{eff}	= 25

Test per Bias			Risultati del test : significativo (α ≤ 0.1%)
Bias	=	2.32%	

Minimo riferimento per sistema di misura capace					
Risoluzione	%RE =	1.14%		T _{min} (%RE) =	0.0200
$\%EV = \frac{EV}{T}$	=	6.95%		T _{min} (%EV) =	0.122
$C_g = \frac{0.2 \cdot T}{4 \cdot s_g}$	=	3.10 ≤ 4.31 ≤ 5.53		T _{min} (C _g) =	0.0272
$C_{gk} = \frac{0.1 \cdot T - \bar{x}_g - x_m }{2 \cdot s_g}$	=	2.37 ≤ 3.31 ≤ 4.26		T _{min} (C _{gk}) =	0.0475

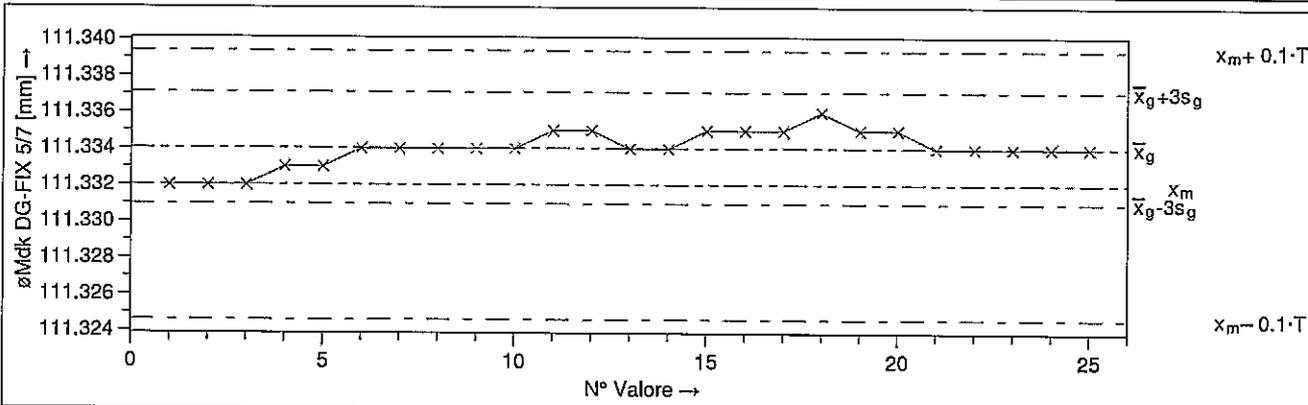
Sistema di misura capace (%RE,min,C_g,C_{gk})

GETRAG MSA 2017: Capability of measuring system (Type-1 Study)



Capacità strumenti di misura

Data/ora	11/11/2017	Nome oper.	G.Sette	Reparto/Area/Prod.	NN	Posto di prova	Rettifica denti CIV 5/7
Calibro		Master			Caratteristica		
Desc. calibro	Banchetto in acciaio	Desc. mast.	Master Mdk DG-FIX 5/7		Desc. Car.	øMdk DG-FIX 5/7	
N° calibro	MVZ 406001 011	N° master	Serie KIT BPP		N° Caratt.	2511122035	
Ris. calibro	0.001	Valore reale mast	111.332		Val. Nom	111.332	LSS $\overset{\wedge}{=} 111.369 = 0.037$
Caus. Pr.	Cg CgK	Unità di misura	mm		Unità di n mm	LSI	111.295 $\overset{\wedge}{=} -0.037$
Nota	Banchetto øMdk MVZ 406001 011 per ruote dentate hard						



i	x _i	i	x _i	i	x _i	i	x _i	i	x _i
1	111.332	6	111.334	11	111.335	16	111.335	21	111.334
2	111.332	7	111.334	12	111.335	17	111.335	22	111.334
3	111.332	8	111.334	13	111.334	18	111.336	23	111.334
4	111.333	9	111.334	14	111.334	19	111.335	24	111.334
5	111.333	10	111.334	15	111.335	20	111.335	25	111.334

Valori a disegno		Valori Calcolati		Statistiche	
$x_m+0.1\cdot T$	= 111.33940	$x_{max\ g}$	= 111.336	\bar{x}_g+3s_g	= 111.33710
x_m	= 111.33200	$x_{min\ g}$	= 111.332	\bar{x}_g	= 111.33404
$x_m-0.1\cdot T$	= 111.32460	R_g	= 0.004	\bar{x}_g-3s_g	= 111.33098
0.2·T	= 0.01480	n_{tot}	= 25	$6s_g$	= 0.00612
T	= 0.074			s_g	= 0.00102
Unità di misura	= mm			$ Bi $	= 0.0020400
				n_{eff}	= 25

Test per Bias		Risultati del test : significativo ($\alpha \leq 0.1\%$)
Bias	= 2.76%	

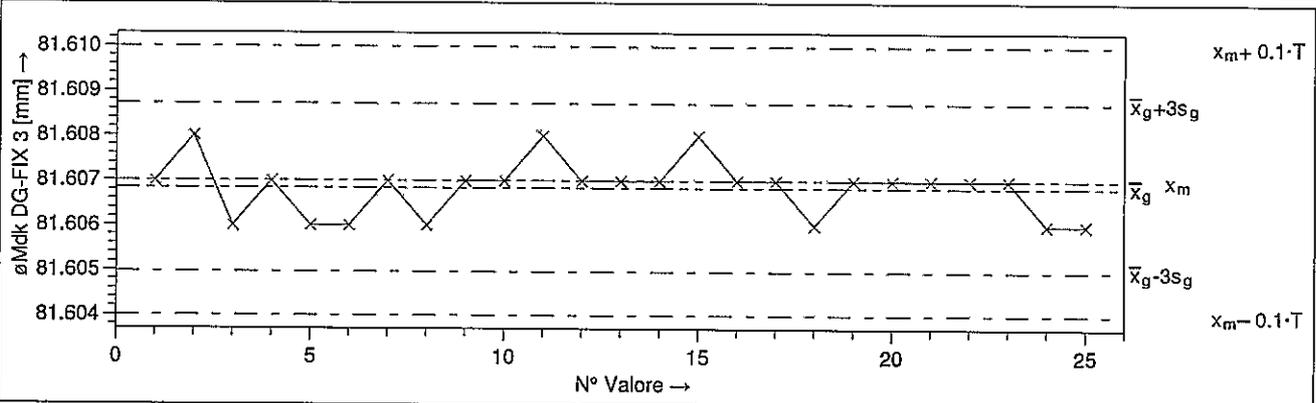
Minimo riferimento per sistema di misura capace		
Risoluzione	%RE = 1.35%	$T_{min} (\%RE) = 0.0200$
$\%EV = \frac{EV}{T}$	= 8.27%	$T_{min} (\%EV) = 0.122$
$C_g = \frac{0.2\cdot T}{4\cdot s_g}$	= 2.61 \leq 3.63 \leq 4.65	$T_{min} (C_g) = 0.0271$
$C_{gk} = \frac{0.1\cdot T - \bar{x}_g - x_m }{2\cdot s_g}$	= 1.87 \leq 2.63 \leq 3.38	$T_{min} (C_{gk}) = 0.0475$

Sistema di misura capace (%RE,min,C_g,C_{gk})

GETRAG MSA 2017: Capability of measuring system (Type-1 Study)



Data/ora	13/11/2017	Nome oper.	G.Sette	Reparto/Area/Prod.	NN	Posto di prova	Dentatura R3 CIV 3
Calibro		Master			Caratteristica		
Desc. calibro	Banchetto in acciaio	Desc. mast.	DG FIX 3		Desc. Car.	øMdk DG-FIX 3	
N° calibro	MVZ 406001 004	N° master	MVZ 400562 001		N° Caratt.	2511122035	
Ris. calibro	0.001	Valore reale mast	81.607		Val. Nom	81.607	LSS 81.622 $\Delta = 0.015$
Caus. Pr.	Cg CgK	Unità di misura	mm		Unità di n mm	LSI	81.592 $\Delta = -0.015$
Nota	Banchetto øMdk MVZ 406001 004 per ruote dentate DCT 300 soft						



i	x_i	i	x_i	i	x_i	i	x_i	i	x_i
1	81.607	6	81.606	11	81.608	16	81.607	21	81.607
2	81.608	7	81.607	12	81.607	17	81.607	22	81.607
3	81.606	8	81.606	13	81.607	18	81.606	23	81.607
4	81.607	9	81.607	14	81.607	19	81.607	24	81.606
5	81.606	10	81.607	15	81.608	20	81.607	25	81.606

Valori a disegno		Valori Calcolati		Statistiche	
$X_m+0.1 \cdot T$	= 81.61000	$X_{max\ g}$	= 81.608	\bar{x}_g+3s_g	= 81.60871
X_m	= 81.60700	$X_{min\ g}$	= 81.606	\bar{x}_g	= 81.60684
$X_m-0.1 \cdot T$	= 81.60400	R_g	= 0.002	\bar{x}_g-3s_g	= 81.60497
$0.2 \cdot T$	= 0.00600	n_{tot}	= 25	$6s_g$	= 0.00375
T	= 0.030			s_g	= 0.000624
Unità di misura	= mm			$ B_i $	= 0.00016000
				n_{eff}	= 25

Test per Bias

Bias = 0.53%

Risultati del test : non significativo

Minimo riferimento per sistema di misura capace

Risoluzione	%RE = 3.33%		$T_{min} (\%RE)$	= 0.0200
$\%EV = \frac{EV}{T}$	= 12.49%		$T_{min} (\%EV)$	= 0.0749
$C_g = \frac{0.2 \cdot T}{4 \cdot s_g}$	= $1.73 \leq 2.40 \leq 3.08$		$T_{min} (C_g)$	= 0.0166
$C_{gk} = \frac{0.1 \cdot T - \bar{x}_g - X_m }{2 \cdot s_g}$	= $1.62 \leq 2.27 \leq 2.93$		$T_{min} (C_{gk})$	= 0.0182

Sistema di misura capace (%RE,min,Cg,Cgk)



□ GETRAG MSA 2017: Capability of measuring system (Type-1 Study)

Data _____

Firma _____

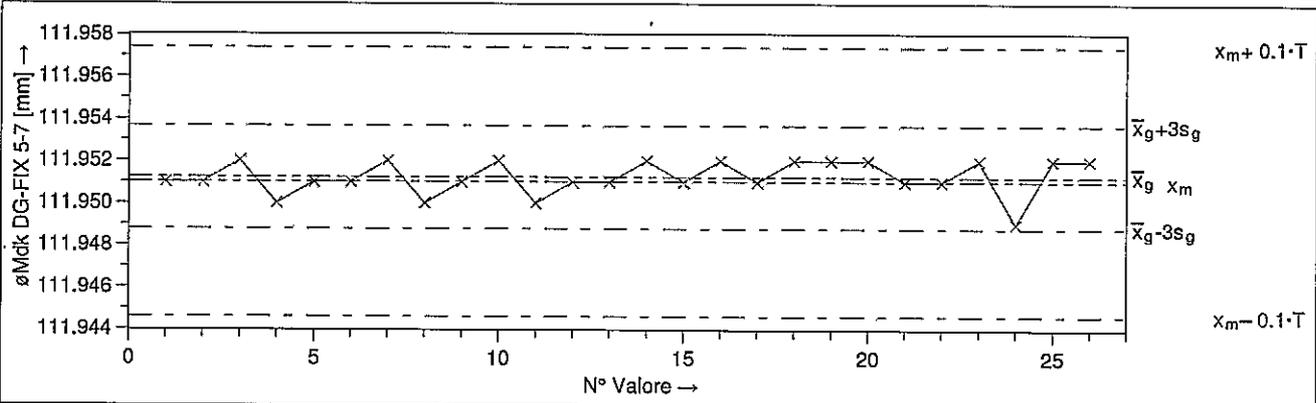
Dipartimento _____



Capacità strumenti di misura

Pagina
1 / 1

Data/ora	13/11/2017	Nome oper.	G.Sette	Reparto/Area/Prod.	NN	Posto di prova	Dentatura DCT 300
Calibro		Master		Caratteristica			
Desc. calibro	Banchetto in acciaio	Desc. mast.	DG FIX 5-7	Desc. Car.	øMdk DG-FIX 5-7		
N° calibro	MVZ 406001 004	N° master	MVZ 400570 001	N° Caratt.	2511122035		
Ris. calibro	0.001	Valore reale mast	111.951	Val. Nom	111.951	LSS	111.983 $\Delta = 0.032$
Caus. Pr.	Cg CgK	Unità di misura	mm	Unità di n mm	LSI	111.919	$\Delta = -0.032$
Nota	Banchetto øMdk MVZ 406001 004 per ruote dentate DCT 300 soft						



i	x _i								
1	111.951	6	111.951	11	111.950	16	111.952	21	111.951
2	111.951	7	111.952	12	111.951	17	111.951	22	111.951
3	111.952	8	111.950	13	111.951	18	111.952	23	111.952
4	111.950	9	111.951	14	111.952	19	111.952	24	111.949
5	111.951	10	111.952	15	111.951	20	111.952	25	111.952
j	x _j								
26	111.952								

Valori a disegno		Valori Calcolati		Statistiche	
$x_{m+0.1 \cdot T}$	= 111.95740	$x_{max\ g}$	= 111.952	$\bar{x}_g + 3s_g$	= 111.95368
x_m	= 111.95100	$x_{min\ g}$	= 111.949	\bar{x}_g	= 111.95123
$x_{m-0.1 \cdot T}$	= 111.94460	R_g	= 0.003	$\bar{x}_g - 3s_g$	= 111.94879
$0.2 \cdot T$	= 0.01280	n_{tot}	= 26	$6s_g$	= 0.00489
T	= 0.064			s_g	= 0.000815
Unità di misura	= mm			$ Bi $	= 0.00023077
				n_{eff}	= 26

Test per Bias		Risultati del test : non significativo
Bias	= 0.36%	

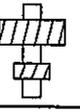
Minimo riferimento per sistema di misura capace			
Risoluzione	%RE = 1.56%		$T_{min} (\%RE) = 0.0200$
$\%EV = \frac{EV}{T}$	= 7.64%		$T_{min} (\%EV) = 0.0978$
$C_g = \frac{0.2 \cdot T}{4 \cdot s_g}$	= 2.84 ≤ 3.93 ≤ 5.01		$T_{min} (C_g) = 0.0217$
$C_{gk} = \frac{0.1 \cdot T - \bar{x}_g - x_m }{2 \cdot s_g}$	= 2.73 ≤ 3.78 ≤ 4.84		$T_{min} (C_{gk}) = 0.0240$

Sistema di misura capace (%RE,min,C_g,C_{gk})

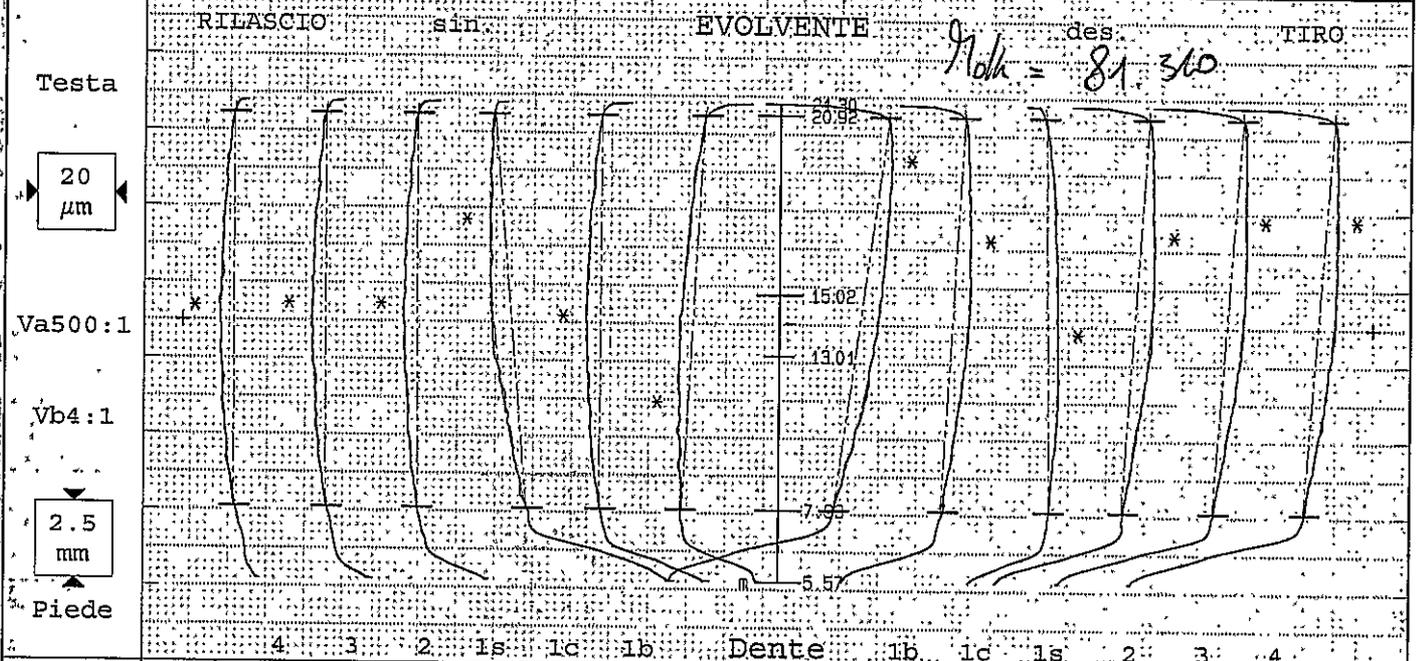
GETRAG MSA 2017: Capability of measuring system (Type-1 Study)

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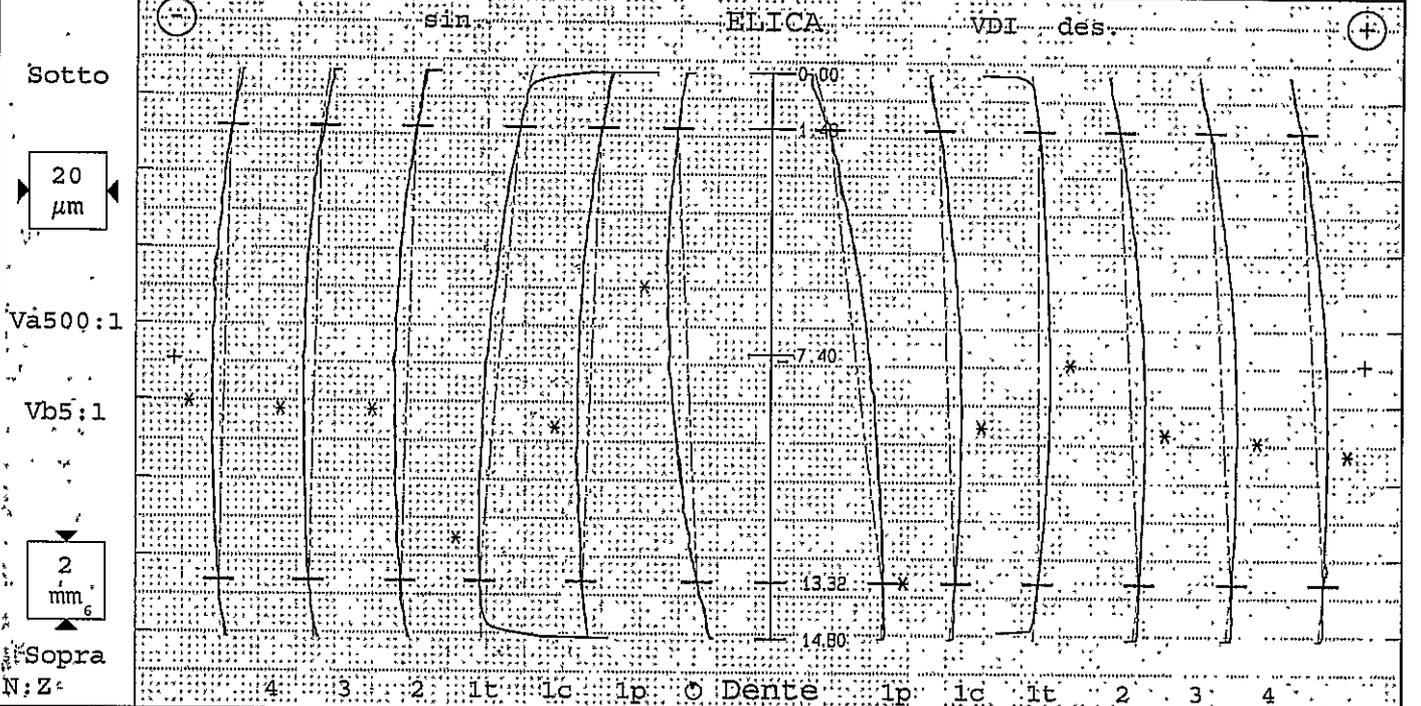
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0412 06 0	PNC35 B4784	Controllora: Turno B	Data: 14.10.2017~11:29
Denominazione: DG 3 Gg	Numero denti z: 32	Largh. fasc. dent. b: 14.8mm	
Numero disegno.: D51.1.1220.35-IF	Modulo m: 2.1mm	Tratto evolv. La: 12.99mm	
Comessa/serie nr.: .D86- 1	Angolo pressione: 17.5°	Tratto elica L _B : 11.84mm	
Masch.Nr.: M001	Spindel: Formulasidolelica	Angolo elica: 30°	Inizio elab. M1: 7.93mm
Untersuchungszweck: Laufende Messung	Ø Base db: 72.9138mm	Palpatore ø: (#2) 1mm	
Werkzeug:	Charge:	Ang. Base: 28.48°	Fat. scor. pr. x: .3



Tolerance	Medio	Val. misur [µm]						Qual	Tolerance	Val. misur [µm]						Medio	Qual	
		Var a								Var a								
FH _{0m} ±6	0.2	0.7							5±6	1.9						7.2		
FH _a ±8	0.2	0.2	0.4	0.4	8.7	-0.3	-5.6		5±10	14.4	6.0	-1.0	6.9	7.8	7.9	7.2		
F _a γ	3.1	3.3	3.2	3.0	9.7	3.0	6.8			9.4	1.9	6.5	2.4	3.2	3.3	2.7		
ff _a	4	0.9	1.0	1.0	0.8	1.6	0.8	1.0	4	1.8	1.0	0.9	1.1	1.1	1.1	1.1		
Ca 1/5	3.5	3.4	3.4	3.4	4.7	3.6	3.1		3±2	4.6	4.0	2.8	4.2	4.0	4.0	4.1		
ffa _f	3	0.0	0.0	0.0	0.0	0.2	0.0	0.6	3	0.2	0.6	0.0	1.3	0.4	0.4	0.0		
P/T-ø [mm]	71.165	[70.98/71.3]								84.823	[84.74/85]							



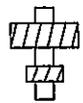
Tolerance	Medio	Var β						Qual	Tolerance	Var β						Medio	Qual	
FH _{Sm} ±6	4.3	2.1							-10±6	2.1						-6.8		
FH _S ±13	4.3	3.5	3.7	4.4	12.8	5.6	-6.9		-10±13	-17.9	-5.6	-0.6	-6.7	-7.3	-7.7	-6.8		
F _S	5.0	4.3	4.5	5.2	10.5	5.8	7.3			6.9	4.5	8.1	4.4	4.1	3.9	4.2		
ff _S	4	1.1	1.0	1.2	1.1	0.8	0.9	1.2	4	1.0	0.7	0.6	0.5	0.7	1.1	0.8		
CS 1/5	3.3	3.2	2.9	3.5	3.1	3.4	4.7		1/5	3.5	3.6	3.0	3.9	3.9	3.6	3.8		
Bd 17±8	19.7									17±8								

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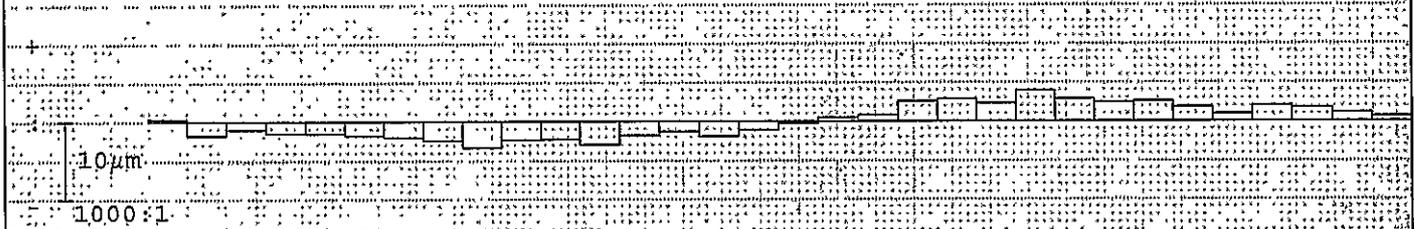


Ruota cilindrica Divisione

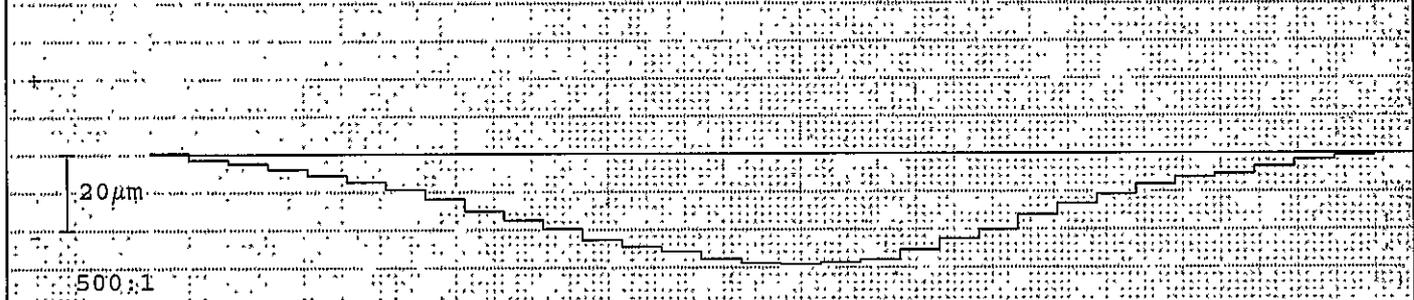


Nr. prog.: STI0412 06 0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017~11:29
Denominazione: DG 3 Gg		Numero denti z 32	Angolo pressione 17.5°
Numero disegno.: D51.1.1220.35-IF		Modulo m 2.1mm	Angolo elica 30°
Comessa/serie nr.: .D86- 1		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Form	Getriebe:	Charge:

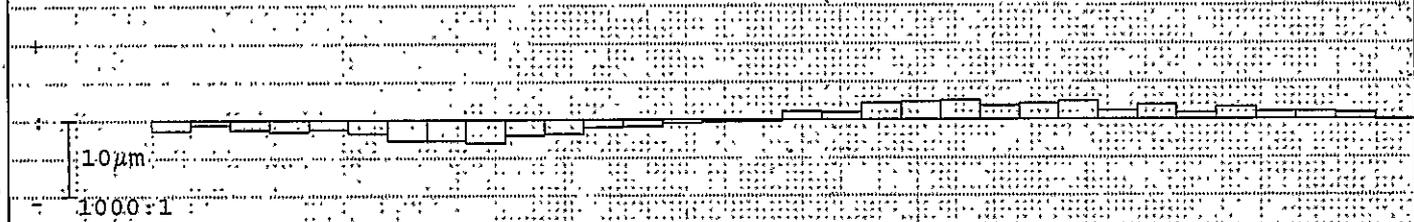
Errori singoli di divisione fp fianco sinistro



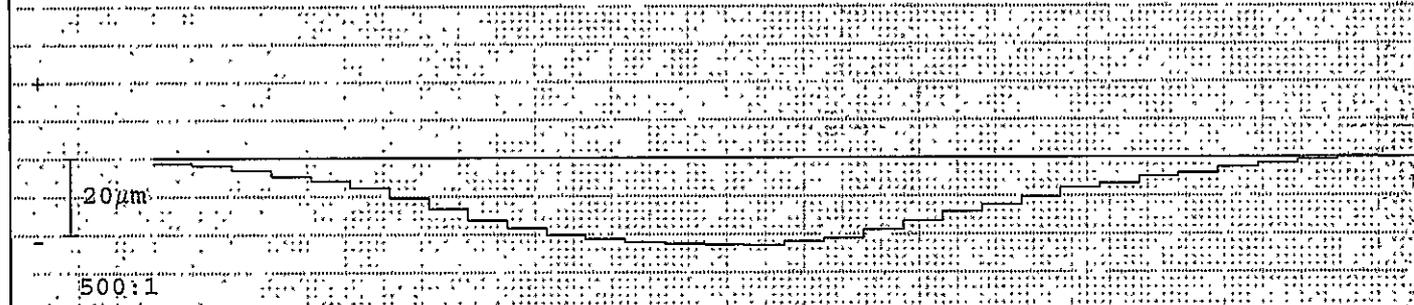
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

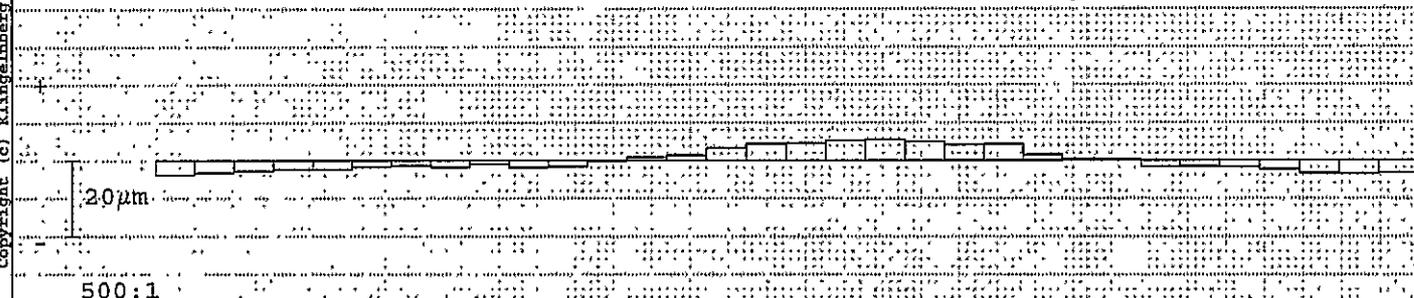


Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 77.418 z=7.4mm	fianco sinistro / RILASCIO				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	3.9		10.0		3.1		10.0	
Gr. salto di passo fu max	2.1		18.0		1.3		18.0	
Scarto di divisione Rp	7.2				5.6			
Err. globale di divisione Fp	29.5		50.0		23.1		50.0	
Err. cordale di divisione Fpz/8	12.1				10.6			

Centricità Fr (Ø-sfera =3mm) Ⓞ : 7.9µm



Err. di concentricità Fr	9.3	32.0
Variab. spessore dente Rs		

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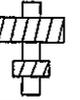
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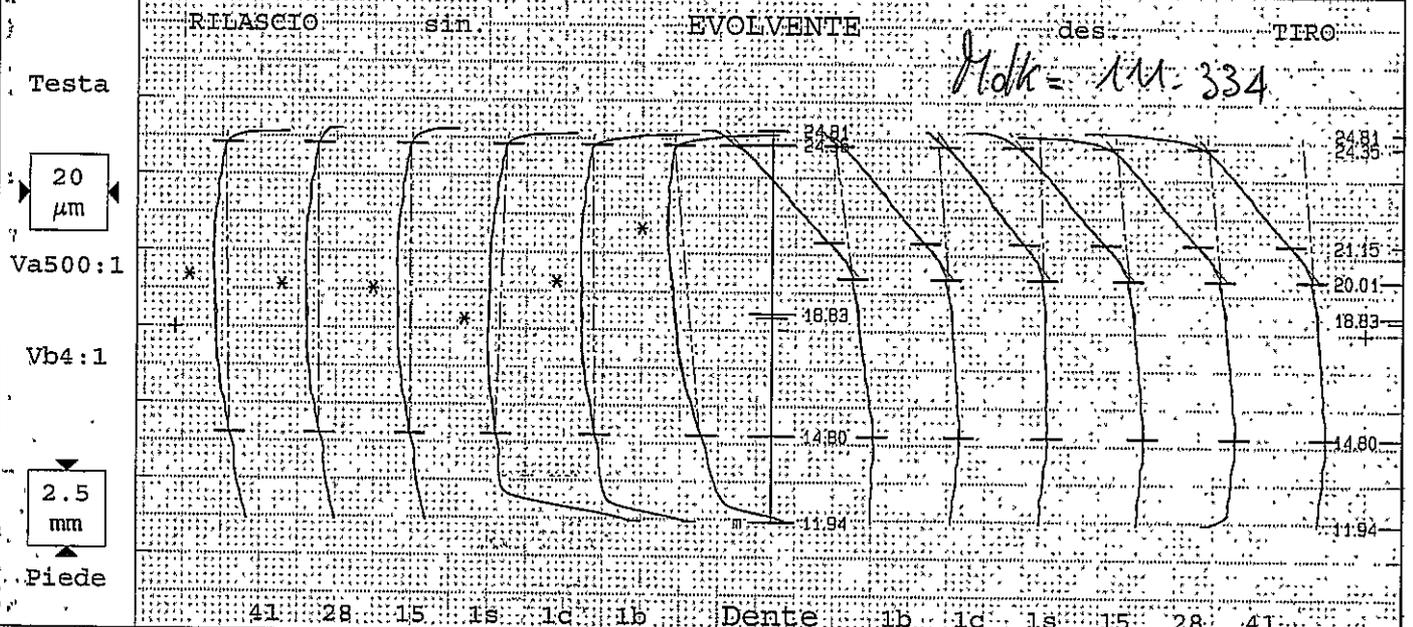
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Docum. archiviato elettronicamente. Archiviazione cartacea non necessaria

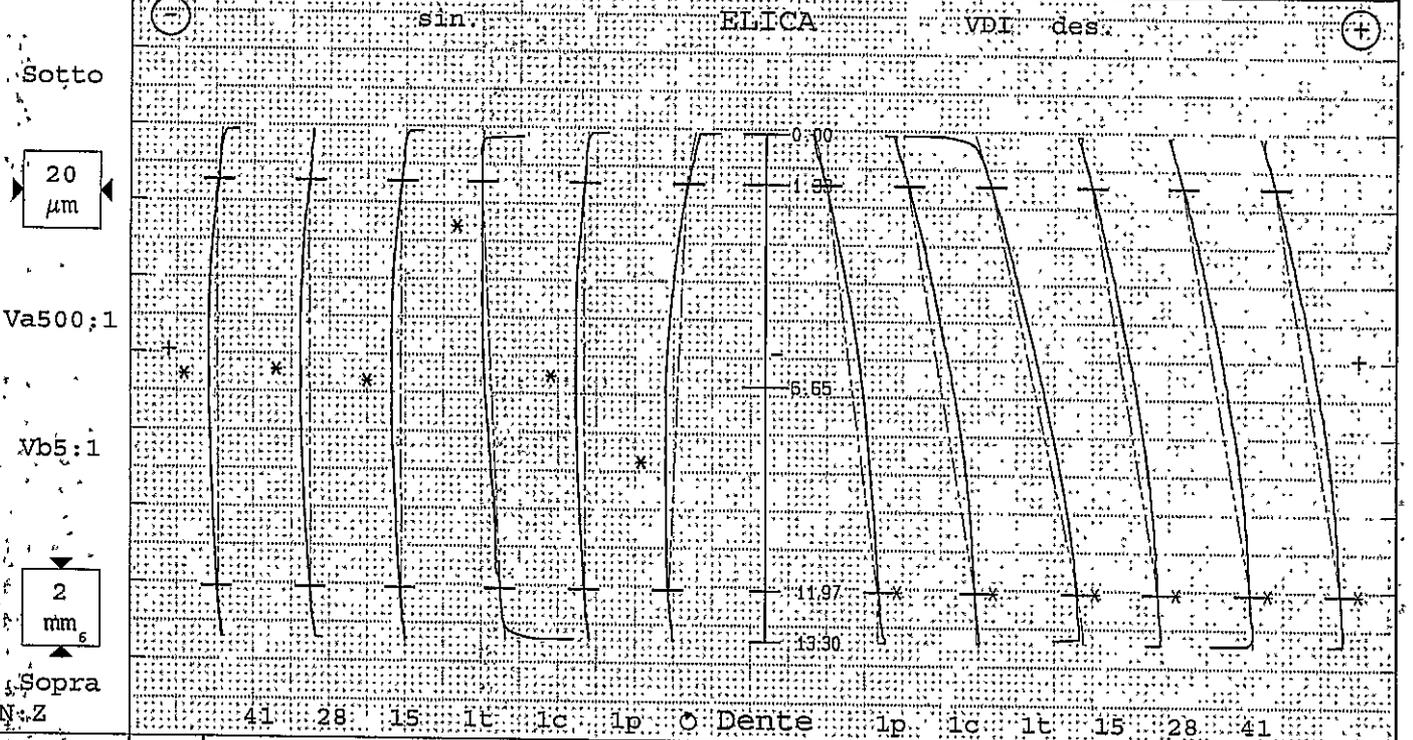
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0412 06 0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017 11:41
Denominazione: DG 5 7 Gg	Numero denti z: 53	Largh. fasc. dent. b: 13.3mm	
Numero disegno.: D51.1.1220.35-IIF	Modulo m: 1.75mm	Tratto evolv. La: 9.55/5.21mm	
Comessa/serie nr.: .D86- 1	Angolo pressione: 17.5°	Tratto elica L&S: 10.64mm	
Masch.Nr.: M001	Spindel: Form. Sg. Elica	Angolo elica: 30°	Inizio elab. M1: 14.8mm
Untersuchungszweck: Laufende Messung	Ø Base db: 100.6362mm	Palpatore ø: (#2) 1mm	
Werkzeug:	Charge:	Ang. Base: 28.48°	Fat. scor. pr. x: .1



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
		Var a' 1.2									Var a 1.5								
fHm ±6	0.6									-10±6									
fHa ±8	0.6	1.2	0.3	0.0	-2.7	0.8	7.0		-10±7	-10.5	-6.1	-2.2	-7.6	-7.6	-6.5	-7.0			
Fa	3.1	3.4	2.9	2.9	4.5	3.2	8.4			0.7	2.7	4.2	2.1	2.1	2.5	2.4			
ffa	5	1.1	1.0	1.0	0.9	0.8	1.6	1.8		5	0.9	1.3	1.1	1.1	1.1	1.1	1.2		
Ca	1/5	3.5	3.6	3.5	3.6	3.3	3.4	4.1			0.0	0.6	0.3	0.5	0.4	0.5	0.5		
Ca'										-27/-19	-25.1	-25.2	-24.3	-25.1	-25.2	-25.3	-25.2		
ffaf	3	0.0	1.6	1.4	1.5	0.8	1.1	0.7		3	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
P/T-ø [mm]	101.623	[101.48/101.8]								112.502	[112.44/112.7]								



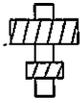
Tolerance	Medio	Bd-11.6							Qual	Tolerance	Bd-11.7							Medio	Qual
		Var β 0.6									Var β 0.5								
fHsm ±4	-0.5									-20±4									
fHs ±8	-0.5	-0.4	-0.8	-0.2	-6.1	-0.5	5.5		-20±8	-17.0	-22.4	-28.7	-22.0	-22.4	-21.9	-22.2			
Fs	1.8	1.8	1.8	2.0	5.5	1.5	5.3			3.0	3.1	6.8	2.8	3.1	2.7	2.9			
ffs	5	0.7	0.9	0.7	0.8	1.2	0.5	0.9		5	0.7	0.6	0.7	0.7	0.6	0.5	0.6		
CB	1/5	2.4	2.3	2.5	2.5	1.6	2.3	2.9		1/5	2.7	2.1	2.2	2.7	2.2	2.2	2.2		

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Nr. prog.: STI0412 06 0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017 11:41
Denominazione: DG 5 7 Gg		Numero denti z 53	Angolo pressione 17.5°
Numero disegno: D51.1.1220.35-IIF		Modulo m 1.75mm	Angolo elica 30°
Comessa/serie nr.: .D86- 1		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: FORMOSI	Charge:	

Errori singoli di divisione fp fianco sinistro

10µm

1000:1

Errore somma di divisione Fp fianco sinistro

10µm

1000:1

Errori singoli di divisione fp fianco destro

10µm

1000:1

Errore somma di divisione Fp fianco destro

10µm

1000:1

Corsa per misura divis.: 107.36 z=6.7mm

	fianco sinistro / RILASCIO				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	0.6		10.0		0.7		10.0	
Gr. salto di passo fu max	0.7		12.0		1.0		12.0	
Scarto di divisione Rp	1.1				1.3			
Err. globale di divisione Fp	6.5		32.0		6.0		32.0	
Err. cordale di divisione Fpz/8	3.2				2.8			

Centricità Fr (Ø-sfera =3mm)

⊙ : 6.7µm

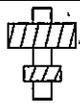
20µm

500:1

Err. di concentricità Fr		7.2	22.0	
Variab. spessore dente Rs				

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Ruota cilindrica Divisione



Nr. prog.: STI0412 06 0	PNC35 B4784	Controllora: Turno B	Data: 14.10.2017 11:56
Denominazione: DG 3 Gg		Numero denti z 32	Angolo pressione 17.5°
Numero disegno.: D51.1.1220.35-IF		Modulo m 2.1mm	Angolo elica 30°
Commessa/serie nr.: .D86- 2		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	spindel: Formwerkzeug	Charge:	

Errori singoli di divisione fp fianco sinistro

10µm
1000:1

Errore somma di divisione Fp fianco sinistro

10µm
1000:1

Errori singoli di divisione fp fianco destro

10µm
1000:1

Errore somma di divisione Fp fianco destro

10µm
1000:1

Corsa per misura divis.: 77.418 z=7.4mm	fianco sinistro / RILASCIO				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	2.3		10.0		2.6		10.0	
Gr. salto di passo fu max	1.8		18.0		1.7		18.0	
Scarto di divisione Rp	4.3				4.6			
Err. globale di divisione Fp	20.5		50.0		18.8		50.0	
Err. cordale di divisione Fpz/8	8.1				8.5			

Centricità Fr (Ø-sfera =3mm)

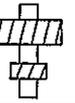
⊙ : 23.7µm

20µm
500:1

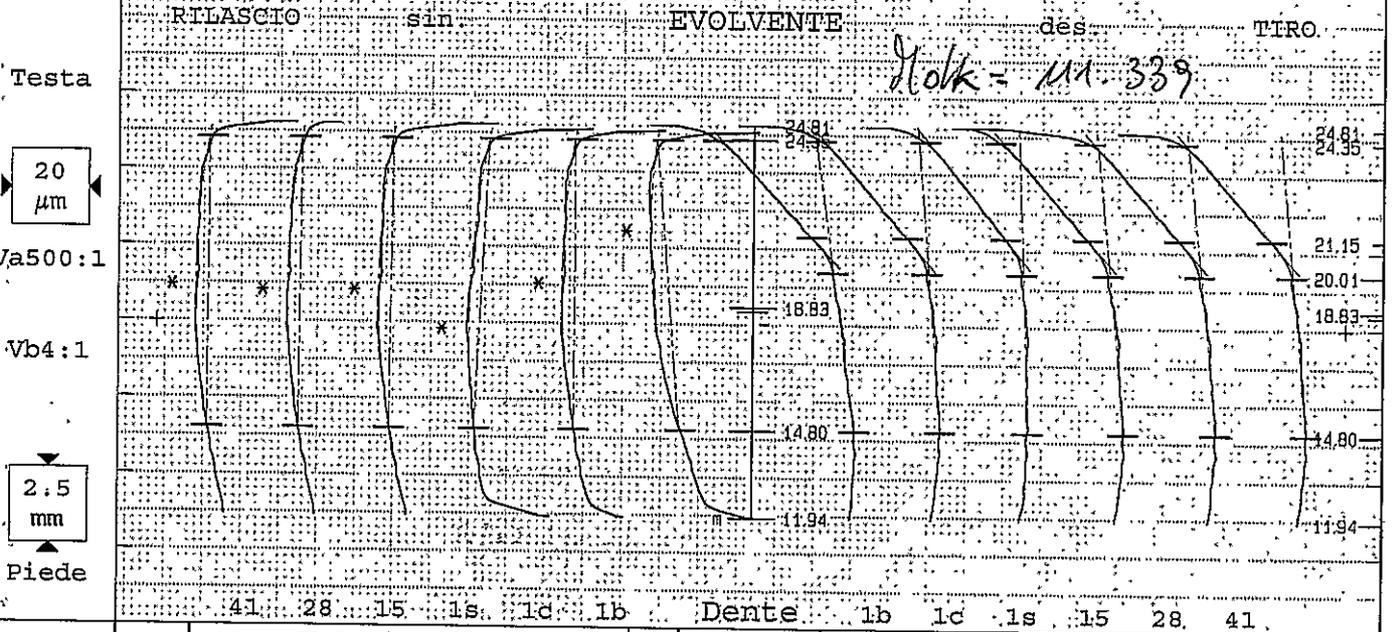
Err. di concentricità Fr	24.6	32.0	
Variabz. spessore dente Rs			

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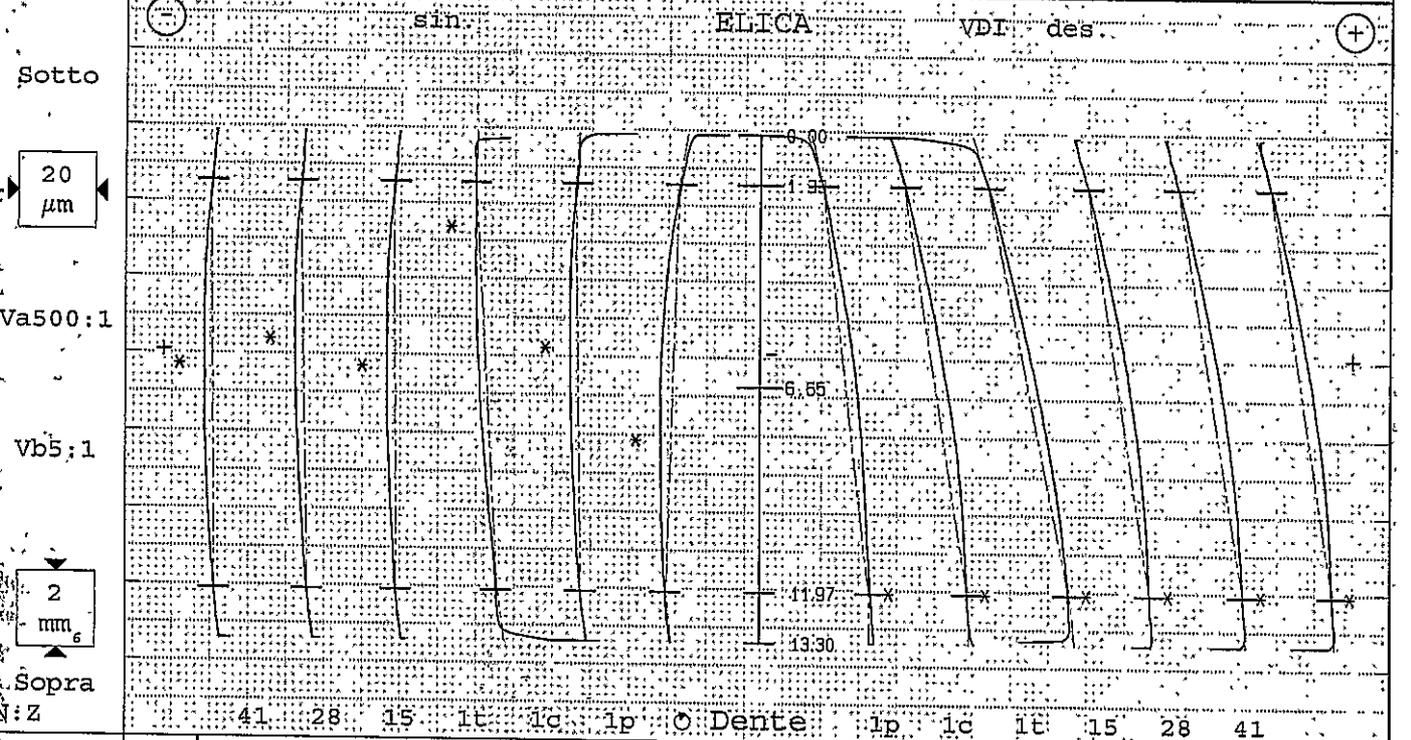
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0412 06 0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017 11:50
Denominazione: DG 5 7 Gg		Numero denti z 53	Largh.fasc.dent. b 13.3mm
Numero disegno: D51.1.1220.35-IIF		Modulo m 1.75mm	Tratto evolv. La 9.55/5.21mm
Commessa/serie nr.: .D86- 2		Angolo pressione 17.5°	Tratto elica Lβ 10.64mm
Masch.Nr.: M001	Spindel: FORM	Angolo elica 30°	Inizio elab. M1 14.8mm
Untersuchungszweck: Laufende Messung		Ø Base db 100.6362mm	Palpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base 28.48°	Fat.scor.pr. x 1



Tolerance	Medio	Val. misur [μm]							Qual	Tolerance	Val. misur [μm]							Medio	Qual	
		Var a									Var a									
fHsm ±6	-0.4							0.7		-10±6								-7.2		
fHa ±8	-0.4	-0.3	-0.7	-0.7	-3.8	0.0	6.2		-10±7	-10.5	-6.2	-2.8	-7.4	-7.9	-7.2	-7.2				
Fa	3.9	3.4	3.7	4.0	6.3	4.3	8.0			1.1	2.3	3.8	2.0	1.7	1.9	2.0				
ffa 5	1.8	1.4	1.3	1.7	2.3	2.6	3.6		5	1.0	1.5	1.5	1.5	1.3	1.1	1.4				
Ca 1/5	3.3	3.2	3.3	3.3	3.0	3.3	4.2			0.4	0.7	0.9	1.0	0.8	0.7	0.8				
Ca									-27/-19	-24.8	-25.1	-24.2	-25.0	-24.9	-25.3	-25.1				
ffaf 3	0.0	0.3	0.5	0.3	0.2	0.4	0.1		3	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
P/T-Ø [mm]	101.609	[101.48/101.8]									112.499	[112.44/112.7]								



Tolerance	Medio	Val. misur [μm]							Qual	Tolerance	Val. misur [μm]							Medio	Qual
		Var β									Var β								
fHsm ±4	-1.6							1.5		-20±4								-21.2	
fHs ±8	-1.6	-1.1	-2.5	-1.0	-7.3	-1.9	4.0		-20±8	-15.5	-21.3	-27.2	-20.8	-21.6	-20.9	-21.2			
Fβ	2.0	1.8	2.5	1.5	6.1	2.1	4.6			3.7	2.5	5.6	2.3	2.5	2.3	2.4			
ffβ 5	0.7	0.6	0.7	0.7	0.7	0.7	0.7		5	0.6	0.6	0.7	0.6	0.4	0.6	0.6			
CB 1/5	2.3	2.3	2.3	2.3	1.9	2.1	3.1		1/5	2.7	2.1	2.2	2.0	2.0	2.0	2.0			

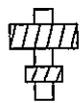
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Ruota cilindrica Divisione



Nr. prog.: STI0412 06 0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017 11:50
Denominazione: DG 5 7 Gg		Numero denti z 53	Angolo pressione 17.5°
Numero disegno.: D51.1.1220.35-IIF		Modulo m 1.75mm	Angolo elicita 30°
Comessa/serie nr.: .D86- 2		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Form	Best.Nr.:	Charge:

Errori singoli di divisione fp fianco sinistro

10µm
1000:1

Errore somma di divisione Fp fianco sinistro

10µm
1000:1

Errori singoli di divisione fp fianco destro

10µm
1000:1

Errore somma di divisione Fp fianco destro

10µm
1000:1

	fianco sinistro / RILASCIO				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	2.0		10.0		2.0		10.0	
Gr. salto di passo fu max	2.1		12.0		1.9		12.0	
Scarto di divisione Rp	2.7				2.6			
Err. globale di divisione Fp	5.0		32.0		5.1		32.0	
Err. cordale di divisione Fpz/8	3.0				3.5			

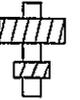
Centricità Fr (Ø-sfera =3mm) \odot : 4.7µm

20µm
500:1

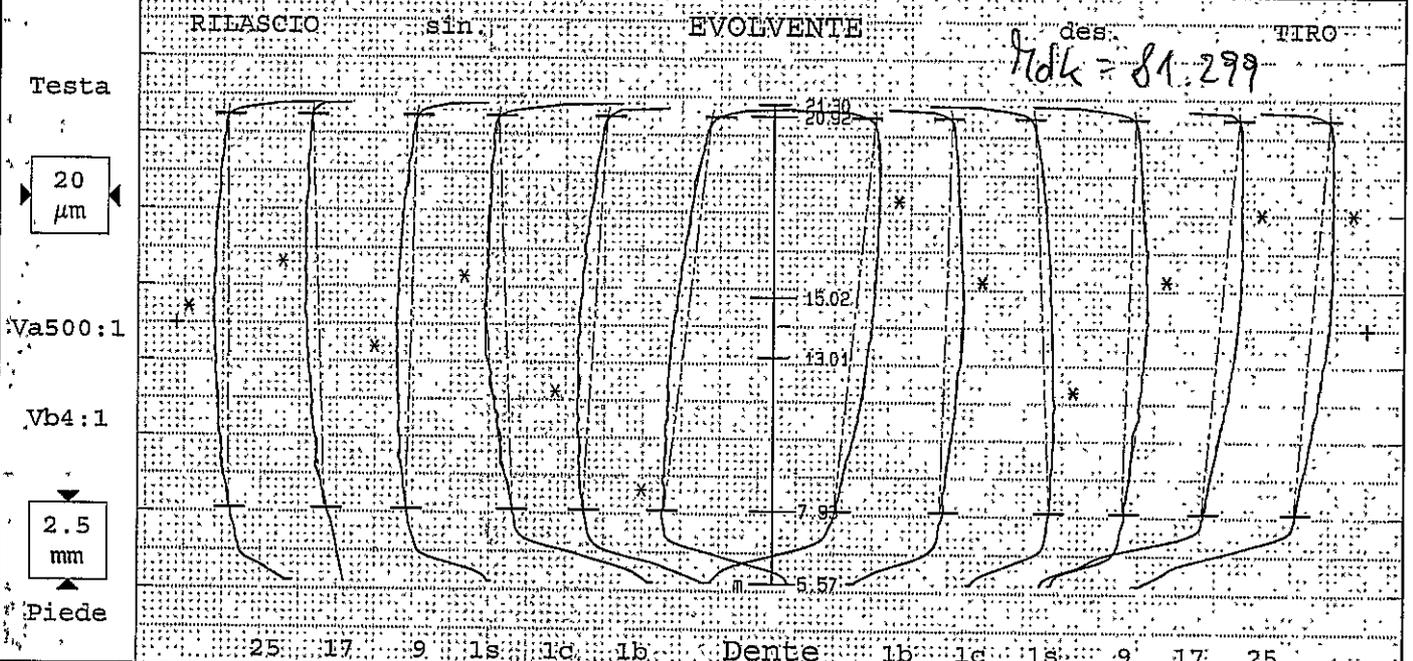
Err. di concentricità Fr	5.1	22.0	
Variab. spessore dente Rs			

Docum. archiviato elettronicamente: Archiviazione cartacea non necessaria

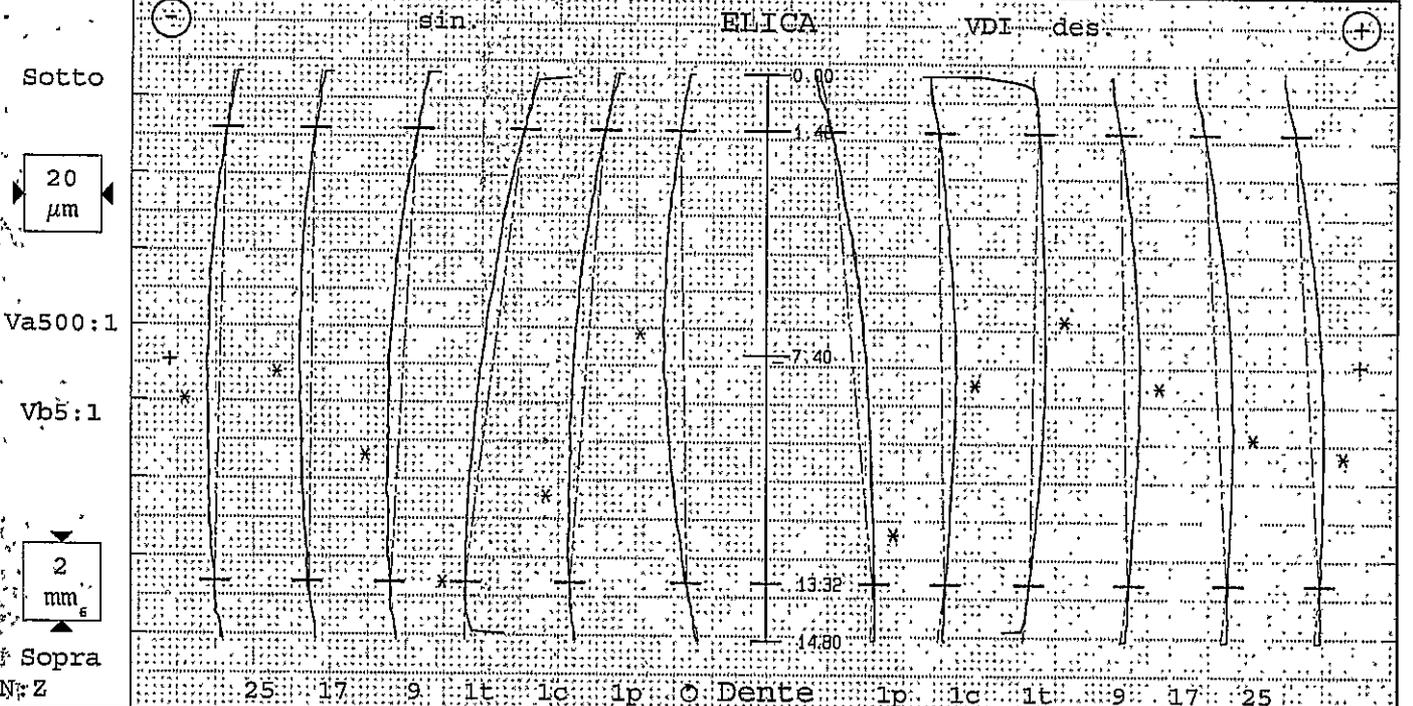
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0412 06 0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017~12:03
Denominazione: DG 3 Gg		Numero denti z 32	Largh. fasc. dent. b 14.8mm
Numero disegno.: D51.1.1220.35-IF		Modulo m 2.1mm	Tratto evolv. La 12.99mm
Comessa/serie nr.: .D86- 3		Angolo pressione 17.5°	Tratto elica L3 11.84mm
Masch. Nr.: M001	Spindel: Forme	Angolo elica 30°	Inizio elab. M1 7.93mm
Untersuchungszweck: Laufende Messung		Ø Base db 72.9138mm	Falpatore ø (#2) 1mm
Werkzeug: Charge:		Ang. Base 28.48°	Fat. scor. pr. x 3



Tolerance	Medio	Val. misur [µm]								Qual	Tolerance	Val. misur [µm]								Medio	Qual								
		Var a 9.5										Var a 6.7																	
fHm	±6	-1.2									5±6																		
fHa	±8	-1.2	0.4	3.4	-2.6	3.8	-6.1	-12.1			5±10	10.7	2.9	-4.1	3.3	9.6	9.3	6.3											
fca		5.3	3.5	5.0	4.7	6.4	7.8	14.8				5.9	3.9	10.3	3.5	4.6	4.6	4.2											
ffa	4	1.2	1.0	1.4	1.1	1.7	1.2	2.9			4	3.0	1.9	1.8	1.4	1.0	1.5	1.5											
Ca	1/5	3.7	3.7	3.3	3.7	5.0	3.9	3.4			3±2	4.6	4.2	2.7	4.5	4.5	4.4	4.4											
ffaaf	3	0.0	0.0	0.0	0.0	0.3	0.0	0.6			3	0.4	1.0	0.0	0.8	0.6	0.6	0.0											
P/T-Ø [mm]		71.118	[70.98/71.3]										84.776	[84.74/85]															



Tolerance	Medio	Var β 9.4								Qual	Tolerance	Var β 5.9								Medio	Qual								
fHSm	±6	5.9									-10±6																		
fHS	±13	5.9	3.4	1.3	8.3	18.8	10.7	-2.4			-10±13	-13.5	-2.4	2.4	-2.7	-7.5	-8.3	-5.2											
fS		6.2	4.4	3.3	7.7	15.7	9.4	5.0				4.7	6.4	10.8	6.6	4.1	3.6	5.2											
ffS	4	1.1	1.0	1.1	1.0	0.8	1.1	0.9			4	1.1	0.8	0.8	0.6	0.8	0.5	0.7											
CS	1/5	3.4	3.3	3.2	3.7	3.1	3.4	5.0			1/5	3.4	3.7	3.0	3.9	4.1	3.8	3.9											
Bd	17±8	21.2											17±8																

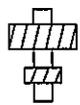
Docum. archiviato elettronicamente. Archiviazione cartacea non necessaria

GCG 808006

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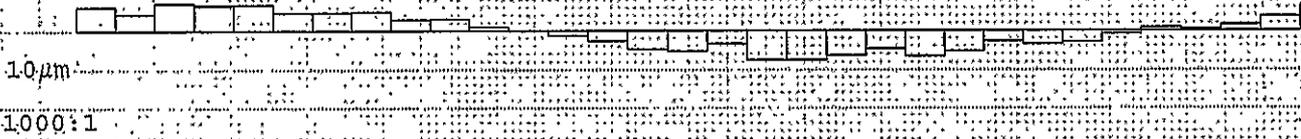


Ruota cilindrica Divisione

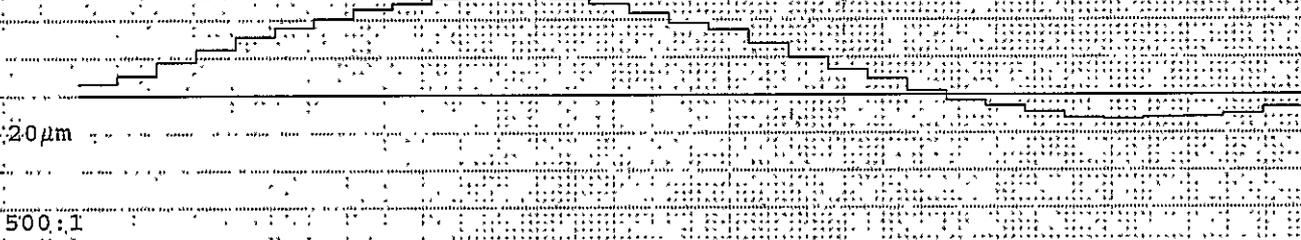


Nr. prog.: STI0412 06 0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017~12:03
Denominazione: DG 3 Gg		Numero denti z 32	Angolo pressione 17.5°
Numero disegno.: D51.1.1220.35-IF		Modulo m 2.1mm	Angolo elica 30°
Comessa/serie nr.: .D86- 3		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formel	Material: 1	Charge:

Errori singoli di divisione fp fianco sinistro



Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

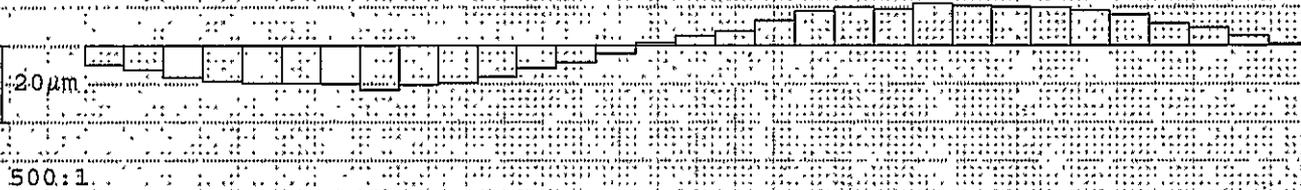


Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 77.418 z=7.4mm	fianco sinistro / RILASCIO				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	3.7		10.0		3.0		10.0	
Gr. salto di passo fu max	2.0		18.0		1.4		18.0	
Scarto di divisione Rp	7.2				5.9			
Err. globale di divisione Fp	32.5		50.0		25.6		50.0	
Err. cordale di divisione Fpz/8	13.0				10.3			

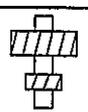
Centricità Fr (Ø-sfera =3mm) Ⓞ : 21.9µm



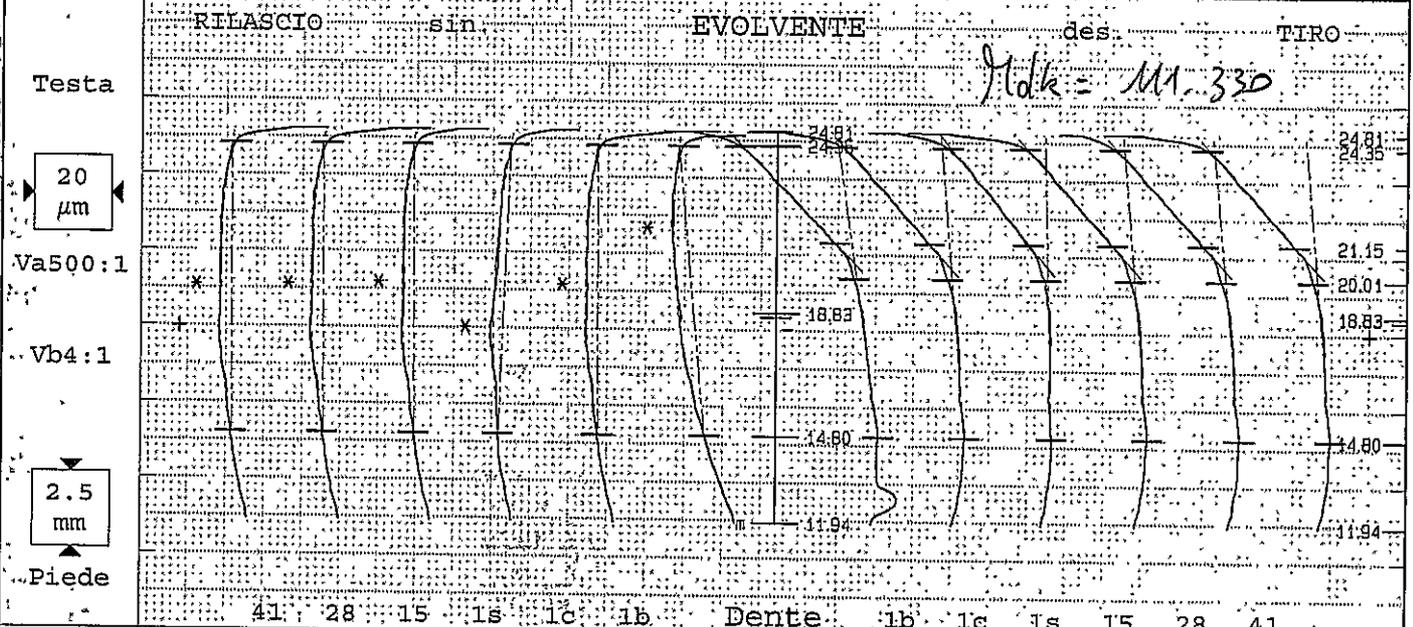
Err. di concentricità Fr	22.4	32.0		
Variaz. spessore dente Rs				

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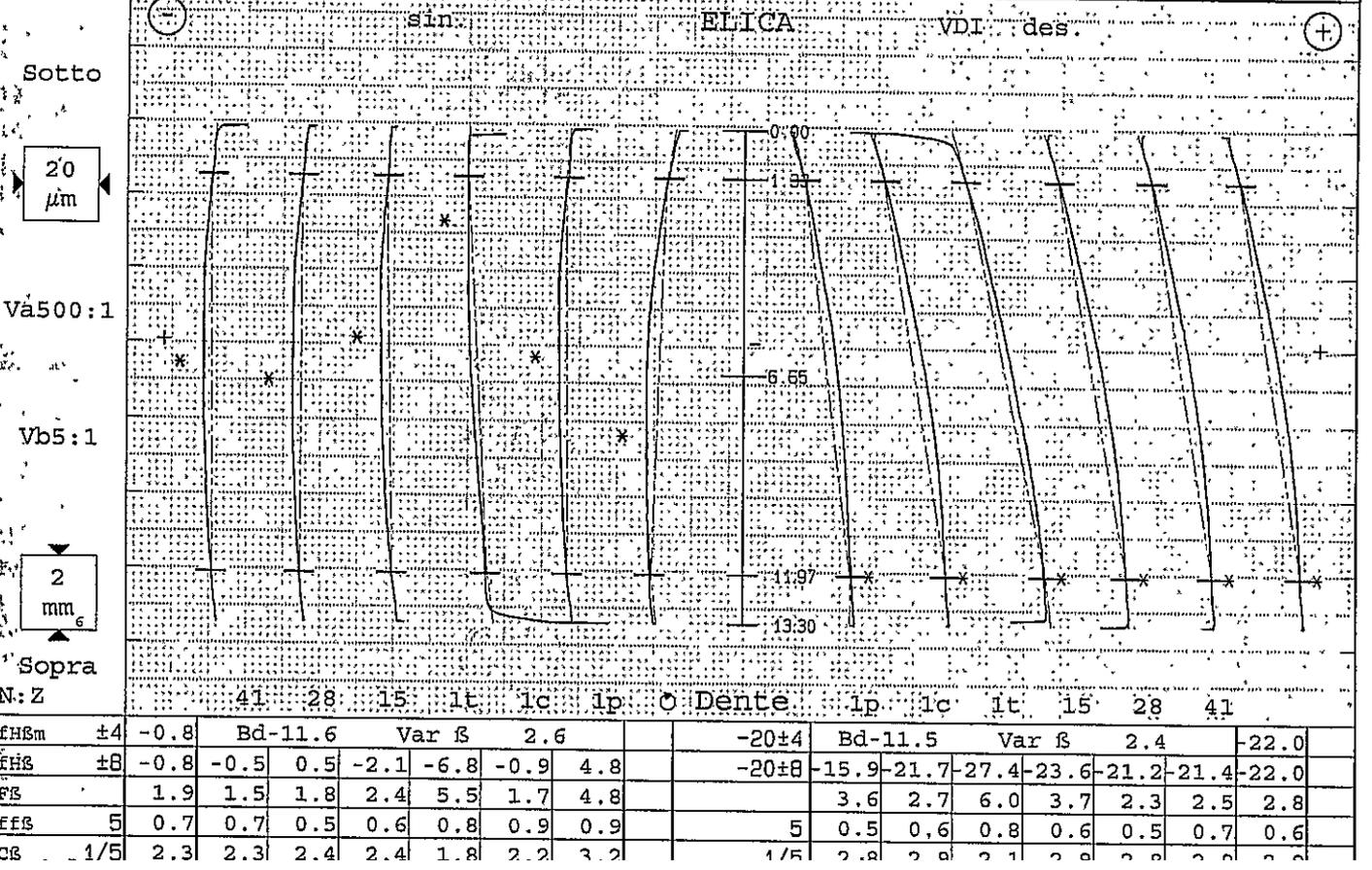
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0412 06 0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017 12:10
Denominazione: DG 5 7 Gg		Numero denti z: 53	Largh.fasc.dent. b: 13.3mm
Numero disegno.: D51.1.1220.35-IIF		Modulo m: 1.75mm	Tratto evol. La: 9.55/5.21mm
Commessa/serie nr.: .D86- 3		Angolo pressione: 17.5°	Tratto elica Ls: 10.64mm
Masch.Nr.: M001	Spindel: Forme	Angolo elica: 30°	Inizio elab. MI: 14.8mm
Untersuchungszweck: Laufende Messung		Ø Base db: 100.6362mm	Palpatore ø (#2): 1mm
Werkzeug:	Charge:	Ang. Base: 28.48°	Fat.scor.pr. x: .1



Tolerance	Medio	Val. misur [µm]								Qual	Tolerance	Val. misur [µm]								Medio	Qual	
fHm	±6	0.4	Var a ² 0.3									-10±6	Var a 0.5								-6.6	
fHa	±8	0.4	0.2	0.3	0.5	-2.9	0.4	7.0		-10±7	-10.8	-6.5	-2.0	-6.5	-7.0	-6.5	-6.6					
Fa		3.2	3.3	3.5	3.1	5.0	3.0	8.1			1.2	2.0	3.7	2.1	1.8	1.9	2.0					
ffa	5	1.7	1.7	1.8	1.6	1.5	1.6	1.7		5	1.1	1.7	1.2	1.6	1.6	1.6	1.6					
Ca	1/5	3.2	3.2	3.3	3.1	2.7	3.1	4.1			0.2	0.7	0.6	0.7	0.7	0.7	0.7					
ffaf	3	0.0	1.1	1.0	0.9	0.6	1.0	0.5		-27/-19	-25.3	-25.8	-25.1	-25.6	-25.7	-25.8	-25.7					
P/T-ø [mm]		101.623	[101.48/101.8]									112.500	[112.44/112.7]									



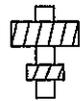
fHSm	±4	-0.8	Bd-11.6	Var β 2.6					-20±4	Bd-11.5	Var β 2.4				-22.0	
fHs	±8	-0.8	-0.5	0.5	-2.1	-6.8	-0.9	4.8	-20±8	-15.9	-21.7	-27.4	-23.6	-21.2	-21.4	-22.0
Fs		1.9	1.5	1.8	2.4	5.5	1.7	4.8		3.6	2.7	6.0	3.7	2.3	2.5	2.8
ffs	5	0.7	0.7	0.5	0.6	0.8	0.9	0.9	5	0.5	0.6	0.8	0.6	0.5	0.7	0.6
Cs	1/5	2.3	2.3	2.4	2.4	1.8	2.2	3.2	1/5	2.8	2.8	2.1	2.8	2.8	2.8	2.8

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Ruota cilindrica Divisione



Nr. prog.: STI0412 06 0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017 12:10
Denominazione: DG 5 7 Gg	Numero denti z: 53	Angolo pressione: 17.5°	Angolo elica: -30°
Numero disegno: D51.1.1220.35-IIF	Modulo m: 1.75mm	Untersuchungszweck: Laufende Messung	
Comessa/serie nr.: .D86- 3	Masch.Nr.: M001		Charge:
Spindel: Formest		Kegel:	

Errori singoli di divisione fp fianco sinistro

10µm

1000:1

Errore somma di divisione Fp fianco sinistro

10µm

1000:1

Errori singoli di divisione fp fianco destro

10µm

1000:1

Errore somma di divisione Fp fianco destro

10µm

1000:1

	fianco sinistro / RILASCIO				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	0.8		10.0		0.6		10.0	
Gr. salto di passo fu max	0.7		12.0		0.4		12.0	
Scarto di divisione Rp	1.5				1.2			
Err. globale di divisione Fp	6.6		32.0		6.4		32.0	
Err. cordale di divisione Fpz/8	3.6				3.5			

Centricità Fr (Ø-sfera =3mm) Ⓞ : 3.2µm

20µm

500:1

Err. di concentricità Fr	3.7	22.0	
Variatz. spessore dente Rs			

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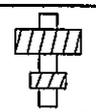
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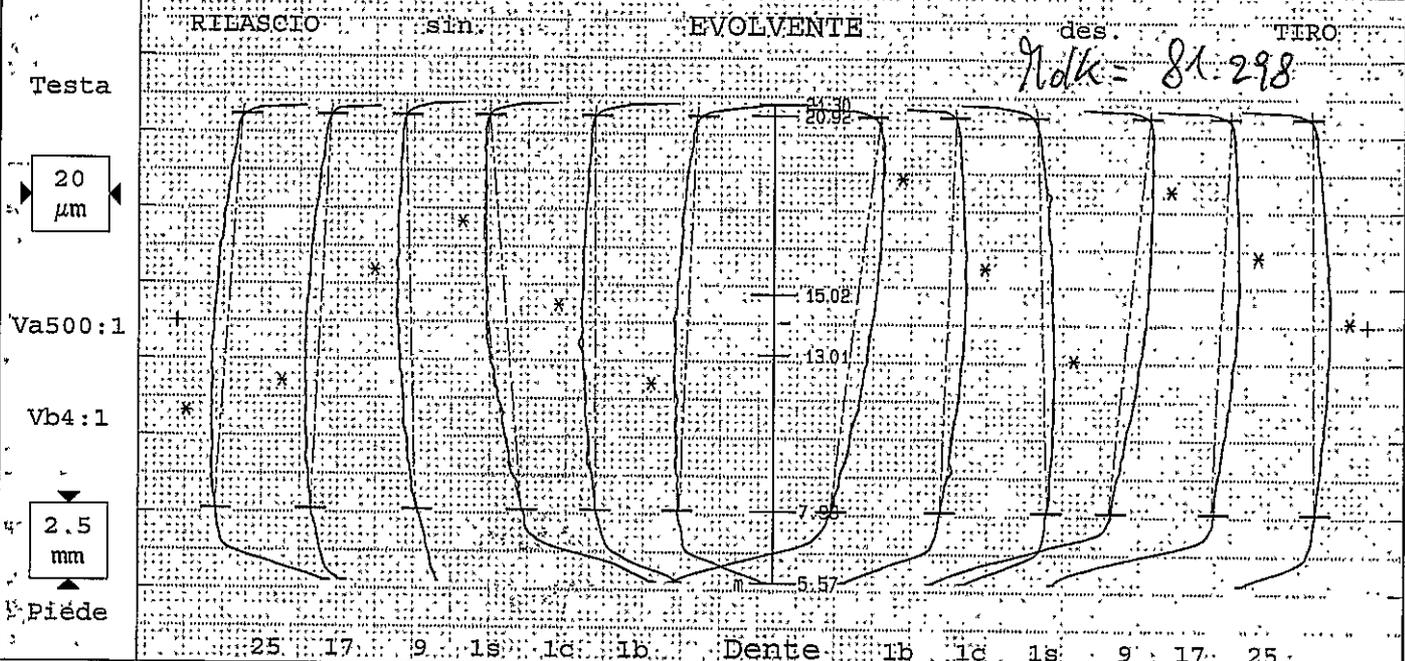
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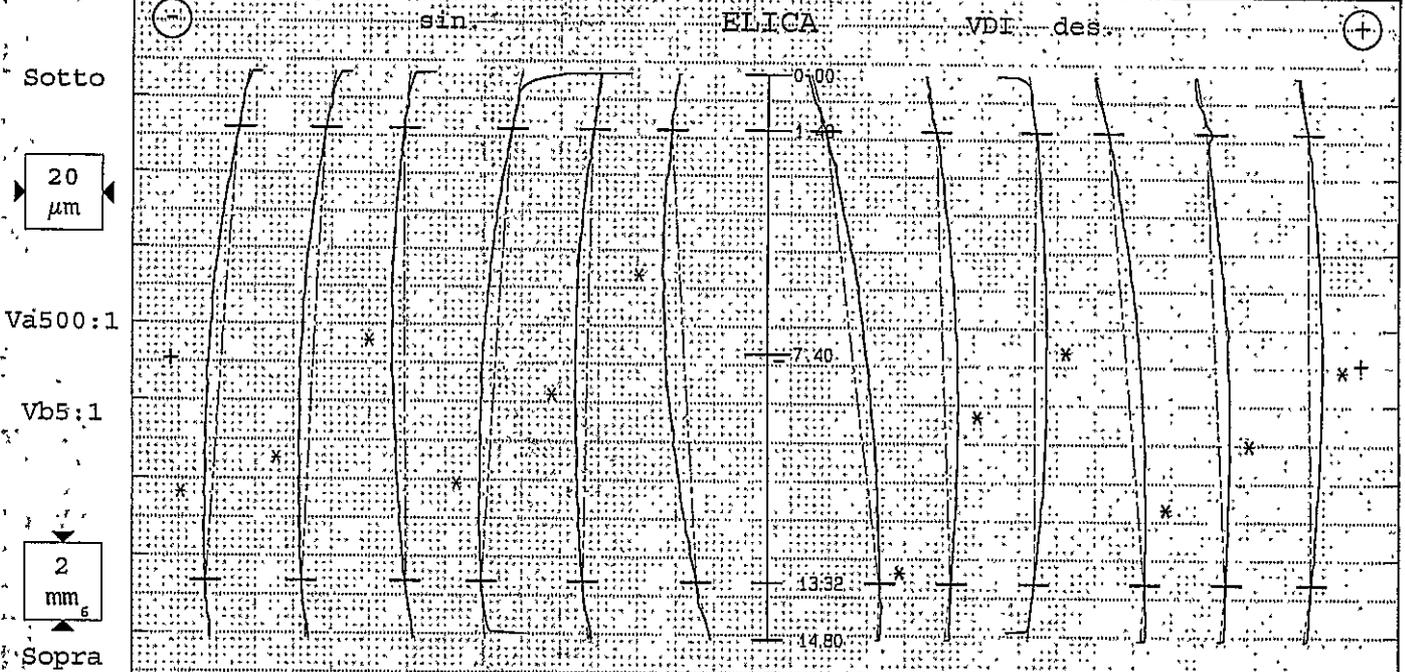
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0412_06_0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017-12:41
Denominazione: DG 3 Gg	Numero denti z: 32	Largh.fasc.dent. b: 14.8mm	
Numero disegno.: D51.1.1220.35-IF	Modulo m: 2.1mm	Tratto evolv. La: 12.99mm	
Comessa/serie nr.: .D86- 4	Angolo pressione: 17.5°	Tratto elica L&: 11.84mm	
Masch.Nr.: M001	Spindel: Form. Angolo elica: 30°	Inizio elab. M1: 7.93mm	
Untersuchungszweck: Laufende Messung	Ø Base db: 72.9138mm	Palpatore Ø: (#2) 1mm	
Werkzeug:	Charge:	Ang. Base: 28.48°	Fat.scor.pr. x: 3



Tolerance		Val. misur [µm]								Qual	Val. misur [µm]								Tolerance		
		Var a									Var a										
fHm	±6	-2.2																		5±6	
fHa	±8	-2.2	-7.0	-5.1	2.8	8.7	10.4	-4.4		13.1	4.1	-2.9	10.7	5.0	-0.7	4.8					
Fa		5.9	8.7	6.4	4.7	9.6	3.6	6.7		8.4	2.8	9.0	5.8	3.1	7.1	4.7					
fFa	4	1.2	1.5	0.9	0.9	1.6	1.6	2.1		4	2.9	1.6	2.4	1.4	2.2	1.7					
Ca	1/5	3.4	3.5	3.6	3.3	4.7	3.3	3.0		3±2	4.7	4.4	3.0	4.3	4.2	4.3					
fFaF	3	0.0	0.0	0.0	0.0	0.3	0.0	0.6		3	0.2	0.2	0.0	0.6	0.9	0.0					
P/T-Ø [mm]		71.084	[70.98/71.3]									84.781	[84.74/85]								



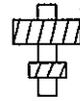
Tolerance		Val. misur [µm]								Qual	Val. misur [µm]								Tolerance		
		Var β									Var β										
fHm	±6	5.0																		-10±6	
fHs	±13	5.0	10.3	7.6	-0.8	9.5	3.0	-8.4		-10±13	-17.6	-4.9	0.2	-12.0	-6.4	-1.2	-6.1				
fβ		5.6	8.9	6.7	2.7	8.2	4.0	8.0			6.9	5.0	8.6	3.4	4.2	7.1	4.9				
fββ	4	0.9	0.8	0.7	1.0	0.6	1.0	0.9		4	0.9	0.7	0.6	0.6	2.0	0.6	1.0				
Cβ	1/5	3.3	3.3	3.3	3.2	3.3	3.2	4.8		1/5	3.7	3.7	3.2	3.5	3.3	3.5	3.5				
Bd	17±8	17.9										17±8									

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Ruota cilindrica Divisione

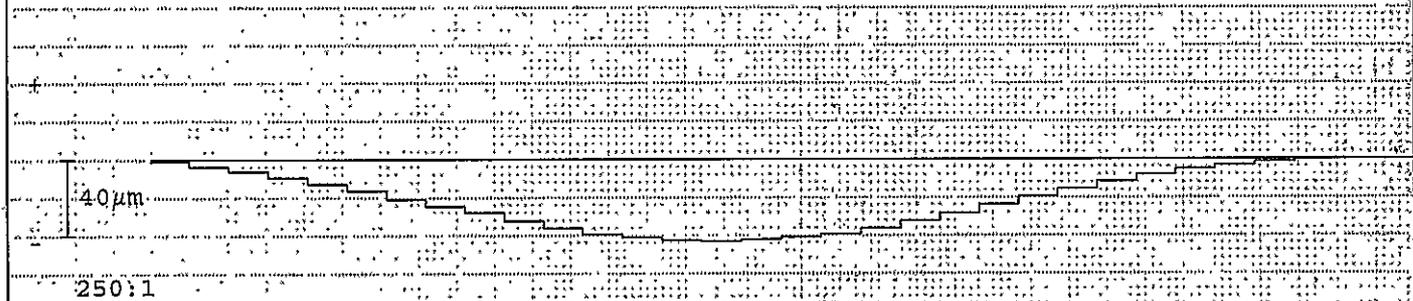


Nr. prog.: STI0412_06_0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017~12:41.
Denominazione: DG 3 Gg		Numero denti z: 32	Angolo pressione: 17.5°
Numero disegno.: D51.1.1220.35-IF		Modulo m: 2.1mm	Angolo elica: 30°
Comessa/serie nr.: .D86- 4		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formel	Charge:	

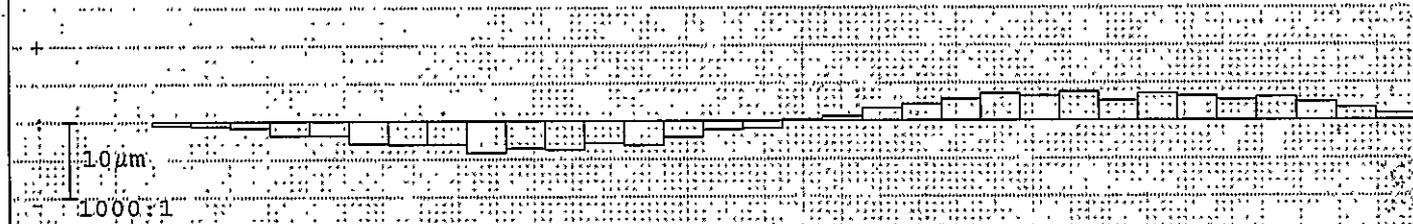
Errori singoli di divisione fp fianco sinistro



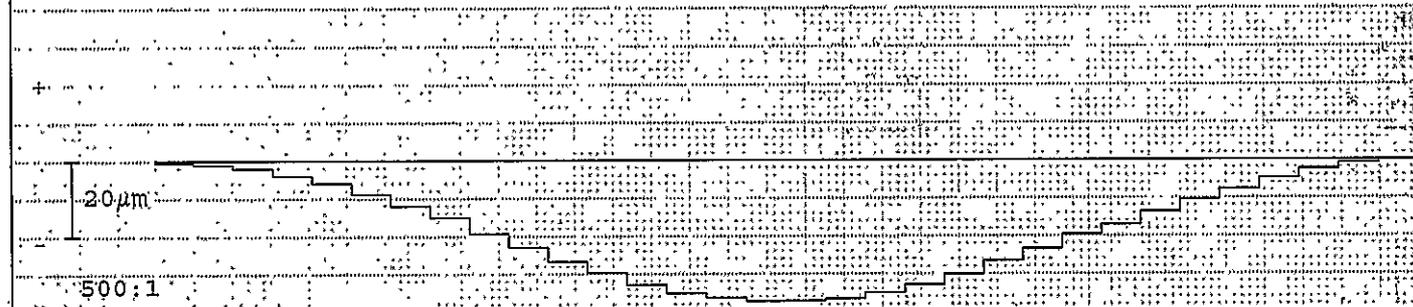
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

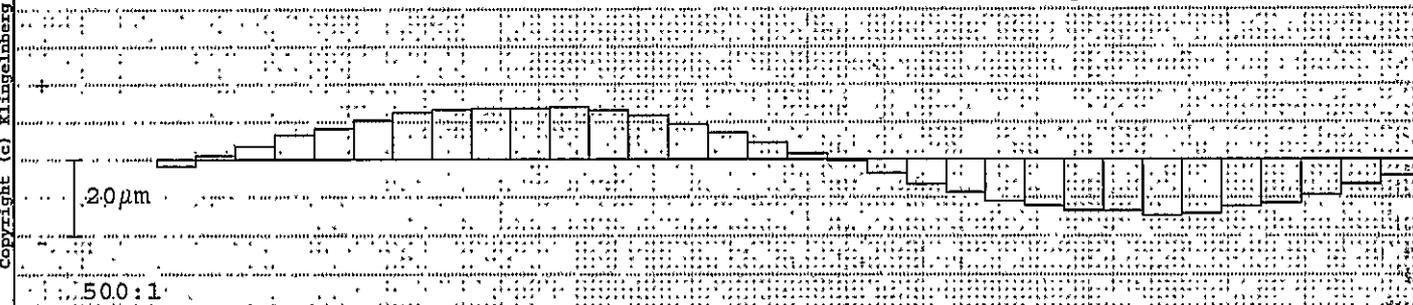


Errore somma di divisione Fp fianco destro



Corsa per misura divisa.: 7.418 z=7.4mm	fianco sinistro / RILASCIO				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	4.6		10.0		4.2		10.0	
Gr. salto di passo fu max	1.5		18.0		1.3		18.0	
Scarto di divisione Rp	9.2				7.9			
Err. globale di divisione Fp	43.3		50.0		37.3		50.0	
Err. cordale di divisione Fpz/8	16.9				14.8			

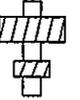
Centricità Fr (Ø-sfera =3mm) Ⓞ : 28.3µm



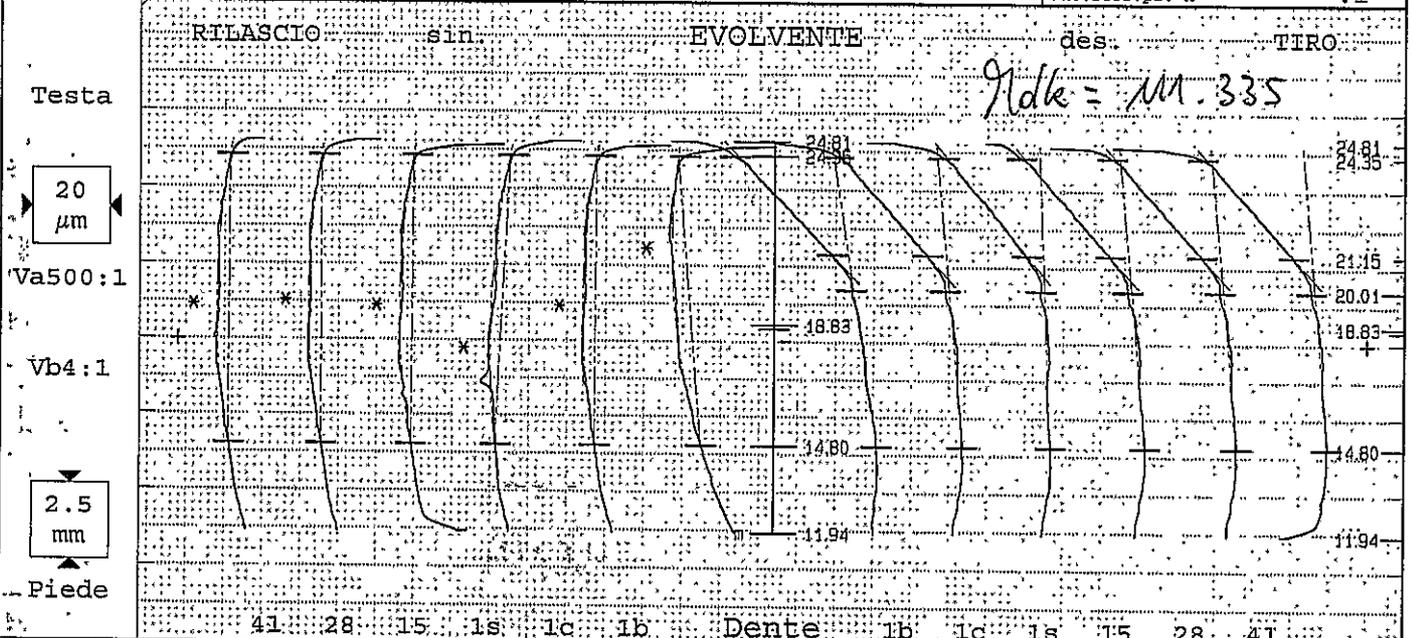
Err. di concentricità Fr	28.6	32.0
Variab. spessore dente Rs		



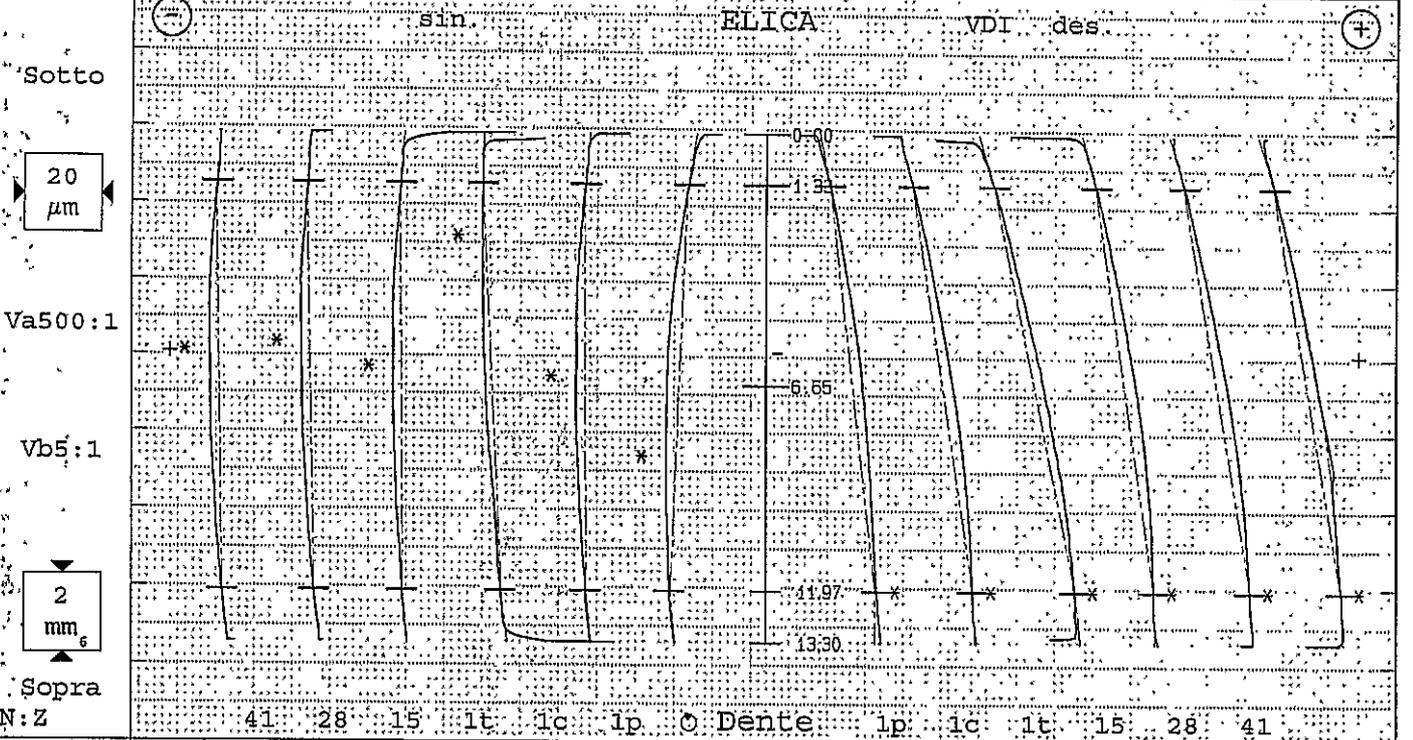
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0412 06 0	PNC35 B4784	Controllora: Turno B	Data: 14.10.2017 12:18
Denominazione: DG 5 7 Gg		Numero denti z 53	largh.fasc.dent. b 13.3mm
Numero disegno: D51.1.1220.35-IIF		Modulo m 1.75mm	Tratto evolv. La 9.55/5.21mm
Commessa/serie nr.: .D86- 4		Angolo pressione 17.5°	Tratto elica L& 10.64mm
Masch.Nr.: M001	Spindel: Formulas	Angolo elica 30°	Inizio elab. M1 14.8mm
Untersuchungszweck: Laufende Messung		Ø Base db 100.6362mm	Palpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base 28.48°	Fat.scor.pr. x .1



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual		
		Var a 0.5									Var a 0.5										
fHm	±6	-0.3								-10±6											
fHa	±8	-0.3	-0.3	0.0	-0.5	-3.8	-0.4	6.1		-10±7	-11.6	-7.1	-3.0	-6.9	-7.0	-6.6	-6.9				
Fa		3.6	3.5	3.2	3.9	7.5	3.7	7.7			1.5	2.2	3.5	2.1	2.1	2.3	2.2				
ffa	5	1.5	1.4	1.3	1.7	3.5	1.7	2.5		5	1.0	1.9	1.8	1.9	1.7	1.7	1.8				
Ca	1/5	3.3	3.2	3.4	3.3	2.9	3.3	4.0			0.2	1.0	0.8	1.0	0.9	0.9	1.0				
Ca																					
ffa	3	0.0	0.4	0.9	0.6	0.3	0.6	0.1													
P/T-Ø [mm]		101.622	[101.48/101.8]									112.494	[112.44/112.7]								



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
		Var β 2.1									Var β 3.2								
fHsm	±4	-1.6	Bd-11.7							-20±4	Bd-12.1								
fHs	±8	-1.6	-2.1	-2.6	-1.1	-6.2	-0.5	5.5		-20±8	-14.8	-20.1	-26.9	-19.3	-22.1	-22.5	-21.0		
fS		2.1	2.6	2.8	1.6	5.1	1.5	5.1			3.9	2.0	5.7	2.5	2.7	3.8	2.8		
ffa	5	0.6	0.6	0.8	0.6	0.7	0.5	0.7		5	0.7	0.5	0.7	0.6	0.6	1.4	0.8		
CS	1/5	2.4	2.5	2.4	2.2	1.7	2.5	3.1			1/5	2.5	2.7	2.4	3.0	2.7	3.0		

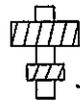
Docum. archiviato elettronicamente. Archiviazione cartacea non necessaria

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Ruota cilindrica Divisione



Nr. prog.: STI0412 06 0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017 12:18
Denominazione: DG 5 7 Gg		Numero denti z: 53	Angolo pressione: 17.5°
Numero disegno.: D51.1.1220.35-IIF		Modulo m: 1.75mm	Angolo alica: 30°
Comessa/serie nr.: .D86- 4		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formel	Charge:	

Errori singoli di divisione fp fianco sinistro

10µm
1000:1

Errore somma di divisione Fp fianco sinistro

10µm
1000:1

Errori singoli di divisione fp fianco destro

10µm
1000:1

Errore somma di divisione Fp fianco destro

10µm
1000:1

Corsa per misura divis.: 107,36 z=6.7mm

	fianco sinistro / RILASCIO				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	0.7		10.0		3.7		10.0	
Gr. salto di passo fu max	0.6		12.0		6.4		12.0	
Scarto di divisione Rp	1.3				6.4			
Err. globale di divisione Fp	6.7		32.0		6.2		32.0	
Err. cordale di divisione Fpz/8	2.6				4.7			

Centricità Fr (Ø-sfera =3mm)

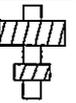
⊙ : .8µm

20µm
500:1

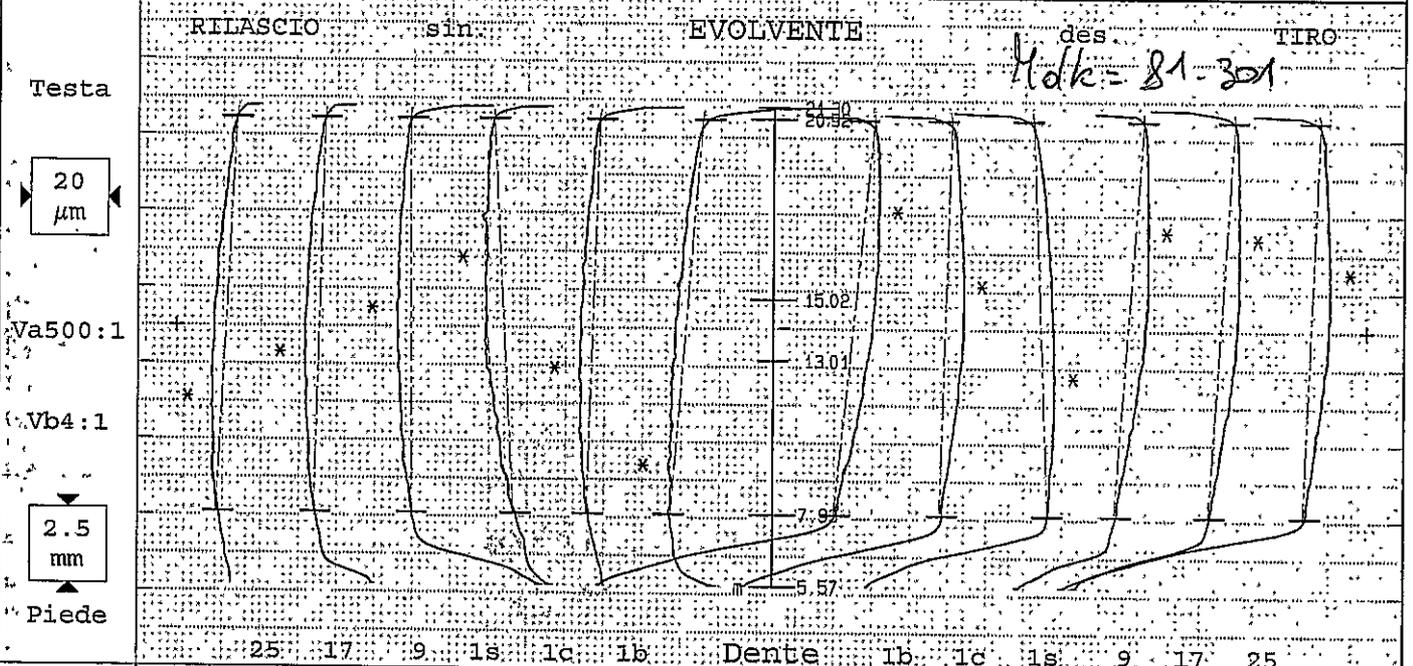
Err. di concentricità Fr	4.7	22.0		
Variab. spessore dente Rs				



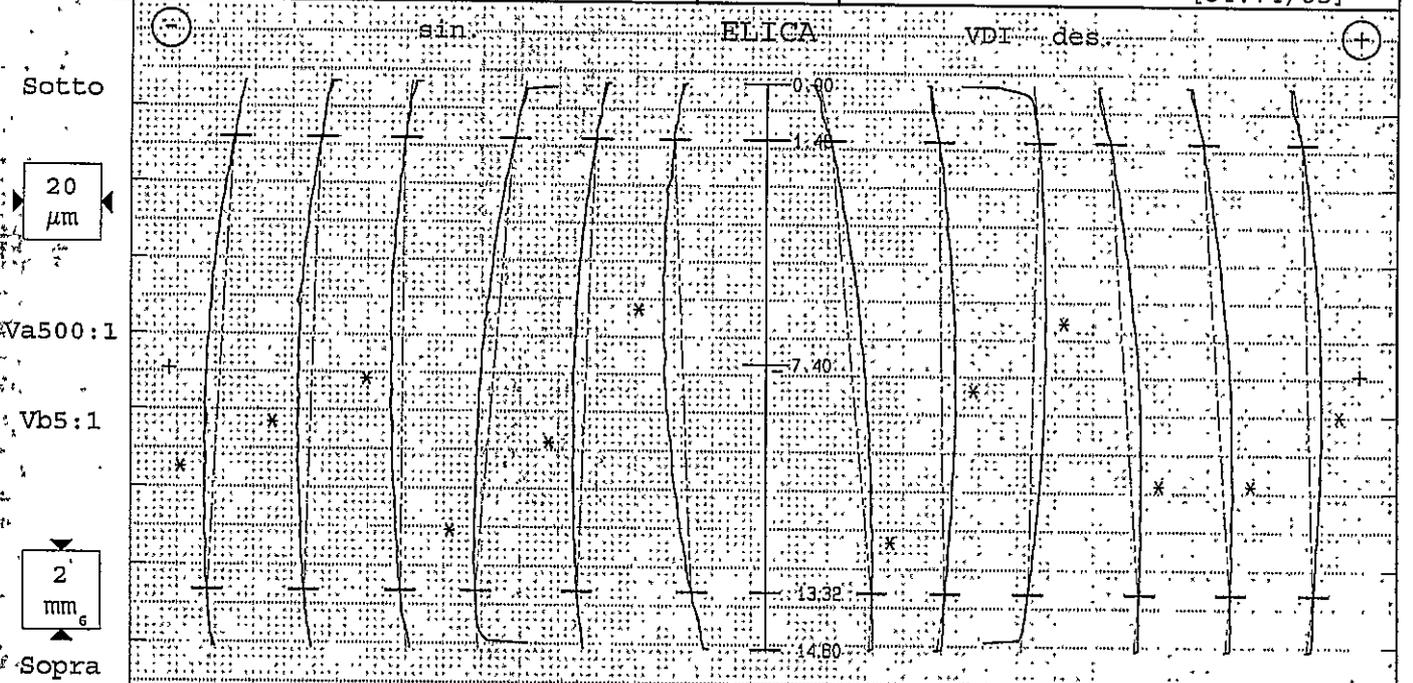
Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0412 06 0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017 12:49
Denominazione: DG 3 Gg		Numero denti z 32	Largh.fasc.dent. b 14.8mm
Numero disegno.: D51.1.1220.35-IF		Modulo m 2.1mm	Tratto evol. La 12.99mm
Comessa/serie nr.: .D86- 5		Angolo pressione 17.5°	Tratto elica Ls 11.84mm
Masch.Nr.: M001	Spindel: FORMING	Angolo elicoidale 30°	Inizio elab. M1 7.93mm
Untersuchungszweck: Laufende Messung		Ø Base db 72.9138mm	Palpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base 28.48°	Fat.scor.pr. x 3



Tolerance	Medio	Val. misur [µm]								Qual	Tolerance	Val. misur [µm]								Medio	Qual	
fHm	±6	-2.7	Var a 5.7									5±6									5.4	
fHa	±8	-2.7	-5.2	-2.7	0.5	5.3	-3.2	-8.1		5±10	10.5	3.0	-3.9	7.6	6.6	4.3	5.4					
Fa		4.7	6.0	4.6	3.1	8.1	4.9	10.3			5.6	5.4	10.4	2.9	2.1	3.7	3.5					
ffa	4	1.1	1.2	0.9	1.1	1.5	1.0	2.2		4	3.5	2.9	1.8	1.0	0.9	2.0	1.7					
Ca	1/5	3.3	3.1	3.6	3.5	4.5	3.1	2.7		3±2	4.9	4.6	3.3	4.3	4.0	4.5	4.4					
ffa	3	0.0	0.0	0.0	0.0	0.0	0.0	0.5		3	0.4	0.7	0.0	0.6	0.4	0.5	0.0					
P/T-Ø [mm]		71.115	[70.98/71.3]									84.773	[84.74/85]									



Tolerance	Medio	Val. misur [µm]								Qual	Tolerance	Val. misur [µm]								Medio	Qual	
fHm	±6	5.0	Var β 7.2									-10±6	Var β 7.4								-6.2	
fHs	±13	5.0	8.3	5.0	1.1	12.4	5.6	-5.7		-10±13	-13.5	-2.1	3.1	-9.5	-9.1	-3.9	-6.2					
FS		5.4	7.5	5.6	3.0	10.6	5.5	6.8			4.3	6.6	10.9	2.7	2.7	5.7	4.4					
ffa	4	1.0	0.9	1.5	0.9	0.8	0.8	1.1		4	0.8	0.8	0.4	0.7	0.5	0.6	0.7					
CB	1/5	3.4	3.5	3.7	3.1	3.3	3.2	4.7		1/5	3.4	3.7	3.2	3.6	3.4	3.6	3.6					
Bd	17±8	18.1										17±8									16	6

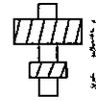
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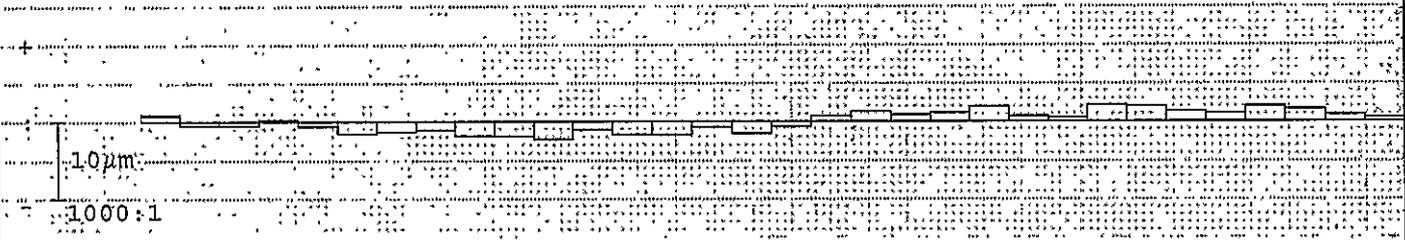


Ruota cilindrica Divisione

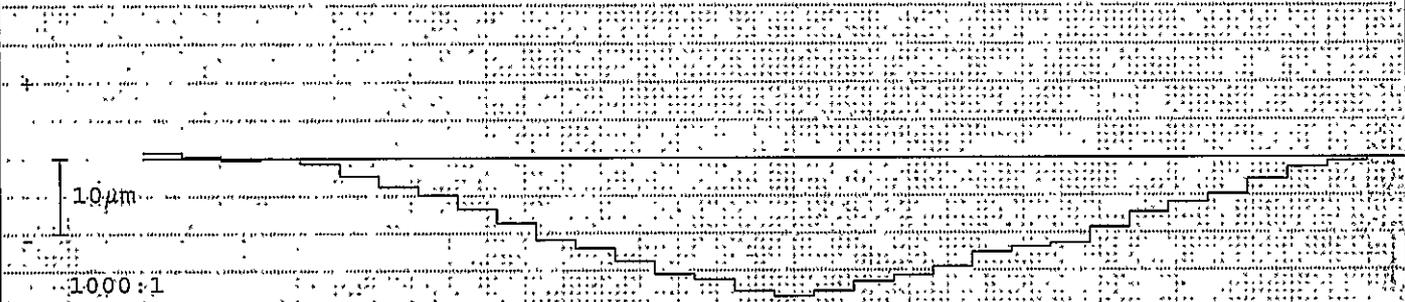


Nr. prog.: STI0412_06_0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017 12:49
Denominazione: DG 3 Gg		Numero denti z: 32	Angolo pressione: 17.5°
Numero disegno.: D51.1.1220.35-IF		Modulo m: 2.1mm	Angolo elica: 30°
Comessa/serie nr.: .D86- 5		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	spindel: Formel	Charge:	

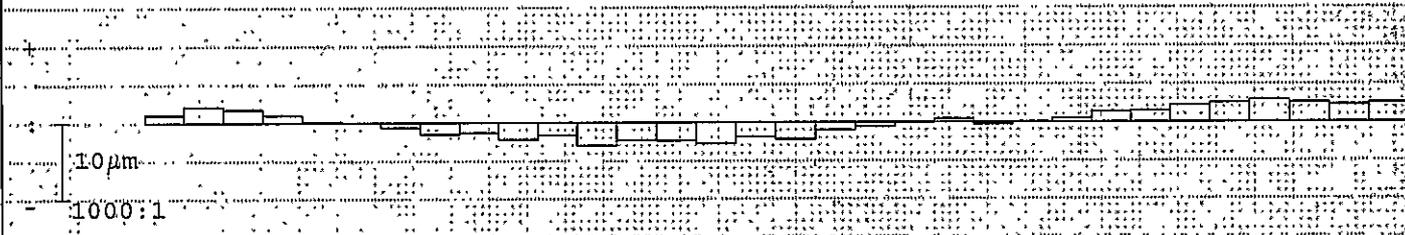
Errori singoli di divisione fp fianco sinistro



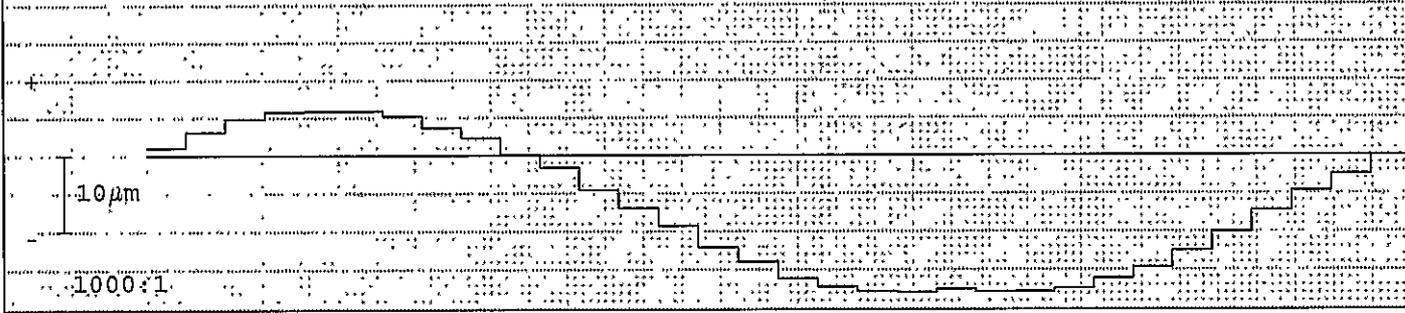
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

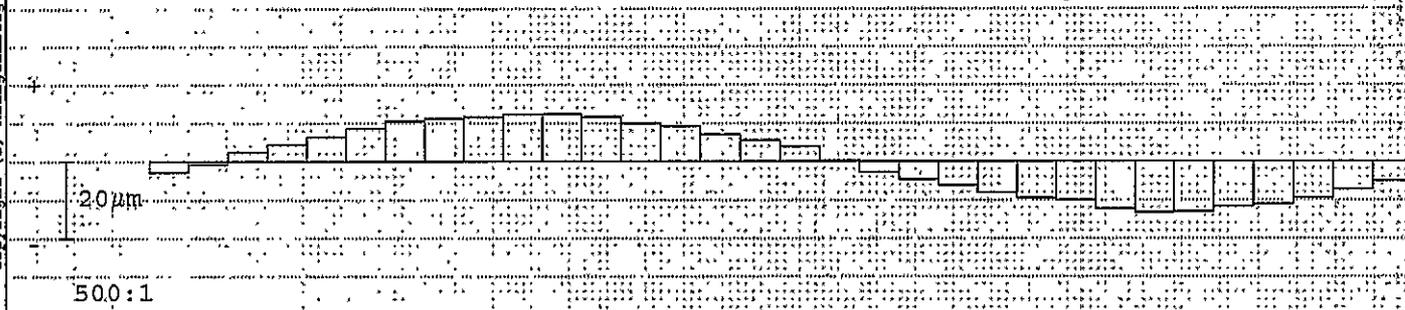


Errore somma di divisione Fp fianco destro



	fianco sinistro / RILASCIO				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	2.3		10.0		3.0		10.0	
Gr. salto di passo fu max	1.7		18.0		1.5		18.0	
Scarto di divisione Rp	4.5				5.9			
Err. globale di divisione Fp	19.2		50.0		23.8		50.0	
Err. cordale di divisione Fpz/8	7.2				10.5			

Centricità Fr (Ø-sfera =3mm) ⊙ : 24.9µm



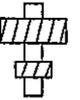
Err. di concentricità Fr		25.5	32.0
Variaz. spessore dente Rs			

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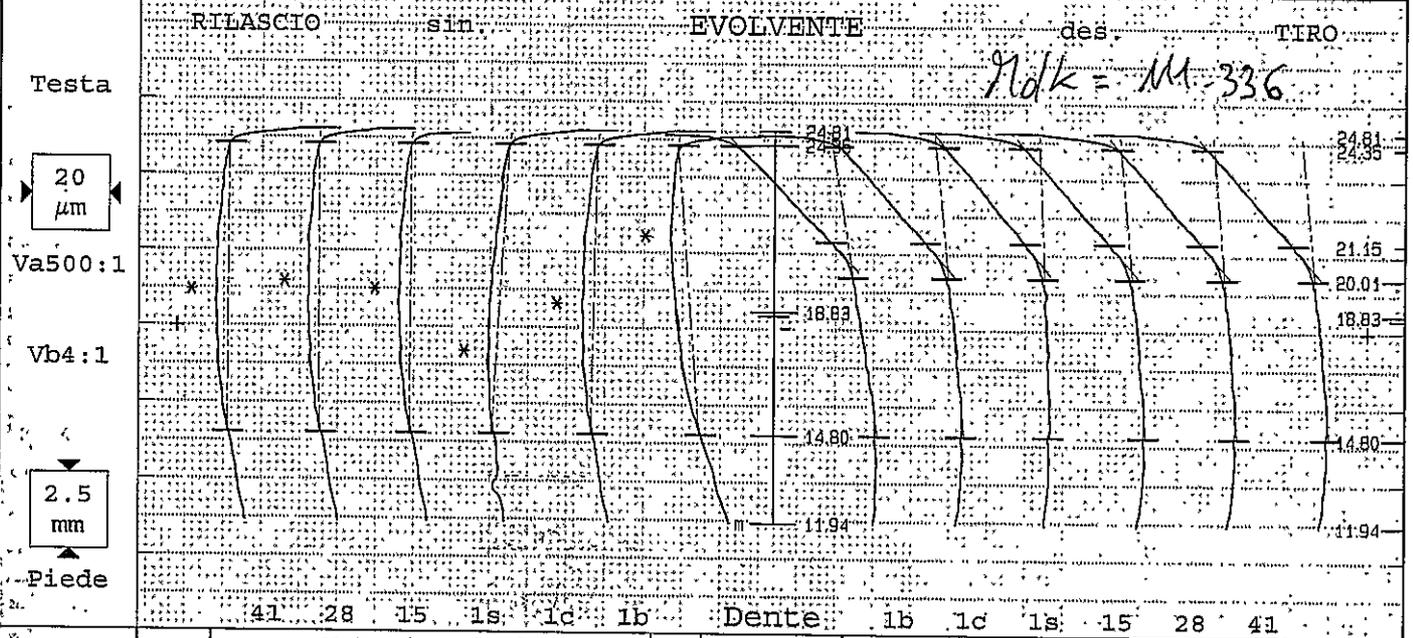


Docum. archiviato elettronicamente. Archiviazione cartacea non necessaria

Ruota cilindrica Evolvente/Elica



Nr. prog.: STI0412 06 0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017 12:55
Denominazione: DG 5 7 Gg		Numero denti z 53	Largh.fasc.dent. b 13.3mm
Numero disegno: D51.1.1220.35-IIF		Modulo m 1.75mm	Tratto evolv. La 9.55/5.21mm
Commessa/serie nr.: .D86- 5		Angolo pressione 17.5°	Tratto elica LE 10.64mm
Masch.Nr.: M001	Spindel: Forme	Angolo elica 30°	Inizio elab. M1 14.8mm
Untersuchungszweck: Laufende Messung		Ø Base db 100.6362mm	Palpatore Ø (#2) 1mm
Werkzeug:	Charge:	Ang. Base 28.48°	Fat.scor.pr. x 1



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual		
		Var a 1.8									Var a 1.5										
fHm	±6	-0.3								-10±6	-12.1	-7.7	-3.1	-6.8	-6.2	-7.1	-7.0				
fHa	±8	-0.3	-0.3	0.5	-0.1	-4.4	-1.3	5.8		-10±7	1.3	2.1	4.5	2.3	2.7	2.4	2.4				
Fa		2.9	2.8	2.7	2.7	5.2	3.5	7.2		5	1.3	1.2	1.2	1.1	1.3	1.3	1.2				
ffa	5	0.9	0.8	0.9	0.9	1.0	1.0	1.7			0.4	0.7	0.4	0.7	0.7	0.7	0.7				
Ca	1/5	3.0	3.1	2.9	3.0	2.5	3.0	3.9			-27/-19	-24.9	-25.4	-25.1	-25.5	-25.4	-25.2	-25.4			
Ca										3	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
ffa	3	0.0	0.1	0.0	0.1	1.1	0.0	0.2													
P/T-Ø [mm]		101.601	[101.48/101.8]									112.495	[112.44/112.7]								



Tolerance	Medio	Val. misur [µm]							Qual	Tolerance	Val. misur [µm]							Medio	Qual
		Var β 3.7									Var β 3.5								
fHsm	±4	-0.4								-20±4	Bd-11.6								
fHs	±8	-0.4	-0.3	-1.2	-1.8	-3.7	1.9	7.9		-20±8	Bd-11.7	-14.3	-19.6	-26.0	-22.2	-23.1	-21.7	-21.7	
fS		2.7	1.7	1.9	2.1	3.0	5.1	7.0			4.5	2.5	5.6	3.0	3.4	2.5	2.9		
ffa	5	0.7	0.7	0.7	0.7	0.9	0.8	0.8		5	0.6	0.6	1.8	0.7	0.7	0.8	0.7		
CB	1/5	2.4	2.4	2.5	2.2	1.5	2.4	3.3			1/5	2.7	2.8	1.7	2.0	2.0	2.0		

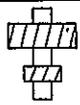
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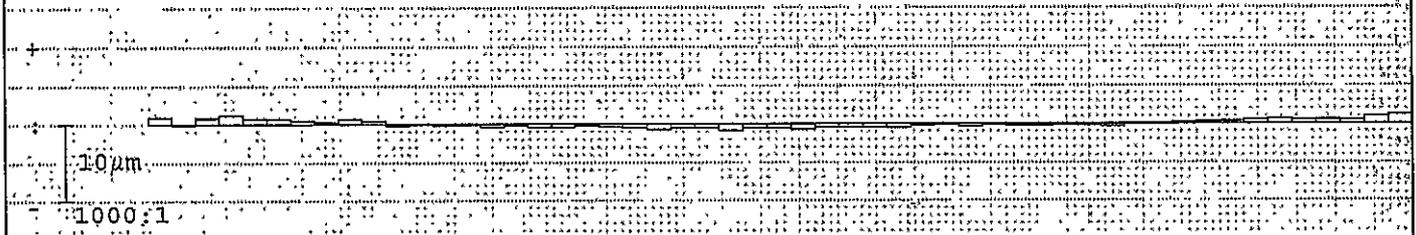


Ruota cilindrica Divisione

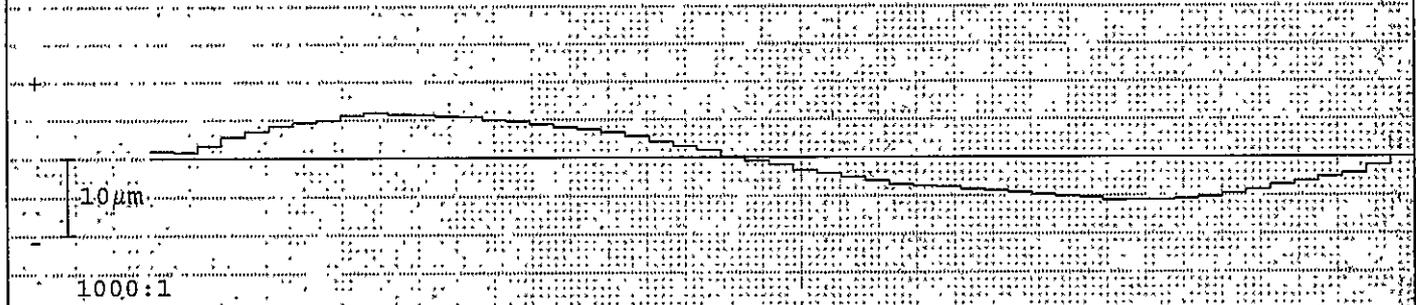


Nr. prog.: STI0412 06 0	PNC35 B4784	Controllore: Turno B	Data: 14.10.2017 12:55
Denominazione: DG 5 7 Gg		Numero denti z 53	Angolo pressione 17.5°
Numero disegno.: D51.1.1220.35-IIF		Modulo m 1.75mm	Angolo alica 30°
Commessa/serie nr.: .D86- 5		Untersuchungszweck: Laufende Messung	
Masch.Nr.: M001	Spindel: Formelwerkzeug	Charge:	

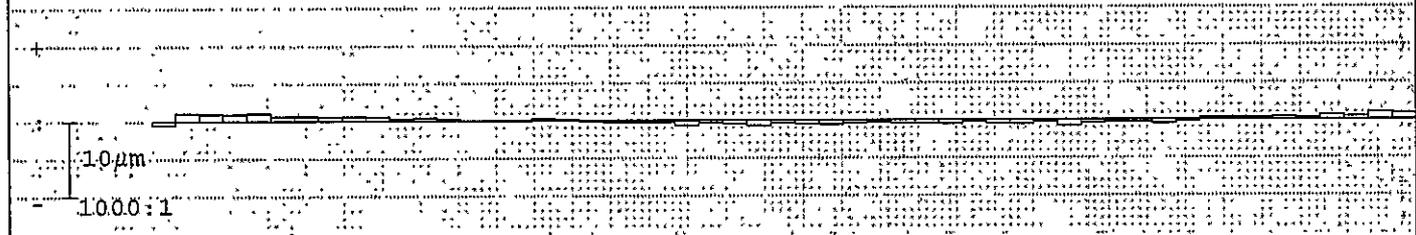
Errori singoli di divisione fp fianco sinistro



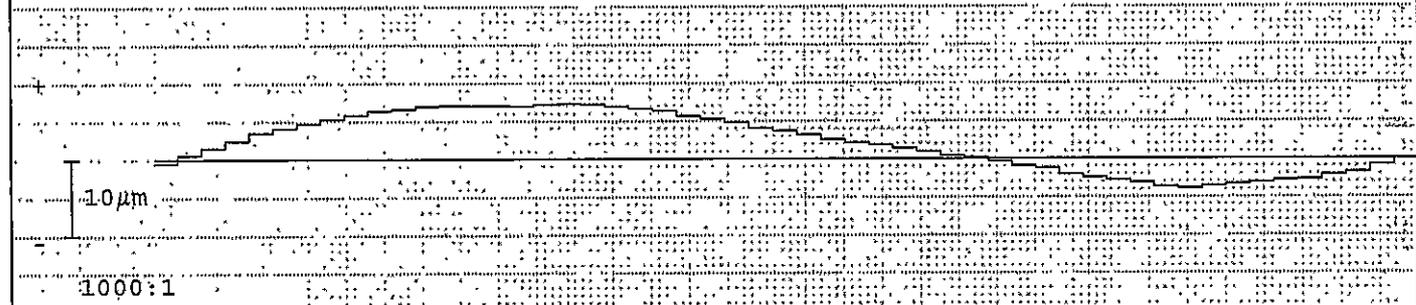
Errore somma di divisione Fp fianco sinistro



Errori singoli di divisione fp fianco destro

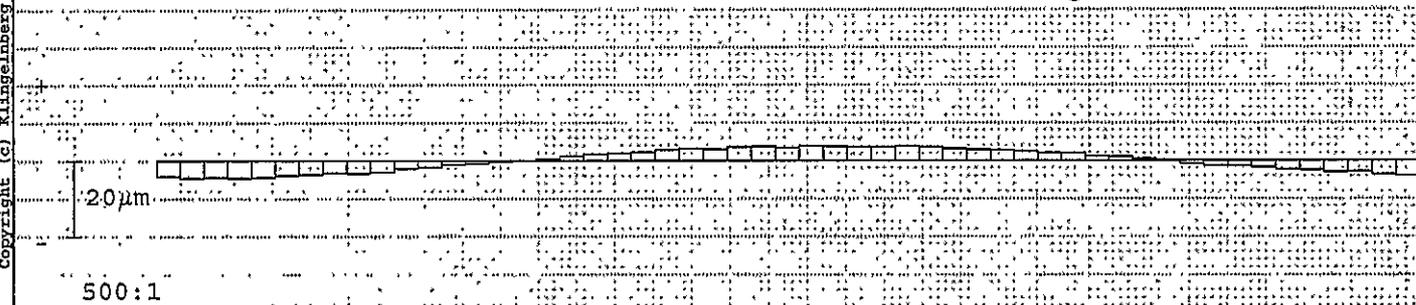


Errore somma di divisione Fp fianco destro



Corsa per misura divis.: 107.36 z=6.7mm	fianco sinistro / RILASCIO				fianco destro / TIRO			
	Val. misur	Qual.	Val. amm	Qual.	Val. misur	Qual.	Val. amm	Qual.
Gr. err. singoli divisione fp max	1.2		10.0		1.0		10.0	
Gr. salto di passo fu max	1.0		12.0		1.6		12.0	
Scarto di divisione Rp	2.1				1.8			
Err. globale di divisione Fp	11.5		32.0		11.2		32.0	
Err. cordale di divisione Fpz/8	5.6				5.7			

Centricità Fr (Ø-sfera =3mm) Ⓞ : 8µm



Err. di concentricità Fr	8.4	22.0	
Variab. spessore dente Rs			

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REPORT 17/187

Date: 21/10/2017
Author: Signorile Riccardo

Reason for analysis: PPAP
Motivo dell'indagine:

Requester: WLQ - S.Picerno
Richiedente:

Part Name: DOUBLE GEAR 3rd-5th/7th
Nome particolare:
Material: GCG_805000_Part 2
Materiale:
State of part: Finished
Stato del particolare:

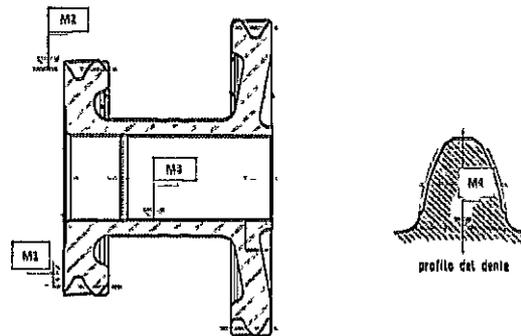
P/N: 251.1.1220.35
S/N: GCG_805000_Part 2
Customer: -
Cliente:

Result: OK
Risultato:

Distribution list: WLQ1 - S.Picerno
Lista di distribuzione:

Notes: New variant 21A
Note:

Drawing (Disegno)



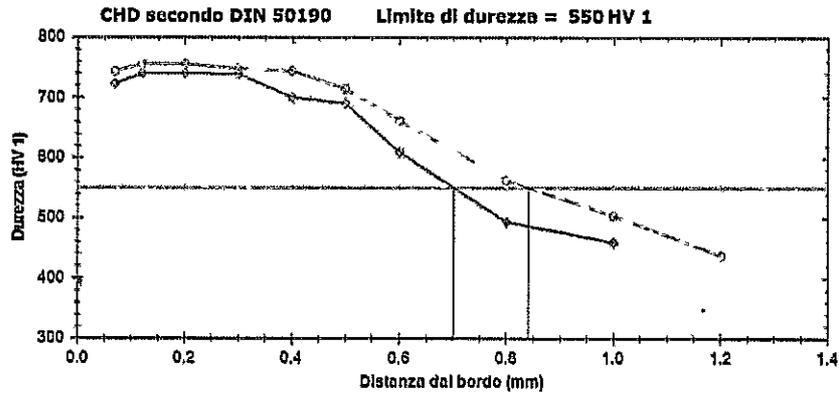
Picture 1: estratto del disegno del particolare, posizione dei punti di misura per le caratteristiche metallurgiche.

Surface Hardness Verification (Verifica Durezza Superficiale)

Scale	Position	Values [mm]	Range	Component
HRC	M1	61.8	-	Shaft
HRA	M1	81.2	80.5 + 2.5	Shaft

CHD Verification (Verifica CHD)

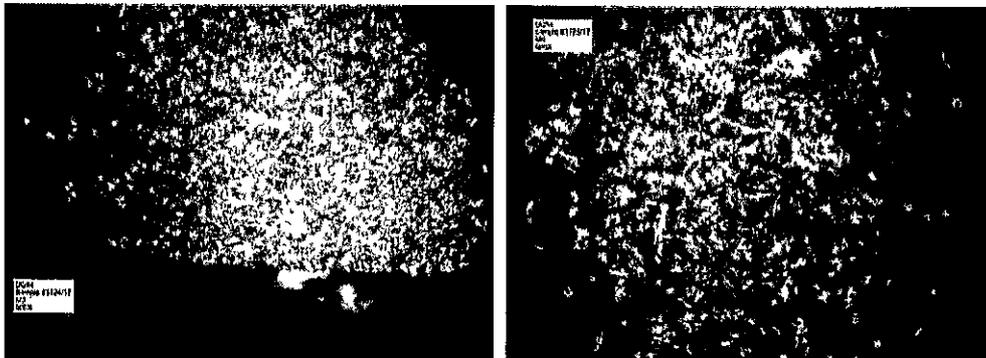
	Sample	Position	Measured Value	Range
CHD 550 HV1	3122/17	M2	0.84	0.5 + 0.4mm
CHD 550 HV1	3122/17	M3	0.70	min. 0.3mm
Core hardness HV10	3122/17	M4	393	≥ 300



Picture 2: profili di durezza.

Analysis at Metallographic Microscope (Analisi al Microscopio Metallografico)

Sample #	3124/17
Tooth flank surface structure:	Martensite <5% retained austenite (OK)
Tooth base core structure:	Martensite + bainite (OK)



Picture 3: Microstruttura sul fianco dente (a sinistra) ed a cuore sulla base dente (a destra), ingrandimento 500x.

REPORT 18/009

Date: 04/01/18
Author: R. Padolecchia

Reason for analysis: PPAP
Motivo dell'indagine: G_904340-2 part compliance control

Requester: WLQ - Stefano Picerno
Richiedente:

Part Name: 7 DCT 300 gearset - 21A variant
Nome particolare:
Material: GCG_805000 Part 2
Materiale:
State of part: Finished
Stato del particolare:

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

Result: OK
Risultato:

Distribution list: WLQ - S. Picerno
Lista di distribuzione: ME - L. Landriscina

Notes:
Note:
Spray equipment: Flushing cabinet Hydac CTU-1230-M-Z-R
Spray method: QPS 130033 (gears)
QPS 130034 (shafts)
Membrane material: cellulose nitrate
Pore size [mm]: 5,0

Cleanliness Analysis (Analisi della Pulizia)

Part	P/N	Washing Machine	Detergent	Sampling date	Wetted surface [cm ²]	Gravimetric evaluation [mg/1000cm ²]	Max Allowable [mg/1000cm ²]
SG1	251.1.1081.50	ORE 11033	NC 3300	21/12/17	627.41	0.70	2.5
DG	251.1.1223.50	ORE 11033	NC 3300	18/12/17	613.40	1.40	2.5
SG3	251.1.1225.50	ORE 11033	NC 3300	21/12/17	401.6	1.80	2.5
SG4	251.1.1226.50	ORE 11033	NC 3300	21/12/17	344.46	1.05	2.5
SG5	251.1.1228.50	ORE 11033	NC 3300	20/12/17	340.18	1.16	2.5
SG6	251.1.1230.50	ORE 11033	NC 3300	20/12/17	277.62	1.02	2.5
SG7	251.1.1232.50	ORE 11033	NC 3300	20/12/17	152.64	0.85	2.5
REV	251.1.1094.50	ORE 11033	NC 3300	02/01/18	434.08	1.04	2.5
RG	251.1.1080.50	ORE 11033	NC 3300	02/01/18	1036.22	1.25	2.5
DG_Fix	251.1.1220.35	ORE 11033	NC 3300	02/01/18	561.69	1.55	2.5
IS1	251.6.1073.35	ORE 11033	NC 3300	03/01/18	416.99	2.03	2.5
IS2	251.6.1218.35	ORE 11033	NC 3300	03/01/18	671.89	1.09	2.5
OS1	251.6.1076.35	ORE 11033	NC 3300	04/01/18	610.51	1.98	2.5
OS2	251.6.1078.35	ORE 11033	NC 3300	04/01/18	514.21	1.51	2.5

Part Submission Warrant

No. 020334 V 01

Part Name: <u>Doppelfestrad 3.-5./7. Gang</u>		Part Number: <u>251.1.1220.80</u>	
Safety and/or Government Regulation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Engineering Drawing Change Level: <u>T72514</u>	Dated: <u>12/04/2017</u>
Additional Engineering Changes: <u>SEI Nr. 020334-90A Ind. --</u>		Dated: <u>10/07/2017</u>	
Shown on Drawing No.: <u>251.1.1220.80</u>	Purchase Order No.: <u>4500476604 / 13.04.2017</u>	Weight (kg): <u>1.498</u>	
Checking Aid No.: <u>-</u>	Engineering Change Level: <u>-</u>	Dated: <u>-</u>	
SUPPLIER MANUFACTURING INFORMATION		SUBMISSION INFORMATION	
SEISSENSCHMIDT AG		<input checked="" type="checkbox"/> Dimensional <input checked="" type="checkbox"/> Materials/Functional <input type="checkbox"/> Appearance	
Supplier Name: <u>Daimlerstrasse 11</u>	Supplier Code: <u>91001108</u>	Customer Name/Division: <u>Getrag S.p.A.</u>	
Street Address: <u>Plettenberg</u>		Buyer/Buyer Code: <u>Herr Werner Straub</u>	
<u>D</u>	<u>58840</u>	Application: <u>251 er Getriebe</u>	
City: <u>Plettenberg</u>	State: <u>D</u>	Zip: <u>58840</u>	
Note: Does this part contain any restricted or reportable substances?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Are polymeric parts identified with appropriate ISO marking codes?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Submitted IMDS ID No: <u>698105531</u>			
REASON FOR SUBMISSION			
<input checked="" type="checkbox"/> Initial Submission		<input type="checkbox"/> Change to Optional Construction or Material	
<input type="checkbox"/> Engineering Change(s)		<input type="checkbox"/> Sub-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	
REQUESTED SUBMISSION LEVEL (Check one)			
<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 type="checkbox"/> Level 3 - Warrant with product samples and complete supporting data submitted to customer.			
<input checked="" 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 supplier's manufacturing location.			
SUBMISSION RESULTS			
The results for <input checked="" type="checkbox"/> dimensional measurements <input checked="" type="checkbox"/> material and functional tests <input type="checkbox"/> appearance criteria <input checked="" 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 _____			
DECLARATION			
I hereby affirm that the samples represented by this warrant are representative of our parts, have been made to the applicable Production Part Approval Process Manual 4 th Edition Requirements. I further warrant these samples were produced at the production rate of _____ / 8 hours. I have noted any deviations from this declaration below.			
EXPLANATION/COMMENTS: _____			
Print Name: <u>Suliani / Schmidt-Lotz</u>	Title: <u>QM</u>	Phone No.: <u>02391 915 2103</u>	E- <u>a.suliani@seissenschmidt.com</u>
Supplier Authorized Signature: <u>i.A. Suliani</u>		mail: <u>h.schmidt-lotz@seissenschmidt.com</u>	Date: <u>06/11/2017</u>
FOR CUSTOMER USE ONLY (IF APPLICABLE)			
Part Warrant Disposition: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Other		Part Functional Approval: <input type="checkbox"/> Approved <input type="checkbox"/> Waived	
Customer Name: <u>Wadim Felde</u>	Customer Signature: <u>W. Felde</u>		Date: <u>07.11.2017</u>

The original copy of this document shall remain at the suppliers location while the part is active.

Optional: customer tracking number:

