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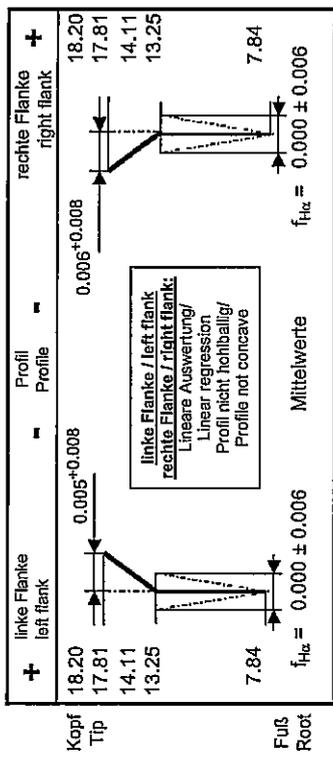
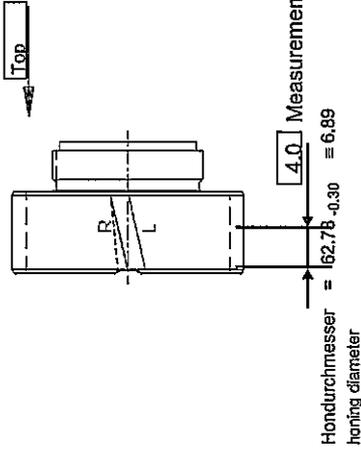


Part Submission Warrant

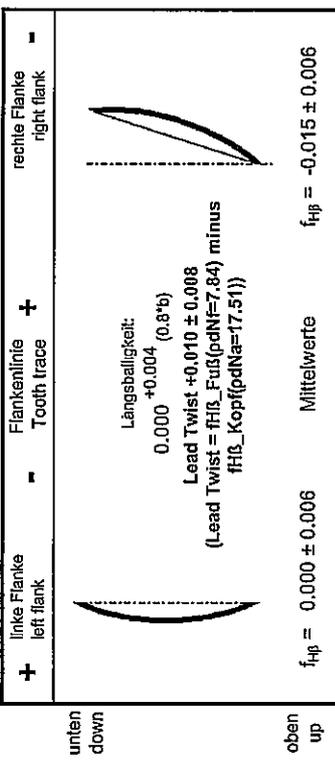
| | | | |
|--|---|--|---------|
| Part Name Speed Gear 6 | | Customer Part Number 250.1.3647.38 | |
| Shown on Drawing No. 250.1.3647.38 | | Organization Part # _____ | |
| Engineering Change Level b C007260_MIP_1 | | Dated 11-gen-17 | |
| Additional Engineering Changes: _____ | | Dated _____ | |
| Safety and/or Government Regulation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Purchase Order No. _____ | Weight (kg) 0.3700 | |
| Checking Aid No. _____ | Checking Aid Engineering Change Level _____ | Dated _____ | |
| ORGANIZATION MANUFACTURING INFORMATION | | CUSTOMER SUBMITTAL INFORMATION | |
| GETRAG MODUGNO | | Customer Name/Division _____ | |
| Organization Name & Supplier/Vendor Code _____ | | Buyer/Buyer Code _____ | |
| VIA DEI CICLAMINI N°4 | | DCT250 | |
| Street Address _____ | | Application _____ | |
| MODUGNO BARI | 70026 | ITALY | |
| City | Region | Postal Code | Country |
| MATERIALS REPORTING | | | |
| Has customer-required Substances of Concern information been reported? Submitted by IMDS or other customer format: | | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" 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 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 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: Drawing correction with standard Tip diameter tolerance used for topping machining (increased) | | | |
| 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 31/01/2017 | |
| Print Name Camarda Ettore | Phone No. tel 390805858220 | Fax No. _____ | |
| Title Area 1 Manager | E-mail ettore.camarda@magna.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 31.01.17 | |
| Print Name _____ | Customer Tracking Number (optional) _____ | | |

| STIRNRAD GEAR | | außenverzähnt external | | Toleranzfelder Verzahnung (DIN 3961 vom Aug. 1978) 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 | Eingriffstelligs-Abweich. Normal pitch error | f_{pb} 0.014 |
| Modul Normal module | m_h | | 0.009 | Teilungs-Einzelabweichung Adjacent pitch error | f_p 0.014 |
| Eingriffswinkel Normal pressure angle | α_n | | | Teilungssprung Diff. bet. adjacent pitches | f_g 0.018 |
| Schrägungswinkel Helix angle | β | | | Teilungs-Summenabweich. Cumulative circ. pitch error | F_{pk} |
| Steigungsrichtung Hand of helix | LINKS | | | Rundlaufabweichung Radial run-out | F_r 0.032 |
| Profilverschiebungsfaktor Addendum modification coeff. | x | | | Zahndickenschwankung Range of tooth thckn. error | R_s |
| Teilkreisdurchmesser Pitch diameter | d | | 0.009 | Teilungs-Gesamtabweich. Longitudinal alignment err. | F_p |
| Kopfkreisdurchmesser Outside diameter | d_a | | 0.050 | Zweifel-Wälzabweichung Radial composite error | F_r 0.040 |
| Kopfnutkreisd. theo. max. d_{ka} Tip diam. usable theo. | | | | Zweifel-Wälzsprung Radial tooth to tooth comp. err. | f_r 0.016 |
| Kopfnutkreisd. theo. min. d_{ka} Tip diam. usable theo. | | | | Meßkreis Krümmungsradius ρ_{dM} Radius of curvature meas. diam. | ρ_{dM} 12.25 |
| Wälzkreisdurchmesser Foot diameter | d_f | | 17.40 | | |
| Fußnutkreisdurchmesser Root diameter | d_{fr} | | | | |
| Grundkreisradius Base circle radius | r_b | | | | |
| Grundkreisdurchmesser Base diameter | d_b | | | | |
| Normalzahnstärke Normal tooth thickness | max. s_n | | | | |
| Normalzahnstärke Normal tooth thickness | min. s_n | | | | |
| Meßzahnstärke Number of teeth spanned | k | | | | |
| Zahnweite Base tangent length | max. W_k | | | | |
| Zahnweite Base tangent length | min. W_k | | | | |
| Meßkugeldurchmesser Ball diameter | D_M | | | | |
| Diam. Zweikugelmaß Measurement o. balls | max. M_{2k} | | | | |
| Diam. Zweikugelmaß Measurement o. balls | min. M_{2k} | | | | |
| Verdrehfankenspiel Circumferential backlash | theo. 0.069 0.172 | | | | |

Right Fl. = Drive



* Schreibbeginn
* Start of checking
 $\varnothing = 62.78_{-0.30} \approx 6.89$



* Plusabweichung des bis zum Schreibbeginn verlängerten vermittelnden Ist-Profiles max $f_{hp}/2$
* Plus deviation of the average profile, extended to the start of checking, max $f_{hp}/2$

Profil- und Flankenlinienprüfung nach VDI/VDI 2612
Tabellenwerte für F_p und f_{hp} sind auf die gesamte Radbreite im Meßkreis d_M bezogen
Flankenlinienprüfbereich $L_f = 0.8 \cdot b$ hochgerechnet auf $1.0 \cdot b$
Begriffe für Stirnrad nach DIN 888, 3960, 3998

Profile and helix checking according to VDI/VDI 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 $L_f = 0.8 \cdot b$ calculated to $1.0 \cdot b$
Terms of the tooth system according to DIN (German Industrial Standards) No. 888, 3960, 3998

| Verteiler: | | Schutzvermerk nach DIN 34 beachten | |
|---|--------------------|--|----------|
| Buch. | 1 | 201017 | Cricenti |
| Anz. | See CO | Datum | Name |
| Änd.Nr. | | | |
| Abbildungen sind unmaßstäblich. Diagrams not to scale. | | Ersatz für Erstverwendung bei Getriebebaupl. | |
| 250.0.0003.10 | | 250.0.0003.10 | |
| Datum | Name | Verzahnungsblatt Endkontrolle | |
| gez. 2014-05-08 | Cricenti, Fabrizio | Final Check Gear Data | |
| gepr. | | Bezeichnung Name | |
| | | Schaltrad 6 Gg | |
| Zeichnungsnummer Drawing number | | 250.1.3647.38 | |

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

Wkz-Profil siehe Werkzeugdatenblatt Nr. 250.1.3647.38
For Tooth profile, see tool data sheet number

Ruota cilindrica Evolvente/Elica



| | | | |
|--------------------------------------|------------------|-------------------------|-----------------------------|
| Nr. prog.: STI0412 06 0 | P26 B7590 | Controllore: turno a | Data: 31.01.2017 13:07 |
| Denominazione: SR6 | | Numero denti z: 33 | Largh.fasc.dent. b: 15.66mm |
| Numero disegno.: 250.1.3647.38-ICA | | Modulo m: 1.75mm | Tratto evolv. La: 5.41mm |
| Commessa/serie nr.: 5 | | Angolo pressione: 17.5° | Tratto elica Ls: 12.53mm |
| Masch.Nr.: M001 | Spindel: FORMULA | Angolo elica: -27.3° | Inizio elab. M1: 7.84mm |
| Untersuchungszweck: Laufende Messung | | Ø Base db: 61.2474mm | Palpatore Ø (#2C): 1mm |
| Werkzeug: | Charge: | Ang. Base: -25.94° | Pat.scor.pr. x: .542 |

| | |
|-------------------|-------------|
| Testa-Ø: 71.508mm | 71.34/71.61 |
| TIRO | |

| | |
|--|-----|
| | VDT |
|--|-----|



Drawing 3647 update from index "a" to "b"
Gear Data update from index "-" to "a"

Short description:

| | | | | |
|---|----|--------------|---|----------|
| b | 1x | 007260_NIP_1 | VIEW NAME: Kopfkreis-Ø/TIP DIAMETER Ø71.6-0.26 Wsp./WAS Ø71.6-0.16 | 20170111 |
|---|----|--------------|---|----------|

| PPAP Requirements | | | Required | Note for ind. "b" | PPAP Docs updated |
|--------------------|--|--|----------|--|-------------------|
| 1 | Design Records | | Yes | | Yes |
| 2 | Authorized Engineering change documents | | Yes | see dwg | Yes |
| 3 | Customer Engineering approval | | n.a. | | |
| 4 | DFMEA | | NO | | |
| 5 | Process flow diagram(s) | | NO | | |
| 6 | PFMEA | | NO | only drawing correction with increased tolerance | |
| 7 | Control plan | | Yes | Correlation sheet change | Yes |
| 8 | Measurement system analysis studies | | NO | | |
| 9 | Dimensional results | | Yes | | Yes |
| 10 | Records of Material / Performance test results | | NO | | |
| 11 | Initial process studies | | NO | | |
| 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 | | NO | | |
| 3 | PSW Engagement Rings | | NO | | |

