

Part Name INPUT SHAFT OUTER		Customer Part Number 250.6.4285.35	
Shown on Drawing No. 250.6.4285.35		Organization Part # _____	
Engineering Change Level F Index (j)		Dated 22-ott-14	
Additional Engineering Changes _____		Dated _____	
Safety and/or Government Regulation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Purchase Order No. _____	
		Weight (kg) 1,520	
Checking Aid No. _____		Checking Aid Engineering Change Level _____	
		Dated _____	
ORGANIZATION MANUFACTURING INFORMATION		CUSTOMER SUBMITTAL INFORMATION	
GETRAG MODUGNO		Renault	
Organization Name & Supplier/Vendor Code _____		Customer Name/Division _____	
VIA DEI CICLAMINI N°4		Renault	
Street Address _____		Buyer/Buyer Code _____	
MODUGNO BARI 70026 ITALY		TYP 250	
City	Region	Postal Code	Country
MODUGNO	BARI	70026	ITALY
MATERIALS REPORTING			
Has customer-required Substances of Concern information been reported? Submitted by IMDS or other customer format:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> n/a	
Are polymeric parts identified with appropriate ISO marking codes?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> n/a	
REASON FOR SUBMISSION (Check at least one)			
<input type="checkbox"/> Initial Submission		<input type="checkbox"/> Change to Optional Construction or Material	
<input checked="" 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 checked="" type="checkbox"/> Other - please specify below	
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 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.			
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 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>2000</u> / <u>24</u> hours.			
I also certify that documented evidence of such compliance is on file and available for review. I have noted any deviations from this declaration below.			
EXPLANATION / COMMENTS: ripetizione per smarrimento documentazione precedente			
Is each Customer Tool properly tagged and numbered? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> n/a			
Organization Authorized Signature _____		Date <u>20/01/2015</u>	
Print Name Dario Tursi		Phone No. cell +39-393-9814554	
Title GPS 2 Leader		Fax No. _____	
		E-mail dario.tursi@getrag.com	
FOR CUSTOMER USE ONLY (IF APPLICABLE)			
Part Warrant Disposition: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Other			
Customer Signature _____		Date <u>20/01/15</u>	
Print Name _____		Customer Tracking Number (optional) _____	

DIMENSIONAL TEST RESULTS

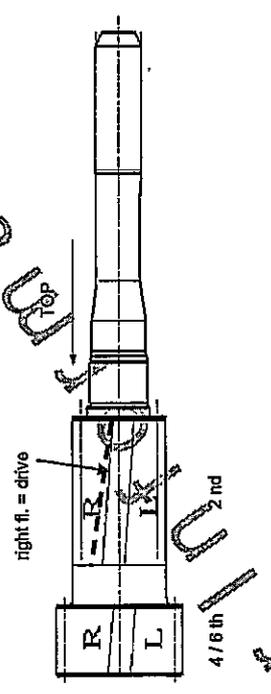
Organization: GETRAG Supplier/Vendor Code: GETRAG Modugno	Part Number: 250 6 4285 35 Part Name: INPUT 2 Design Record Change Level: F Index (j) 22/10/2014 Engineering Change Documents:
INSPECTION FACILITY: NA	
Organization Measurement Results (Data)	

Item	Dimension/Specification	Specification / Limits		Test Date	Qty. Tested	Organization Measurement Results (Data)					Test distruttivo	Ok	Not Ok
		1	2			3	4	5					
1	Distanza 84,8 ± 0,1	84,6	84,8		5	rif. 3651							
2	Distanza 70,95 ± 0,1	70,85	71,05		5	rif. 3651							
3	Distanza 64,2 ± 0,2	64,00	64,40		5	rif. 3651							
4	Distanza 76.63 ± 0,25	76,4	76,9		5	rif. 3651							
5	Distanza 7 ± 0,3	6,7	7,3		5	rif. 3651							
6	Distanza 12 ± 0,2	12	12,2		5	rif. 3651							
7	Distanza 88.6 ± 0,2	88,400	88,800		5	rif. 3651							
8	Distanza 47 ± 0,3	46,7	47,3		5	rif. 3651							
9	MDK dentatura I	100,472	100,553		5	rif. 4231							
10	MDK dentatura II	49,643	49,712		5	rif. 4231							
11	∇ 0,032 A - B	-	32μ		5	rif. 4231							
12	∇ 0,028 A - B	-	28μ		5	rif. 4231							
13	Rz 4	-	4,0μ		5	rif. 3651							
	Rmax 8	-	8,0μ		5	rif. 3651							
14	Rz 4	-	4,0μ		5	rif. 4231							
	Rmax 8	-	8,0μ		5	rif. 4231							
15	Tip Diameter 100,5 -0,20 Z 52	100,3	100,5		5	rif. 4231							
16	Root Diameter 90,2 -0,40 Z 52	88,8	90,2		5	rif. 4231							
17	Tip Diameter 51,6 -0,26 Z 21	51,34	51,6		5	rif. 3651							
18	Root Diameter 40,3 -0,45 Z 21	39,85	40,3		5	rif. 3651							
19	∇ 0,040 A - B	-	40μ		5	rif. 3880							

Toothing microgeometry validated by standard measurement report

SIGNATURE	TITLE	DATE
G. Cicirelli	QPE	16/01/2015

STIRNRAD		Toleranzen der Verzahnung (DIN 3961 vom Aug. 1978)				(8)	
GEAR		gültig für Werte am Einzelzahn				Tolerances of gearing (DIN 3961 of Aug. 1978)	
valid for values at individual tooth		linke Fl.	rechte Fl.	linke Fl.	rechte Fl.		
Zähnezahl	z						
Modul	m_n						
Eingriffswinkel	α_n						
Schrägungswinkel	β						
Steigungsrichtung							
Hand of helix							
Profilverstärkungsfaktor	x						
Addendum modification coeff.							
Teilkreisdurchmesser	d						
Pitch diameter							
Kopfkreisdurchmesser	d_a						
Outside diameter							
Kopfnutkreis, theo. max. d_{ka}							
Tip diam. usable theo.							
Kopfnutkreis, theo. min. d_{ka}							
Tip diam. usable theo.							
Fußkreisdurchmesser	d_f						
Root diameter							
Fußnutkreisdurchmesser d_{kf}							
Root diameter usable							
Grundkreisradius	r_b						
Base circle radius							
Grundkreisdurchmesser	d_b						
Base diameter							
Normalzähndicke	max. s_n						
Normal tooth thickness							
Normalzähndicke	min. s_n						
Normal tooth thickness							
Meßzähnezahl	k						
Number of teeth spanned							
Zahnweite	max. w_k						
Base tangent length							
Zahnweite	min. w_k						
Base tangent length							
Meßkugeldurchmesser	D_M						
Ball diameter							
Diam. Zweikugelmaß max. M_{2k}							
Measurement o. balls							
Diam. Zweikugelmaß min. M_{2k}							
Measurement o. balls							
Verdrehtflankenspiel theo.	0.064						
Circumferential backlash	0.173						



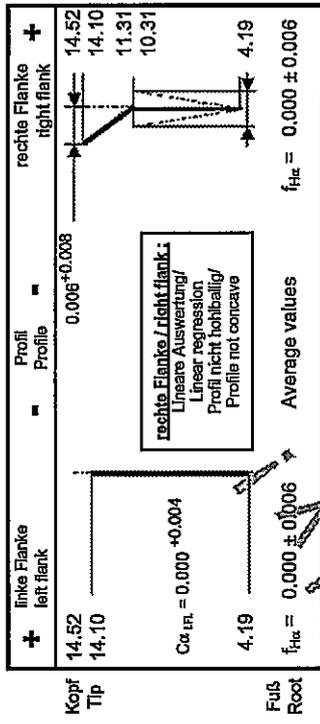
Hohndurchmesser = 42.67 -0.30 = 3.27 honing diameter

Der Verlauf der Profil- und Flankenlinie muss über den Messbereich stetig sein (ein- oder mehrfache Richtungsänderungen sind nicht zulässig)
 # The form of the profile and helix has to be continuous (one or more changes of directions are not allowed)

Für fp max. zwei Wellen zulässig
 For fp max. two waves allowed

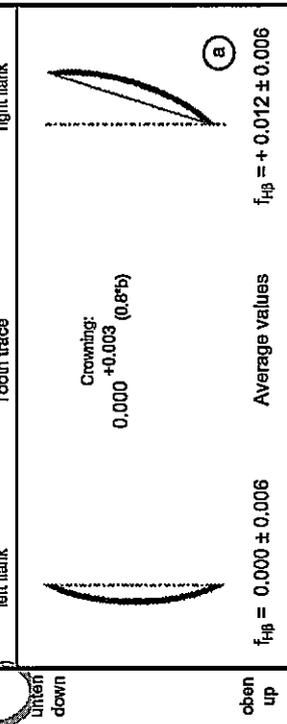
Vorbereitungsdaten, siehe Verzahnungsblatt Vorbearbeitung gleicher Nr.
 For pre-machining dimensions, see gear data sheet same number

Wkz-Profil siehe Werkzeugdatenblatt Nr. 250.6.4285.35
 For Tooth profile, see tool data sheet number



$f_{Hc} = 0.000 \pm 0.006$
 $f_{Hc} = 0.000 \pm 0.006$
 Average values
 $f_{Hc} = 0.000 \pm 0.006$

* Schiebbeginn
 * Start of checking
 $\phi = 42.67 -0.30 = 3.27$

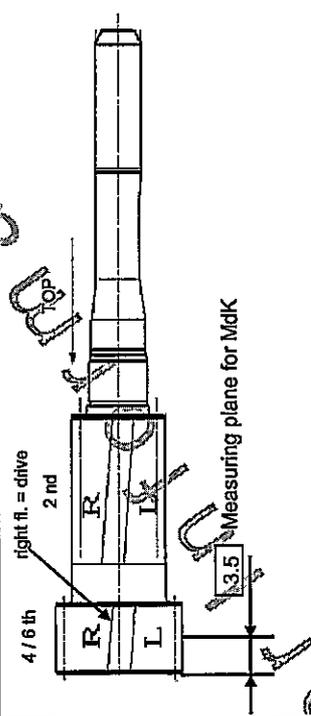


$f_{Hp} = 0.000 \pm 0.006$
 Average values
 $f_{Hp} = +0.012 \pm 0.006$

* f_{Hc} (zwischen d_{kf} und dem Schneidbeginn d_s) max f_{Hc2} , jedoch 0.003 zulässig
 * f_{Hc} (between d_{kf} and start of checking d_s) max f_{Hc2} , 0.003 allowable.
 Profil- und Flankenlinieprüfung nach VDI/VDE 2612
 Tabellenwerte für f_p und f_{Hp} sind auf die gesamte Radbreite im Meßkreis d_M bezogen
 Flankenlinieprüfbereich $L_p = 0.6^*b$ hochgerechnet auf 1.0^*b
 Begriffe für Stirnräder nach DIN 868, 3960, 3968
 Profile and helix checking according to VDI/VDE 2612
 Listed tolerance data for f_p and f_{Hp} refers to the total face width in the meas. dia. d_M
 Tooth trace testing area $L_p = 0.6^*b$ calculated to 1.0^*b
 Terms of the tooth system according to DIN (German Industrial Standards) No. 868, 3960, 3968

Verteiler:		Schutzvermerk nach ISO 16016 beachten Protection per ISO 16016	
Buch, Anz.		202022	
Änd.Nr.		Paßßen	
Abbildungen sind unmaßstäblich. Diagrams not to scale.		Ersatz für Eretwendung bei Getriebearten:	
Datum		250	
Name		Verzahnungsblatt Endkontrolle	
gez.		Final Check Gear Data	
gepr.		Benennung: Näherung:	
Input Shaft Outer 2nd		Zeichnungsnummer: Drawing number:	
250.6.4285.35		250.6.4285.35	

STIRNRAD		Toleranzen der Verzahnung (DIN 3961 vom Aug. 1978)		(8)	
GEAR		Tolerances of gearing (DIN 3961 of Aug. 1978)		valid for values at individual tooth	
Zähnezahl Number of teeth	z	linke Fl. left flank	rechte Fl. right flank	f_{pa}	0.014
Modul Normal module	m_n	f_{pa}	f_{pb}	f_p	0.014
Eingriffswinkel Normal pressure angle	α_n	f_{pa}	f_{pb}	f_{pk}	0.018
Schrägungswinkel Helix angle	β	f_{pa}	f_{pb}	F_r	0.032
Steigungsrichtung Hand of helix	RIGHT	f_{pa}	f_{pb}	R_s	
Profilverschiebungsfaktor Addendum modification coeff.	x	f_{pa}	f_{pb}	F_r	0.040
Teilkreisradius Pitch diameter	d	f_{pa}	f_{pb}	R_s	0.016
Kopfkreisradius Outside diameter	d_a	f_{pa}	f_{pb}	F_r	15.16
Kopfnutkreisradius Tip diam. usable theo.	d_{a1}	f_{pa}	f_{pb}	R_s	
Kopfnutkreisradius Tip diam. usable theo.	d_{a2}	f_{pa}	f_{pb}	F_r	
Fußkreisradius Root diameter	d_f	f_{pa}	f_{pb}	R_s	
Fußnutkreisradius Root diameter usable	d_{f1}	f_{pa}	f_{pb}	F_r	
Grundkreisradius Base circle radius	d_b	f_{pa}	f_{pb}	R_s	
Grundkreisradius Base circle radius	d_{b1}	f_{pa}	f_{pb}	F_r	
Normalzähndicke Normal tooth thickness	s_n	f_{pa}	f_{pb}	R_s	
Normalzähndicke Normal tooth thickness	s_{n1}	f_{pa}	f_{pb}	F_r	
Maßzähnezahl Number of teeth spanned	k	f_{pa}	f_{pb}	R_s	
Zahnweite Base tangent length	W_k	f_{pa}	f_{pb}	F_r	
Zahnweite Base tangent length	W_{k1}	f_{pa}	f_{pb}	R_s	
Maßkugeldurchmesser Ball diameter	D_M	f_{pa}	f_{pb}	F_r	
Maßkugeldurchmesser Measurement o. balls	D_{M1}	f_{pa}	f_{pb}	R_s	
Maßkugeldurchmesser Measurement o. balls	D_{M2}	f_{pa}	f_{pb}	F_r	
Vertriebsflankenpiel Circumferential backlash	theo.	f_{pa}	f_{pb}	R_s	

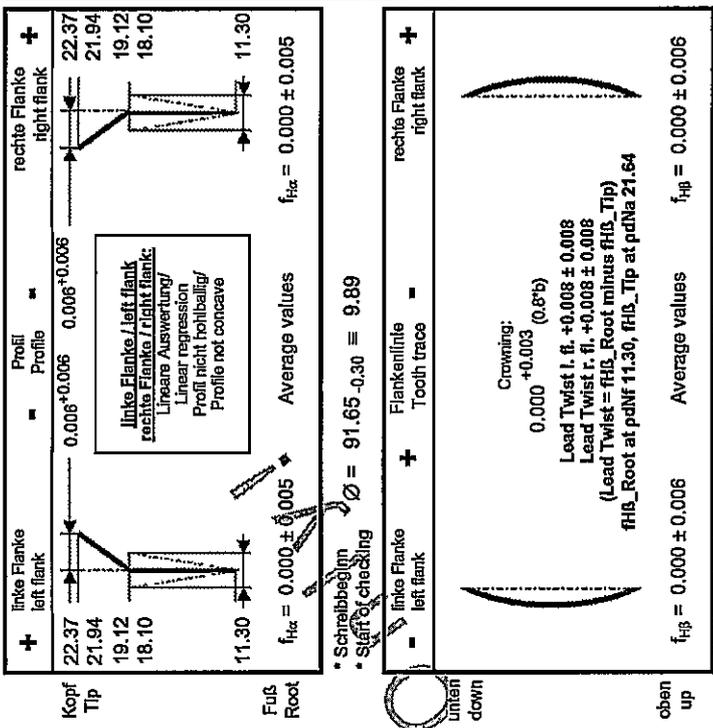


Der Verlauf der Profil- und Flankenlinie muss über den Messbereich stetig sein (einer oder mehrere Richtungsänderungen sind nicht zulässig)
 # The form of the profile and helix has to be continuous (one or more changes of directions are not allowed)

Für f_p max. zwei Wellen zulässig
 For f_p max. two waves allowed

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

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



linke Flanke / left flank
 rechte Flanke / right flank
 Profil / Profile
 linke Flanke / left flank
 rechte Flanke / right flank
 Profil / Profile
 Lineare Auswertung / Profile not concave
 Average values
 $f_{fix} = 0.000 \pm 0.005$
 • Schrägbeginn / Start of checking
 $\varnothing = 91.65 -0.30 = 8.89$
 • Flankenlinie / Tooth trace
 Flankenlinie / Tooth trace
 Crowning:
 $0.000 +0.003 (0.6^*b)$
 Lead Twist l. fl. $+0.008 \pm 0.008$
 Lead Twist r. fl. $+0.008 \pm 0.008$
 (Lead Twist = f_{HIS_Root} minus f_{HIS_Tip})
 f_{HIS_Root} at pd_{HIS} 11.30, f_{HIS_Tip} at pd_{HIS} 21.64
 Average values
 $f_{HIS} = 0.000 \pm 0.006$

Verteiler:	
Schutzvermerk nach ISO 18018 beachten Protection per ISO 18018	
GETRAG	
GETRAG Getriebe- und Zahnradfabrik Hermann Hagemeyer GmbH & Co. KG	
Remark:	
Ersatz für Ersetzverwendung bei Getriebeypen:	250
Datum	2011-03-02
Name	Paassen, Holger
Verzahnungsblatt Endkontrolle Final Check Gear Data	
Benennung: Nennung:	Input Shaft Outer 4/6 th

Buch.	Anz.	Änd.Nr.
Abbildungen sind unmaßstäblich. Diagrams not to scale.		

250.6.4285.35