

CONVERTING AN OEM WELDED CROWNWHEEL & DIFFERENTIAL UNIT FOR ASSEMBLY ONTO A QUAIFE QDF17N ATB DIFFERENTIAL

- STEP 1 - SHEET 2 - MACHINE A REGISTER ON THE CROWNWHEEL TEETH.
 STEP 2 - SHEET 3 - MACHINE OFF THE WELD HOLDING THE DIFFERENTIAL AND CROWNWHEEL TOGETHER.
 STEP 3 - SHEET 4 - MACHINE THE CROWNWHEEL TO THE CORRECT DEPTH FOR ASSEMBLY.
 STEP 4 - SHEET 5 - DRILL AND TAP THE CROWNWHEEL.
 STEP 5 - SHEET 6 - ASSEMBLE ONTO THE QUAIFE ATB DIFFERENTIAL.
 STEP 6 - REFIT DIFFERENTIAL INTO DIFFERENTIAL HOUSING FOLLOWING MANUFACTURING INSTRUCTION.

THIS DRAWING IS PROVIDED AS A GUIDE AND R.T. QUAIFE ENGINEERING TAKE NO RESPONSIBILITY FOR ANY CONSEQUENCES INCURRED AS A RESULT OF THIS INSTRUCTION.
 THIS CONVERSION SHOULD ONLY BE UNDERTAKEN BY EXPERIENCED MACHINISTS WITH A COMPREHENSIVE ARRAY OF WELL MAINTAINED TOOLING.



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UNLESS OTHERWISE STATED:

**ALL DIMENSIONS
IN MILLIMETERS**

GENERAL SURFACE FINISH: $1.6/\sqrt{\quad}$

SHEET 1 OF 6

TOLERANCES

DIMENSIONS: 0 PLACES: ± 0.25
 1 PLACE: ± 0.2
 2 PLACES: ± 0.1

ANGLES: $\pm 0.25^\circ$

SCALE 1:2 U.O.S.

ISSUE: 01 DATE: 14/05/2015 RELEASE DATE:
 DRAWN BY: A.N. CHECKED BY:

MATERIAL:
 BLANK SIZE:

HEAT TREATMENT:

FINISH:

DESCRIPTION:
 DIFF ASSEMBLY

PART No.: F-17N1-MOD01

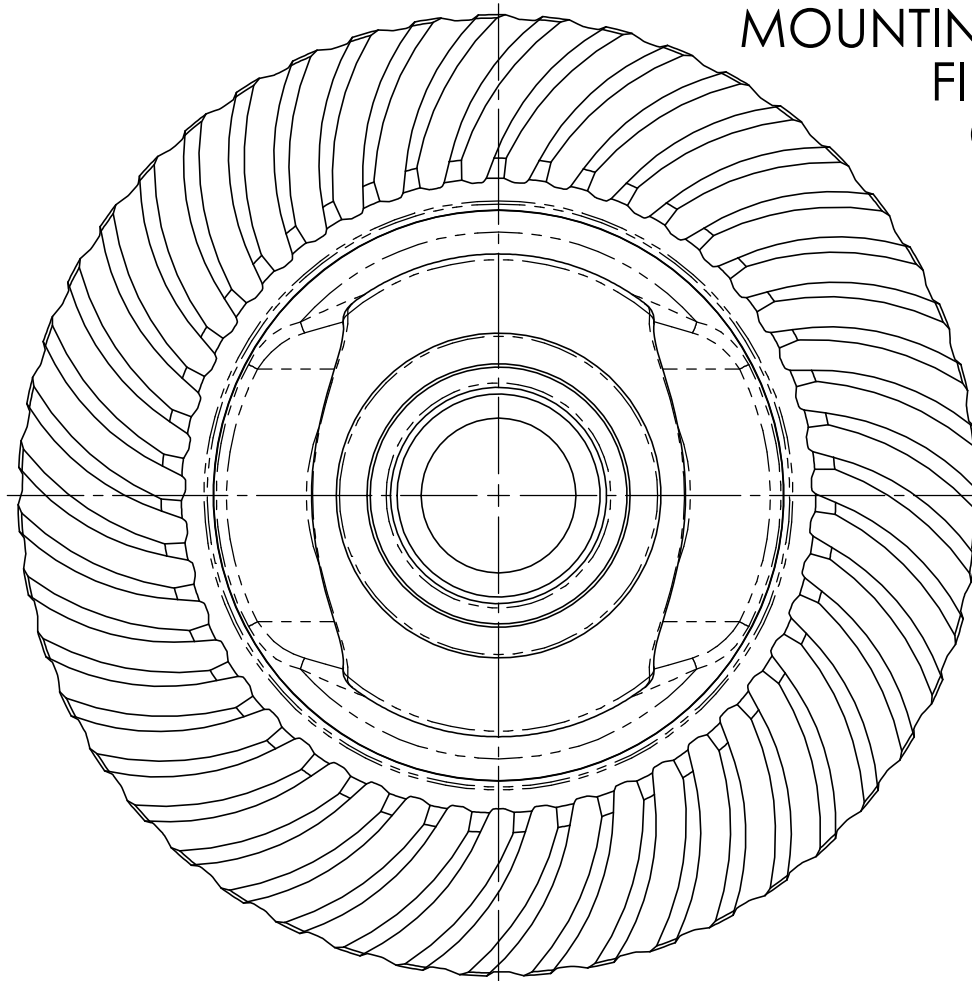
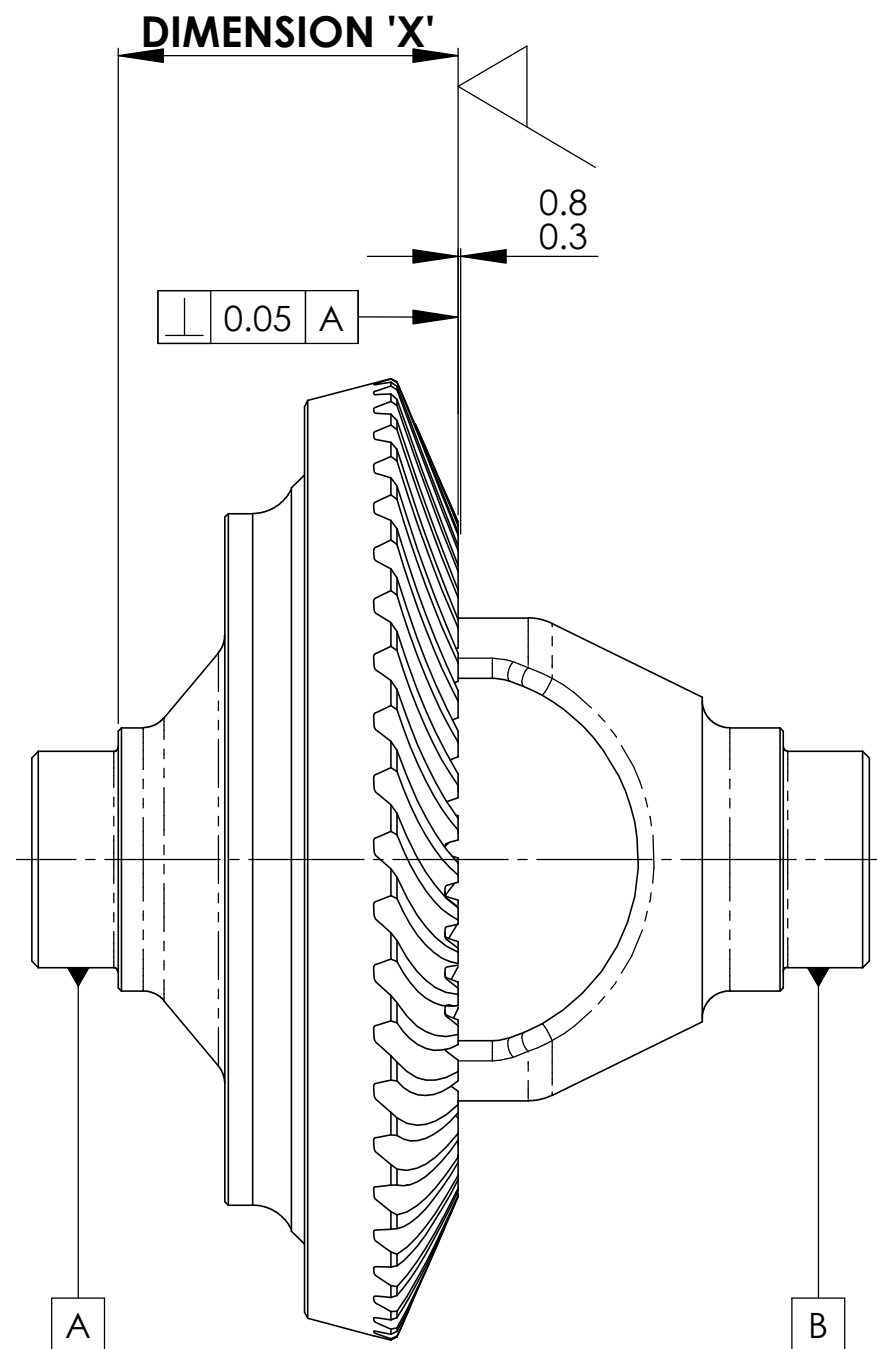
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STEP 1

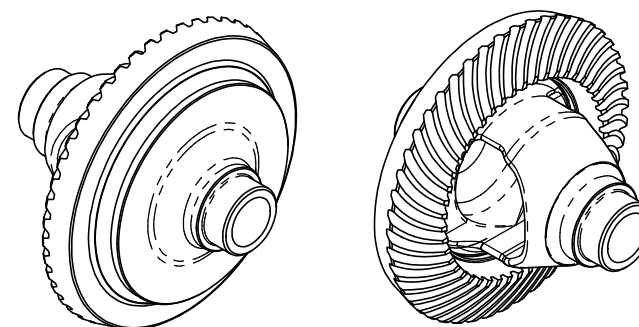
MACHINE A REGISTER ON THE HIGHEST PEAK OF THE CROWNWHEEL GEAR TEETH.

***IMPORTANT* TAKE NOTE OF DIMENSION 'X'**

THIS IS TO ENABLE THE FINAL POSITION OF THE CROWNWHEEL TO BE CHECKED ONCE IT HAS BEEN MOUNTED ONTO THE QUAIFE ATB DIFFERENTIAL, AND TO ALLOW FOR MOUNTING FLAT ON A MACHINE BED FOR FINISHING OR ADJUSTMENT OF THE CROWNWHEEL MOUNTING FACE



WHEN MOUNTING THE DIFFERENTIAL INTO THE LATHE USE THE BEARING JOURNAL DIAMETERS (MARKED A&B) WITHIN THE CHUCK, DO NOT USE THE INTERNAL BORE.



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TOLERANCES
DIMENSIONS: 0 PLACES: ±0.25
1 PLACE: ±0.2
2 PLACES: ±0.1

GENERAL SURFACE FINISH: 1.6

ANGLES: ±0.25°

SHEET 2 OF 6

SCALE 1:1.75 U.O.S.

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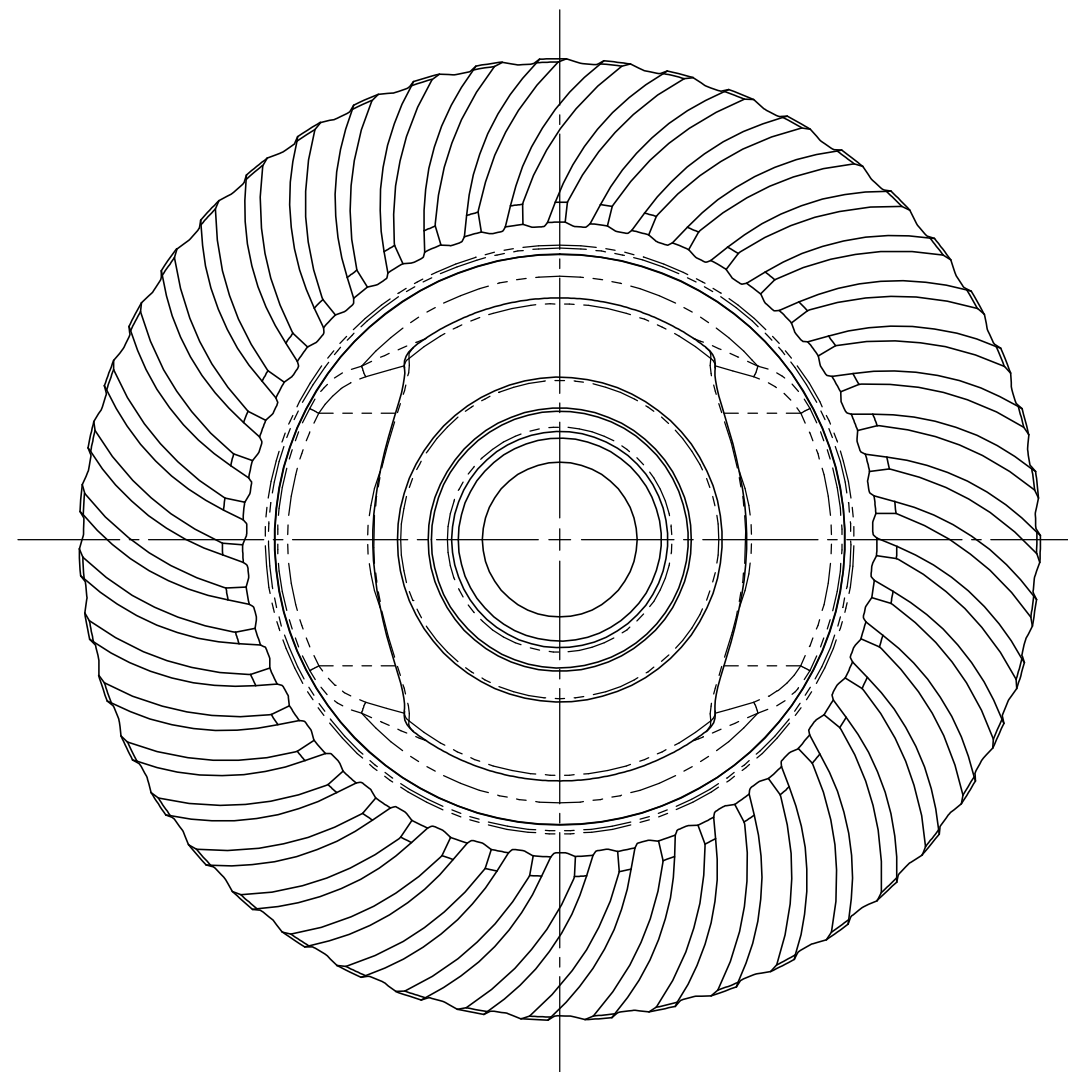
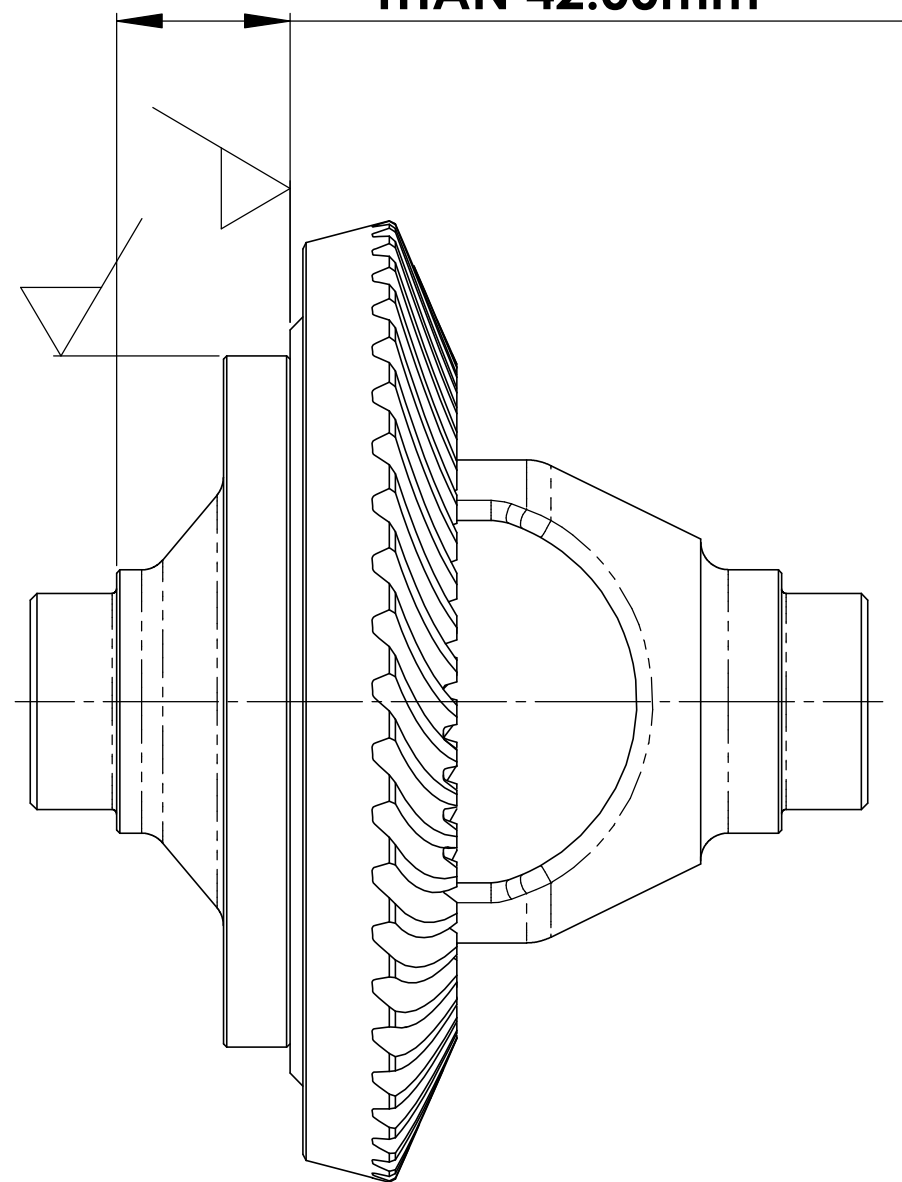
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STEP 2

HARD TURN THE WELD TO FREE CROWNWHEEL FROM THE STANDARD DIFFERENTIAL. SLOW CUTTING SPEED TO BE USED, AND A HARD TURNING INSERT LIKE KORLOY 4NU/CNGA 120408. FEED CAN BE OPERATED MANUALLY

THIS MUST NOT BE GREATER THAN 42.00mm

ONCE REMOVED, CHECK THE INTERNAL DIAMETER OF THE CROWNWHEEL, THIS SHOULD BE AN INTERFERENCE FIT WITH THE QUAIFE QDF17N ATB DIFFERENTIAL. THE CROWNWHEEL SPIGOT DIAMETER OF THE QDF17N IS 132.032mm (5.1981")



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1 PLACE: ±0.2
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GENERAL SURFACE FINISH: 1.6

ANGLES: ±0.25°

SHEET 3 OF 6

SCALE 1:1.75 U.O.S.

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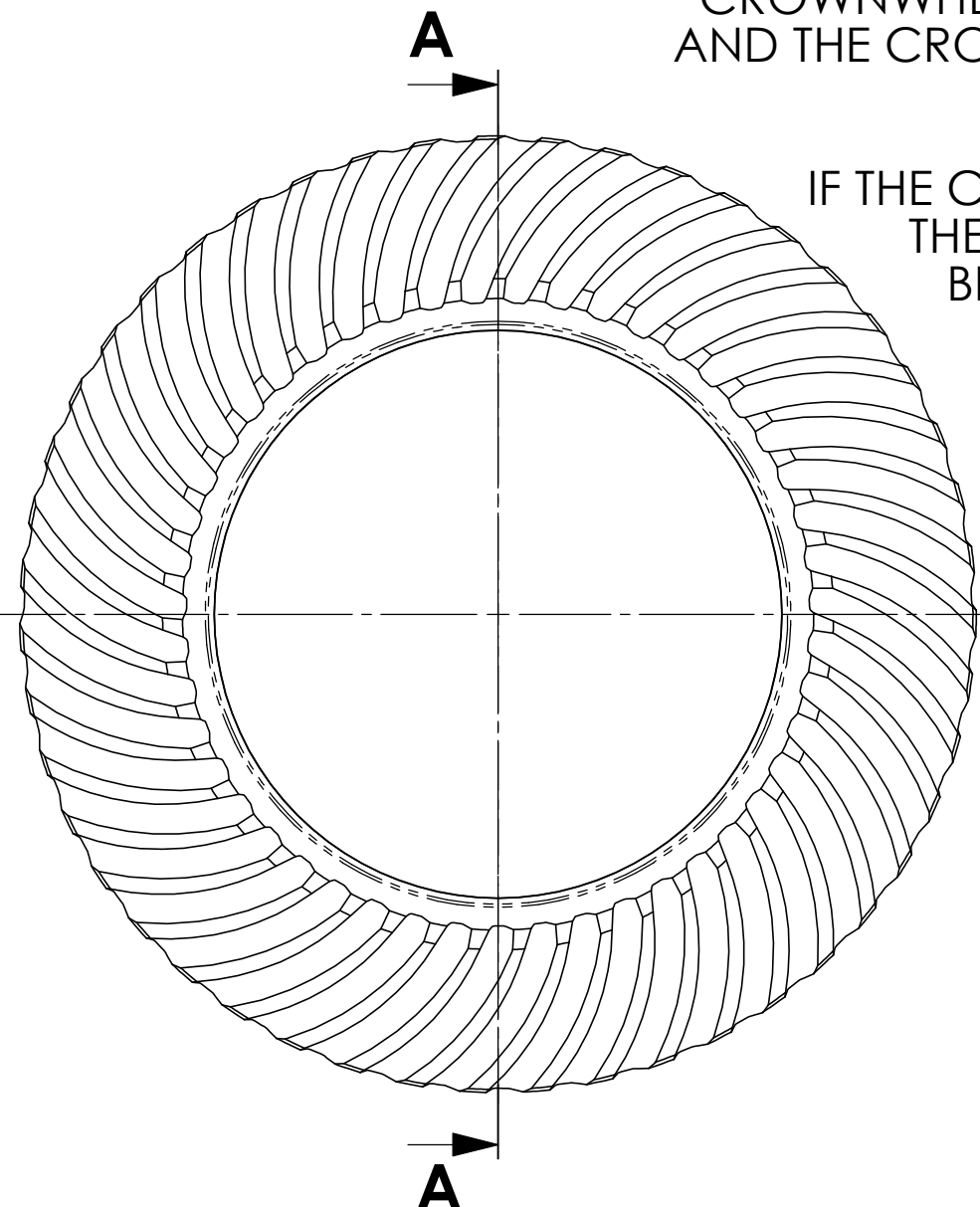
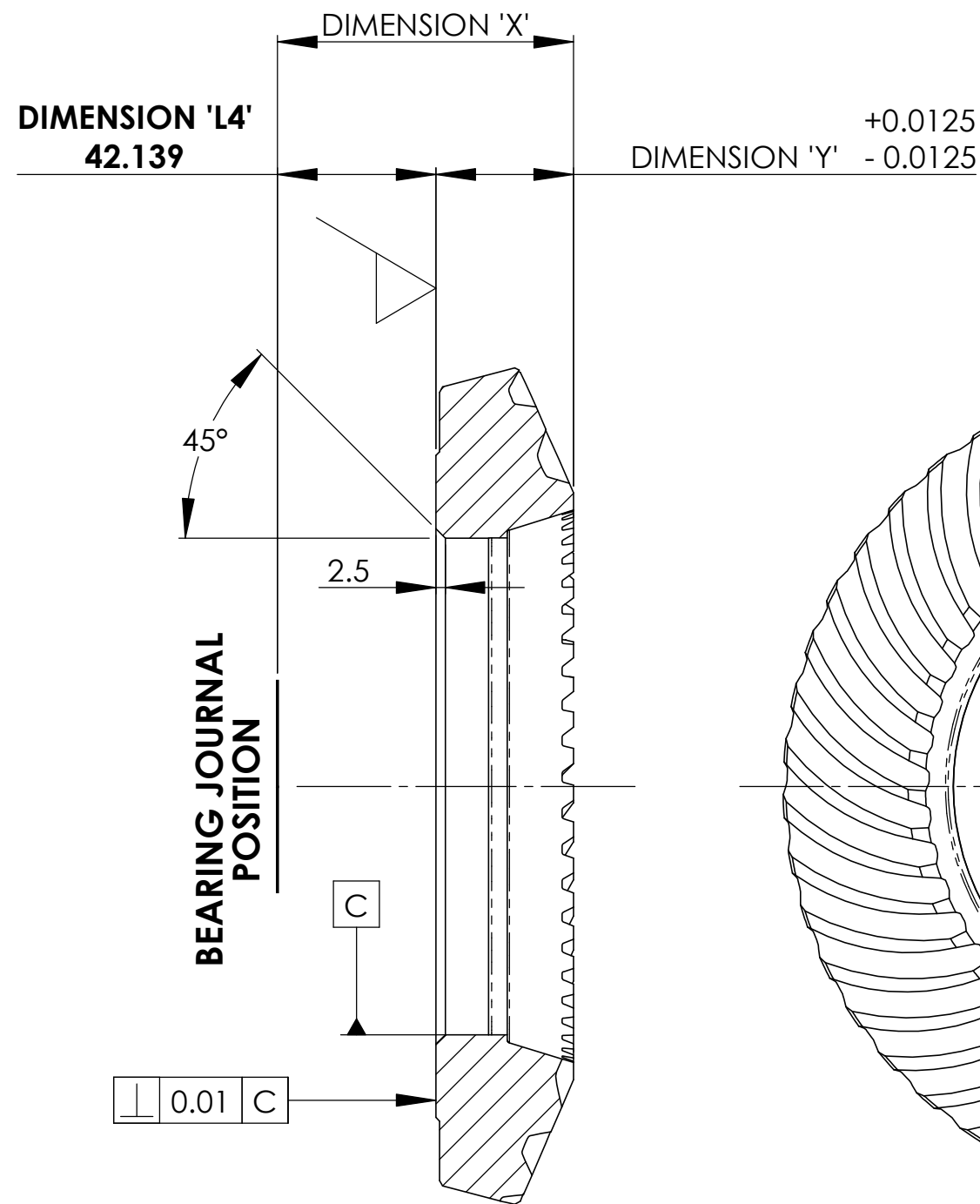
USED IN: BMW 1214 158 0 DIFF

STEP 3

MACHINE BACK OF CROWNWHEEL AND CHAMFER INTERNAL BORE AS SHOWN
DIMENSION 'Y' = DIMENSION 'X' - 42.139

NOTE:- DIMENSION 'Y' IS CRITICAL
 IF THE CROWNWHEEL IS MACHINED TOO THICK THEN THE CROWNWHEEL TO PINION BACKLASH WILL BE REDUCED AND THE CROWNWHEEL WILL HAVE TO BE RE-MACHINED TO RESTORE THE CORRECT BACKLASH.

IF THE CROWNWHEEL IS MACHINED TOO THIN THEN THE CROWNWHEEL TO PINION BACKLASH WILL BE TOO LARGE AND THE CROWNWHEEL WILL HAVE TO BE SHIMMED TO RESTORE THE CORRECT BACKLASH.



SECTION A-A



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	DIMENSIONS:	0 PLACES: ±0.25 1 PLACE: ±0.2 2 PLACES: ±0.1
GENERAL SURFACE FINISH: 1.6	ANGLES: ±0.25°	
SHEET 4 OF 6	SCALE 1:1.75 U.O.S.	

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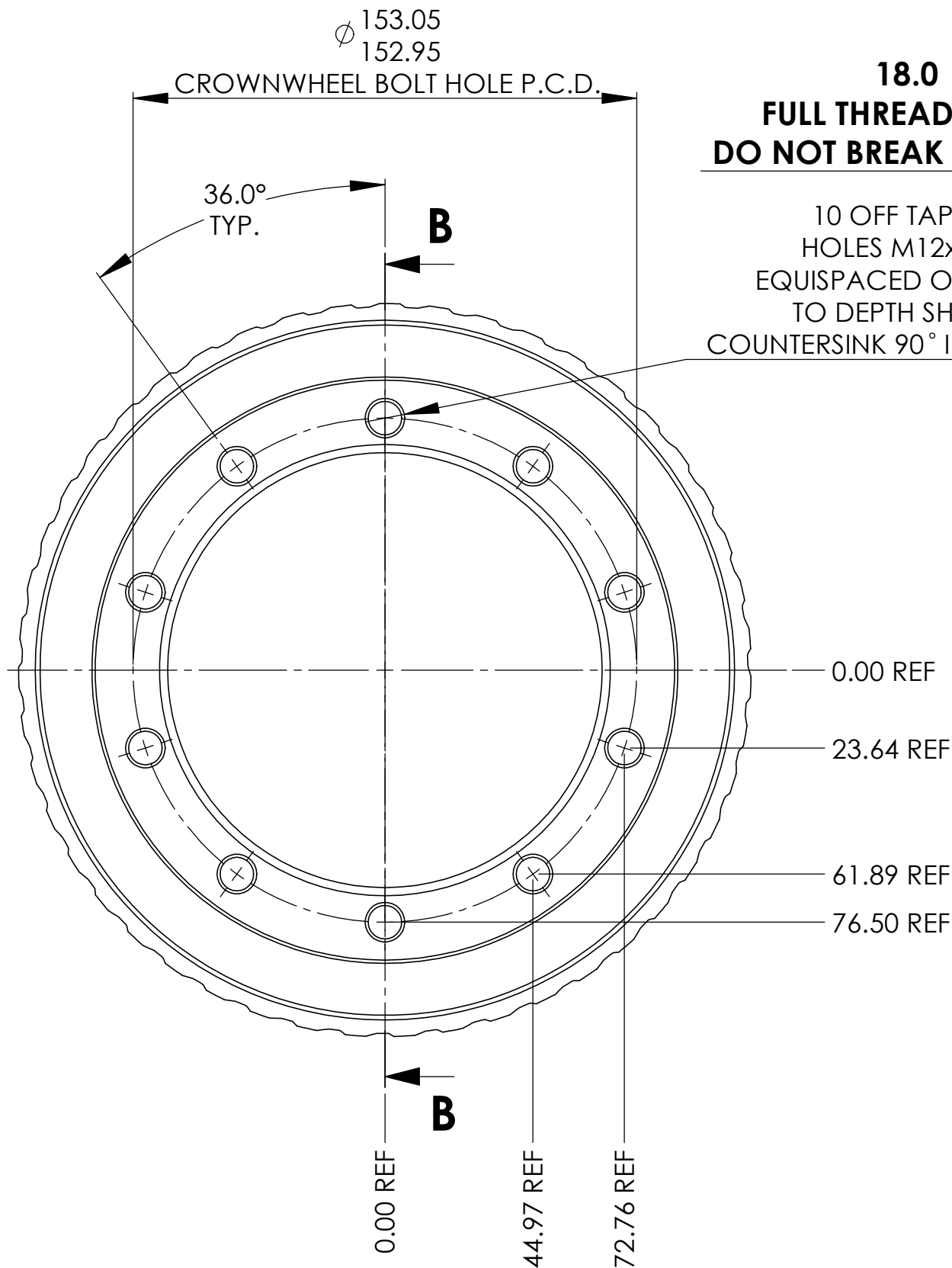
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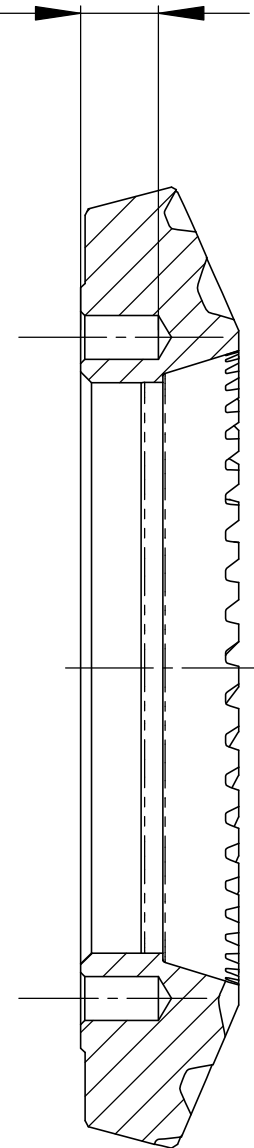
STEP 4

DRILL AND TAP 10 OFF CROWNWHEEL BOLT HOLES TO DEPTH AND IN POSITIONS SHOWN

IMPORTANT - DO NOT BREAK THROUGH



IF THERE IS A CLEAR RISK OF BREAKING THROUGH THEN THE END OF THE BOLTS MUST BE CHAMFERED TO ALLOW THE CLEARANCE INTO THE END OF A REDUCED DRILLING DEPTH.



SECTION B-B



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ALL DIMENSIONS IN MILLIMETERS

GENERAL SURFACE FINISH: 1.6

SHEET 5 OF 6

TOLERANCES

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ANGLES: $\pm 0.25^\circ$

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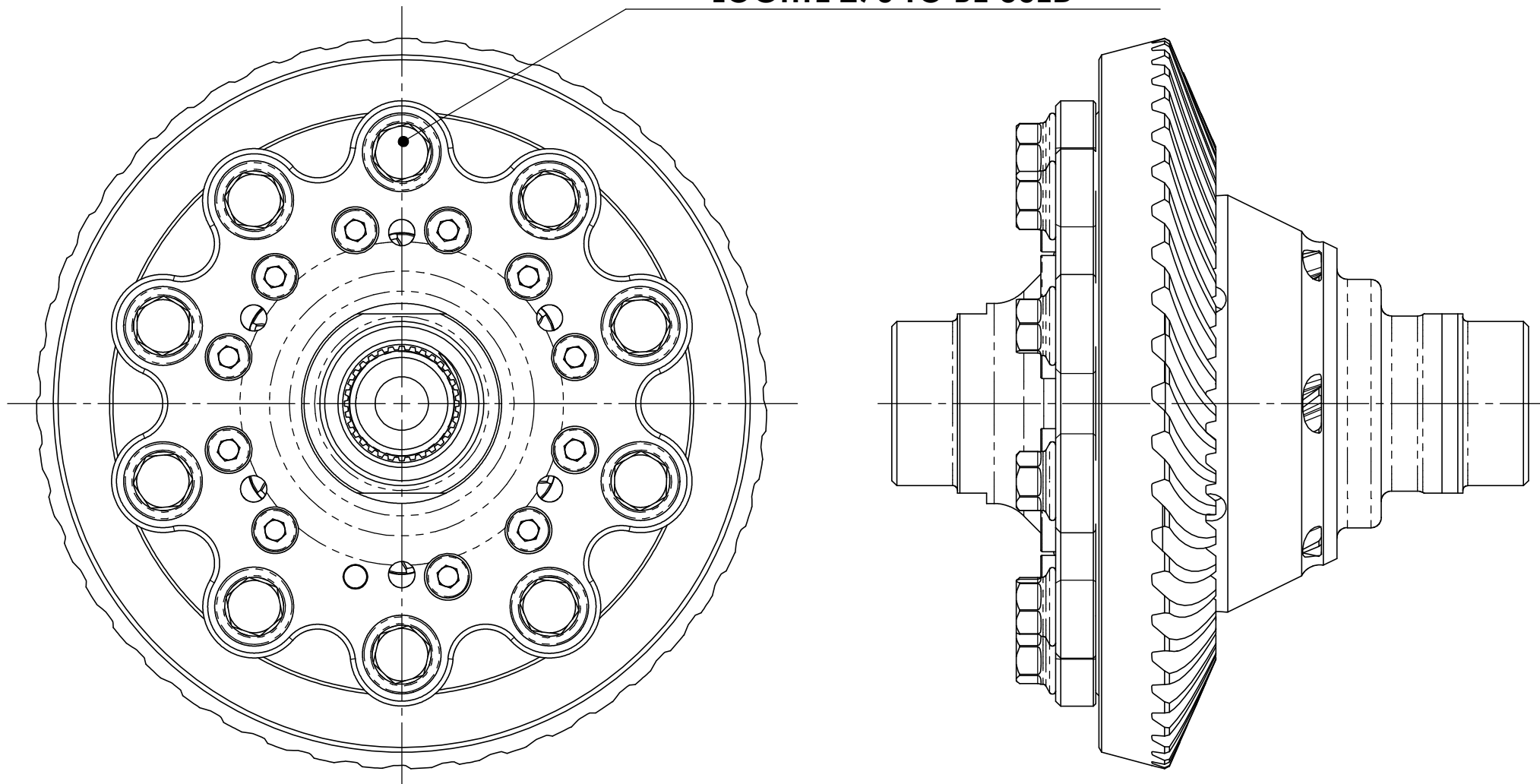
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STEP 5

ASSEMBLE THE CROWNWHEEL ONTO THE QUAIFE ATB DIFFERENTIAL.
FIT THE 10 OFF M12x1.75 SUPPLIED BOLTS. THESE SHOULD BE TIGHTENED TO 100-110Nm

**10 OFF M12x1.75 BOLTS
TIGHTENING TORQUE IS 100+10Nm
TORQUE ANGLE IS +30°
LOCTITE 270 TO BE USED**



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1 PLACE: ±0.2
2 PLACES: ±0.1

GENERAL SURFACE FINISH: 1.6

ANGLES: ±0.25°

SHEET 6 OF 6

SCALE 1:1.75 U.O.S.

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