



Absolute Gear Arm

Hexagon solution in niche market

Where do we find the applications ?

=> Check the business in your area. Some of them might be next door.



AbsoluteGear ARM



Available Standards:

DIN 3962 + VDI

ISO 1328-1

AGMA 2000-8

AGMA 2015-1

JIS 1702

CNOMO-G

**Customer spec.: Caterpillar, Daimler,
Eurocopter.....**



Quindos GEAR - Evaluation

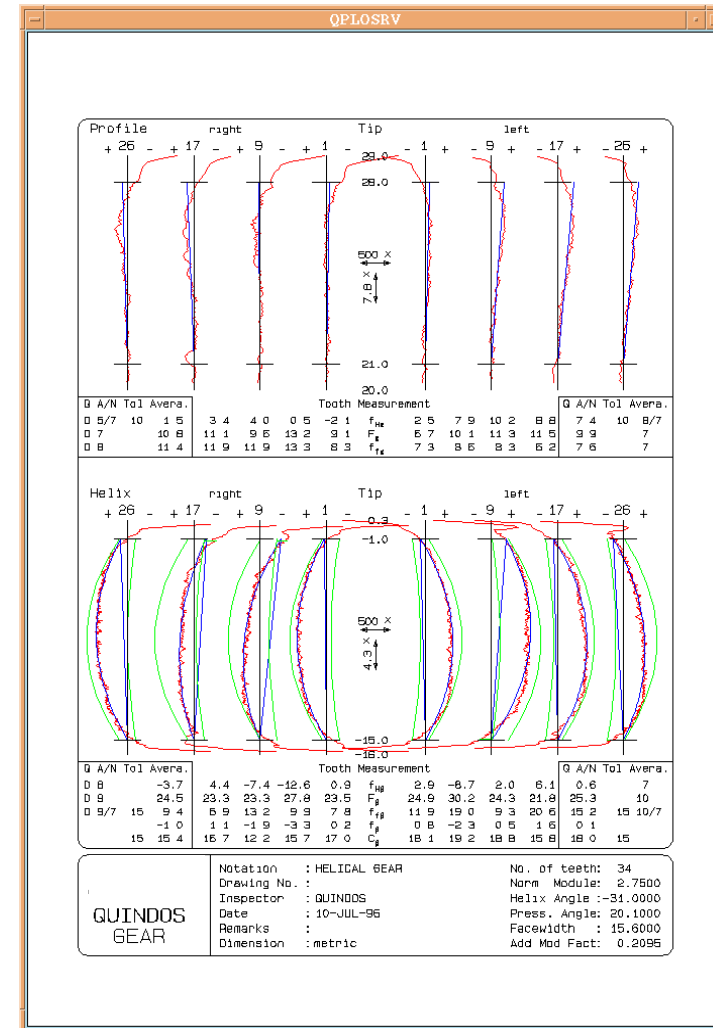
Profile + Helix

Profile (involute)

- Profile slope deviation $f_{H\alpha}$
- Total profile deviation F_{α}
- Profile form deviation $f_{f\alpha}$
- Profile crowning C_{α}
- Tip relief (VDI/VDE 2607)
- Root relief (VDI/VDE 2607)
- K-chart evaluation
- Pressure angle modification

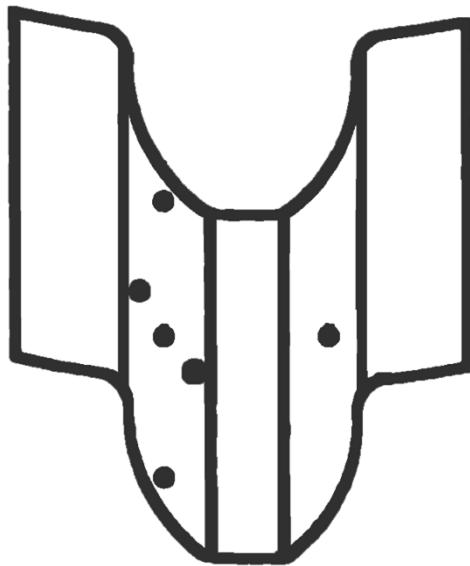
Helix

- Helix slope evaluation f_{HB}
- Total helix deviation F_B
- Helix form deviation f_{fB}
- Helix crowning C_B
- End relief (VDI/VDE 2607)
- K-chart Evaluation
- Helix angle modification



Quindos GearXY

Determination of unknown Gear



Strategy

- Define gear axis
- 1x probing at tip circle
- 1x probing at root circle
- 1x probing at upper and lower face
- 6 points at gear flank
 - 5 at one flank
 - 1 point at opposite flank

Results

- Normal module
- Pressure angle
- Helix angle
- Addendum modification factor
- Crowning of profile and helix
- Tip circle diameter
- Root circle diameter
- Gear width

Quindos GEAR – PTB (German National Institute) certified

Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

PTB

Bericht
Report

Gegenstand:
Object: Testdaten für evolventische Zylinderradauswertungen
Test data for cylindrical involute gear algorithms.

Hersteller:
Manufacturer: Letz Messtechnik GmbH
Siegfried-Hilpe-Str. 2-12
35578 Wetzlar

Typ:
Type: QUINDOS 4304

Gerätenummer:
Serial number: —

Antragsteller:
Applicant: Letz Messtechnik GmbH
Siegfried-Hilpe-Str. 2-12
35578 Wetzlar

Anzahl der Seiten des Berichtes:
Number of pages of the report: 4

Geschäftszeichen:
Reference No: PTB-5.33-04.046

Prüfzeichen:
Test mark: —

Datum der Prüfung:
Date of test: 2004-09-02

Im Auftrag:
By order: Braunschweig, 2004-09-24

Bearbeiter:
Examiner: *Frank Härtig*
Dr.-Ing. Frank Härtig

F. Wäldele
Dr.-Ing. Franz Wäldele
Direktor und Professor

Siegel
Seal

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Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin

PTB

Seite 3 zum Bericht vom, 2004-09-24 Geschäftszeichen: PTB-5.33-04.046
Page 3 of report of Reference No.:

Scope
A software test is carried out by which gear evaluations for cylindrical involute gears are checked. The basis of this test is formed by reference datasets and reference algorithms of the PTB.

Conditions
The test comprises the gear measurements for:

Profile: total profile deviation, profile slope deviation, profile form deviation, profile crowning; form deviation in the root relief section, length of root relief, amount of root relief, form deviation in the section of tip relief, length of tip relief, amount of tip relief

Helix: total helix deviation, helix slope deviation, helix form deviation, crowning of flank line, form deviation in the end relief section of the reference side, length of end relief on reference side, amount of end relief in the section of reference side, form deviation in end relief section of non-reference side, length of end relief on non-reference side, amount of end relief in the section of the non-reference side

Pitch: adjacent pitch error, total pitch error

Runout
Dimension over spheres

The gear reference algorithms of the PTB are based upon the specifications of the relevant standards and guidelines [1, 2, 3, 4]

Procedure
The applicant received the reference data sets pro001g, pro002g, hel001, hel002, hel003, pitch003, pitch004, pitch005, pitch006 and accessory documents generated by PTB

According to the explanation of the applicant the reference data sets have been evaluated using the software specified in the report. For the evaluation the reference data have been used in the same way as measurement data is used on a gear measurement device. The parameter determined by the applicant have been compared to the reference values.

Results
For all measurement parameters, a maximum permissible error of $\pm 0,1 \mu\text{m}$ with regard to the reference values of PTB is permitted. The measurement results submitted lie within the tolerated range. The software test for gear evaluations for involute cylindrical gears is considered to have been passed.

References

- DIN 3960 Begriffe und Bestimmungsgrößen für Stirnräder (Zylinderräder) und Stirnradpaare (Zylinderradpaare) mit Evolventenverzahnung; 1987
- VDI/VDE 2607 Rechnergestützte Auswertung von Profil- und Flankenlinienmessungen an Zahnradern mit Evolventenprofil; 2000
- VDI/VDE 2621 Profil- und Flankenlinienprüfung an Zylinderrädern mit Evolventenprofil
- VDI/VDE 2613 Teilungs- und Rundlaufprüfung an Verzahnungen, Zylinderrädern, Schneckenrädern, Kegelhädern; 2003

Customer Reference list

Company	Market Segment	Country
Camco Engineering Pty Ltd	Gears	Australia
Hofmann Engineering Pty Ltd.	Gears	Australia
Interstaatliche Hochschule für Technik Buchs	Univercity	Swiss
BHT Bocholt	machine tool builder / gears	Germany
Corning GmbH	Automotive	Germany
Daimler AG / Truck Product Engineering	Automotive / truck development	Germany
Getriebetechnik Magdeburg GmbH	Gears	Germany
Getriebetechnik Magdeburg GmbH	Gears	Germany
Getriebetechnik Magdeburg GmbH	Gears	Germany
Liebherr Biberach GmbH	machine tool builder / gears	Germany
Liebherr Mischtechnik GmbH	machine tool builder / gears	Germany
MTM Maschinentchnik Moringen GmbH	machine tool builder / gears	Germany
Maschinentchnik Riesa GmbH	Maschinenbau	Germany
Scherdel Marienberg GmbH	Federn + Fahrzeugkomponenten	Germany
Scherdel Schweiß- u. Umformtechnik GmbH	Federn + Fahrzeugkomponenten	Germany
Siebenhaar Antriebstechnik GmbH	Gears	Germany
Siemens AG, Medical Solutions	Medical	Germany
ThyssenKrupp Polysius AG		Germany
Niebuhr Gears A/S	Gears	Denmark
Dari Mec Industriale S.R.L.	Gears	Italy
Corning Inc.	Automotive	USA
South Side Machine Works		USA
Niebuhr Gears	Gears	China
Tianjin SERI Machinery Equipment Corporator	Gears	China

Customer application

