

1. MATERIAL: EXISTING SHAFT 251341 (Rev D). PROVIDE INSPECTION REPORTS OR PROOF ACCORDING TO THE PROVISIONS EN-10204-3.1. REQUEST SEARCH FOR ORIGINAL MATERIAL CERTIFICATIONS, NDT REPORTS, AND CONCESSION DATA.
2. REFERENCE DIAMETERS, SURFACE FINISH ON GEAR TEETH, TOLERANCES & GD&T GIVEN ON P/N 251341. INSPECT GEAR DATA PER SHEET 2. RECORD DISCREPANCIES AND ADVISE PROJECT MANAGEMENT.
3. VISUALLY INSPECT EXISTING TEETH 100%. NO STEP ALLOWED ON PROFILE. MICRO INSPECT WORSE TOOTH IN THREE (3) PLACES ALONG THE LENGTH.
4. CRACK TESTING: FOR EXISTING TEETH, MAGNETIC PARTICLE TESTING OR DYE PENETRANT TEST GROUND SURFACES TO ISO 6336-5. (ALT: AGMA 2001-D04-GRADE 3) NO CRACKS ALLOWED.
5. ULTRASONIC TESTING: TESTING OF FORGINGS MUST FOLLOW THE PROVISIONS OF EN-10228-3 LEVEL 3 (AGMA A-388- TO AN EQUIVALENT 3 mm FLAT BOTTOMED HOLE IS AN ACCEPTABLE ALTERNATIVE.)
6. IDENTIFY WITH PART NUMBER, REV LEVEL, SUPPLIER INITIALS, JOB NUMBER, SHOP ORDER NUMBER, AND WORD "GENERATOR" ON SIDE SHOWN.
7. NON SPECIFIED FILLETS - R3, NON SPECIFIED CHAMFERS - 1x45°

3 ALL TOOTH EDGES TO BE 1.0 x APPROX 45° SPLINE AND HELICAL TEETH NO NOTCHES PERMITTED



MAKE FROM MODEL: 251341-D

REV	CHANGED FROM	BY	DATE	APRD
A	PRE-RELEASE. REVIEWED PER 1509-ENC-004	JFC	9/07/12	
B	CHANGES PER NREL DRW REVIEW	CPS	3/11/13	
C	CHANGES PER CUSTOMER REQUEST: RELEASE FOR PRODUCTION	CPS	4/11/13	
D	CHANGES REQUESTED PER MANUFACTURER REVIEW	CPG	11/20/13	

REPORT ERRORS & CHANGES REMOVE ALL BURRS AND SHARP EDGES DIMENSIONS ARE IN MILLIMETERS. UNSPECIFIED TOLERANCES:

DECIMALS: FINISH: ANGLES:

X. ±1.0 6.3 /  $\sqrt{\mu\text{m Ra}}$  <math>\leq \pm 0.5^\circ</math>  
 .X ±0.5  
 .XX ±0.25

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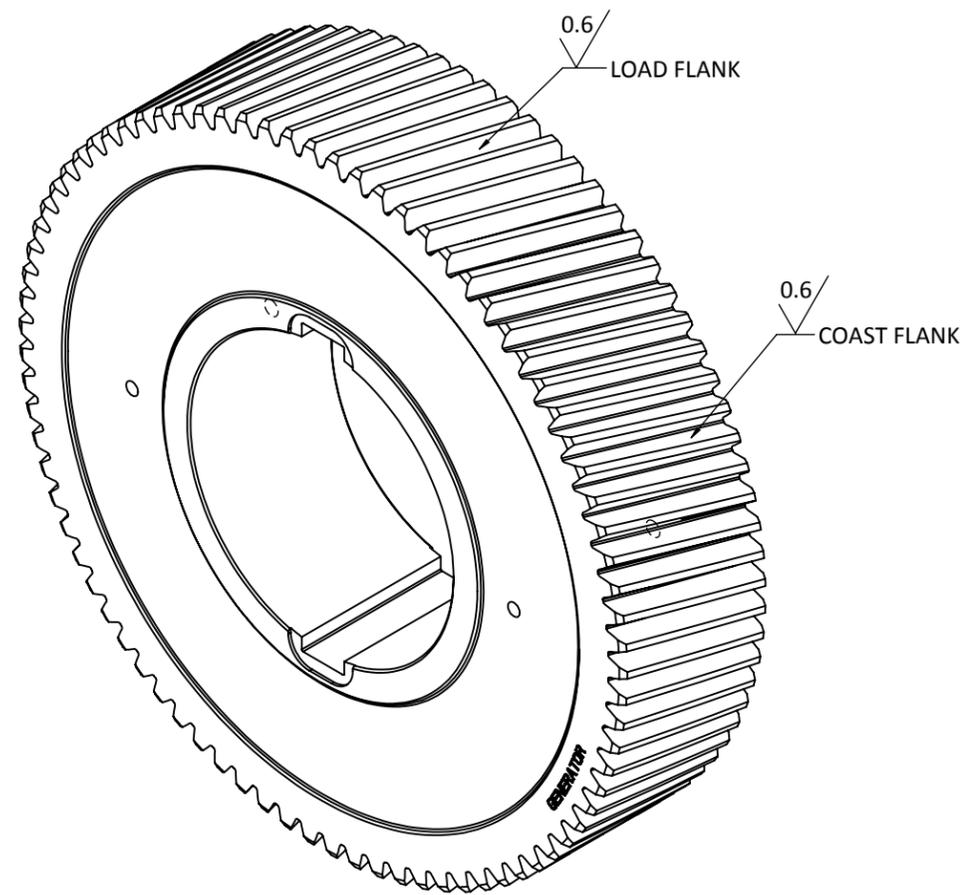
DRAWN JFC DATE: 9/10/12  
 CHECKED NJB THIRD ANGLE PRJ

**National Renewable Energy Laboratory**

TITLE: GEAR, INTERMEDIATE (HOLLOW SHAFT)

SIZE DWG. NO. REV  
**B** 254514 **D**

SCALE: 1:6 WEIGHT: 372.77 kgs SHEET 1 OF 2



External Involute Helical Gear Data	
Number of Teeth	82
Normal Module (mm)	8.2500
Normal Pressure Angle	20.0000
Whole depth Constant (REF)	2.350
Oper pitch diameter (mm)	702.8571
Gen Pitch diameter (mm)	697.2101
Base diameter (mm)	652.7940
Major Diameter (REF) (mm)	719.070
Form Diameter with Pinion (mm)	689.817
Root Diameter (REF) (mm)	681.34
Min Tool Tip Radius (mm)	3.46
Addendum Modification X2	0.3310
Hand of Helix	Right
Gen Helix Angle	14.0000
Lead (mm)	8785.0148
Number of teeth in Mate	23
Center Distance (mm)	450.000
Normal cir BL w/ Pinion (max/min) (mm)	-0.636 / 0.214
Quality per AGMA 2015-1	A 5
Quality Datum Surface	A-B
Trans Cir TT on Gen Dia, (max/min) (mm)	15.798 / 15.715
Size over 14.2 balls (max/min) (mm)	723.166 / 722.967
Span over 10 teeth (max/min) (mm)	243.926 / 243.85

GEAR DATA FOR INSPECTION.  
RECORD DISCREPANCIES AND  
ADVISE PROJECT MANAGEMENT.

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X. ±1.0 .X ±0.5 .XX ±0.25		TITLE: <b>GEAR, INTERMEDIATE (HOLLOW SHAFT)</b>	
6.3 / $\sqrt{\mu\text{m Ra}}$		SIZE <b>B</b>	DWG. NO. <b>254514</b>
COPYRIGHT © NOT TO BE REPRODUCED OR USED TO MAKE OTHER DRAWINGS OR MACHINERY		REV <b>D</b>	WEIGHT: 372.77 kgs
DRAWN JFC	DATE: 9/10/12	SCALE: 1:6	SHEET 2 OF 2
CHECKED NJB	THIRD ANGLE PRJ		