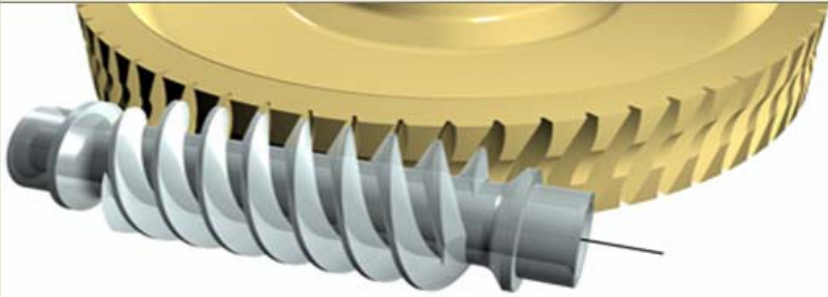Spiralbevel.com

How to model true worm gear tooth
in
3d CAD.

2019.

1. Input worm gear data into Excel file provided by spiralbevel.com

		Progress	Suggestions
16	**INPUT (ZI (involute) tooth geometry)**		
17	CALCULATION ACCURACY [1,2,3,...]	2	2
18	Gear number of teeth	20	20
19	Worm number of threads	1	1
20	Center distance [MM] or [INCH]	100.000	100.0000
21	NORMAL PRESSURE ANGLE [DEG]:	20.000	20.0000
22	Worm Pitch diameter [MM] or [INCH]	23.562	23.5619
23	Worm root diameter [MM] or [INCH]	16.347	16.3472
24	Worm outside diameter [MM] or [INCH]	40.086	40.0855
25	Gear Outside diameter [MM] or [INCH]	200.000	195.9132
26	Gear face width [MM] or [INCH]	40.000	40.0000
27	Direction of spiral on worm: LEFT or RIGHT	RIGHT	RIGHT
28	Generating worm hob axial thread thickness on the tip [MM] or [INCH]	6.000	7.4356
29	Prifile crowning [MM] or [INCH]	0.020	0.0154
30	Lead crowning [MM] or [INCH]	0.030	0.0300
31	System units [MM] or [INCH]	MM	
32	Number of profile points to remove from the root: 1,2,3,...	0	2
33	**OUTPUT (use macros to generate 3d IGES)**		
34	Gear pitch diameter	176.4380551	
35	Worm lead	27.71482489	
36	Worm lead angle	20.52656252	
37	Worm transverse pressure angle [deg]	46.06853345	
38	Worm Base diameter	16.34721721	
39	Gear transverce Module	8.821902755	
40	Gear normal Module	8.261797778	
41	Worm axial pressure angle [deg]	21.23838818	
42	Worm_Gear_6_19_2019 for ZI (involute worm geometry)	spiralbevel.com	

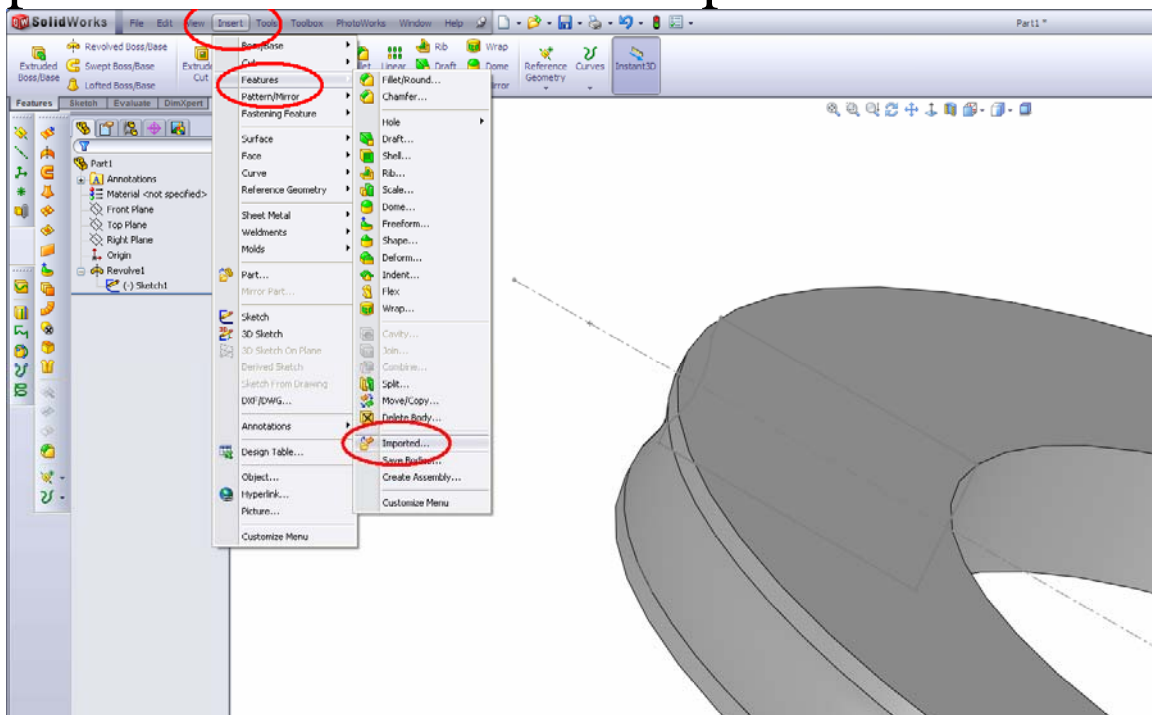# 2. Run Macro to generate gear tooth surfaces.
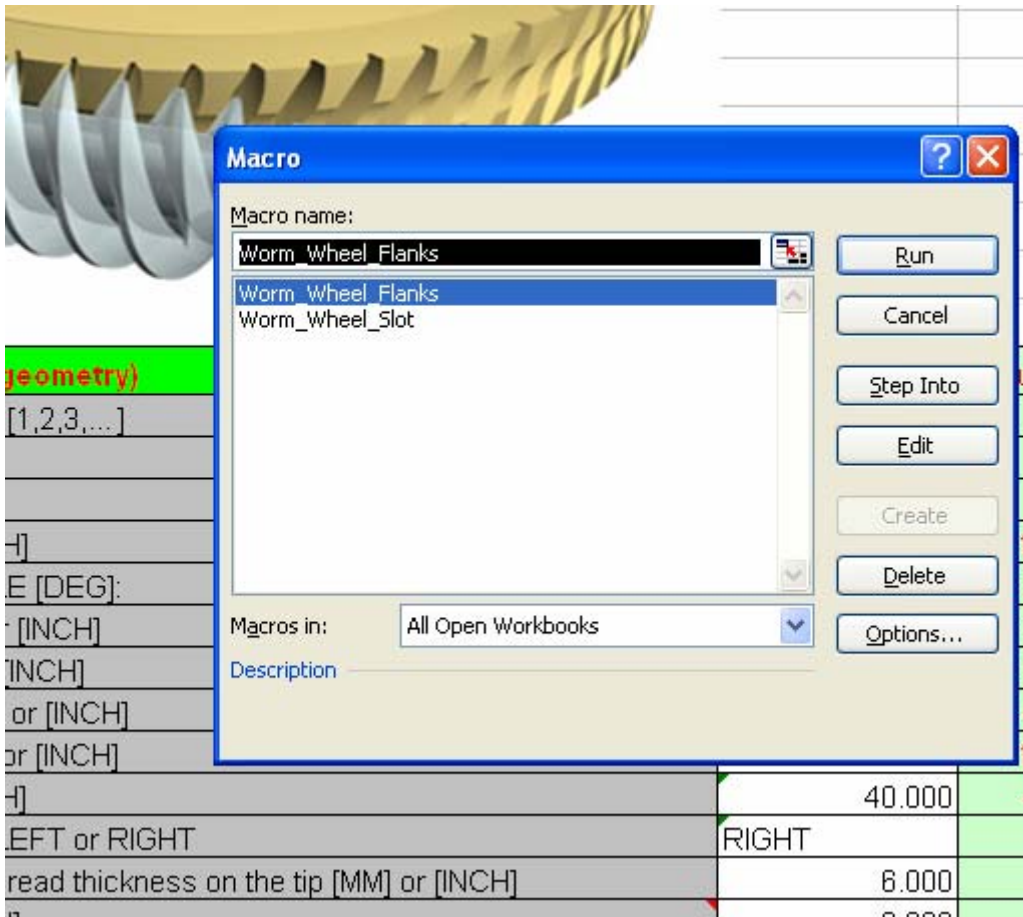
Excel macro will generate tooth surfaces in igs.

3. Use resulted igs tooth flanks in order to model Worm gear in 3d CAD.
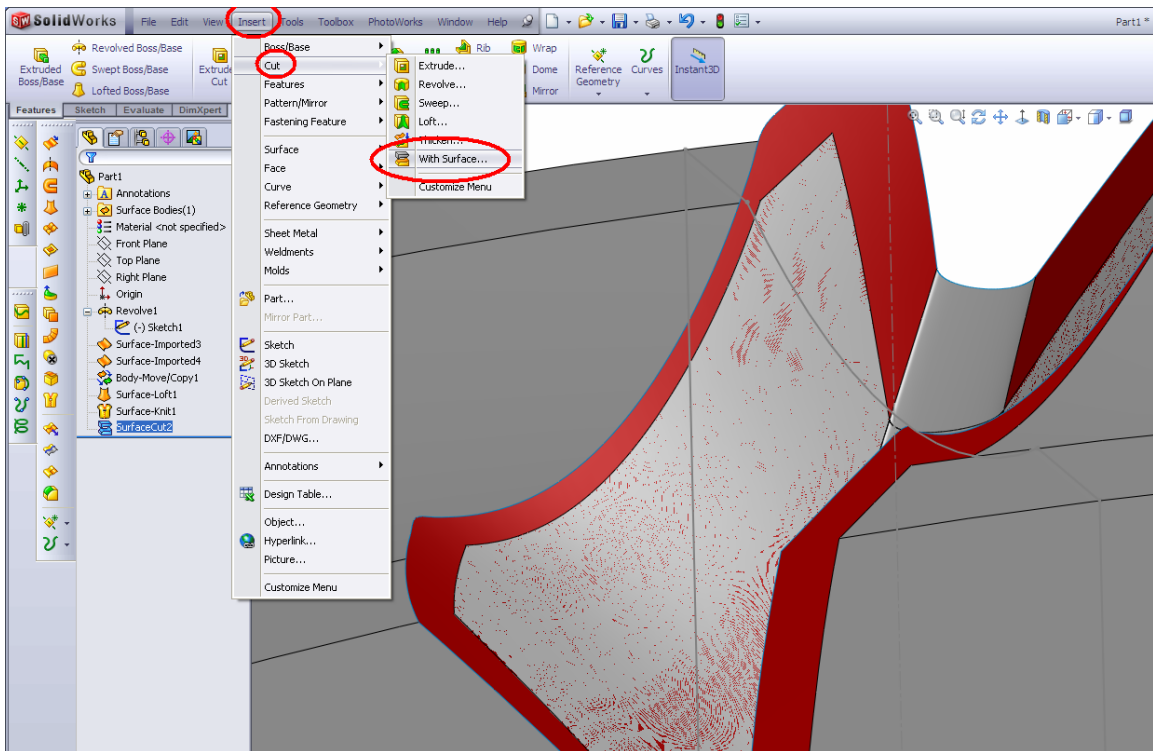Example with SolidWorks below:
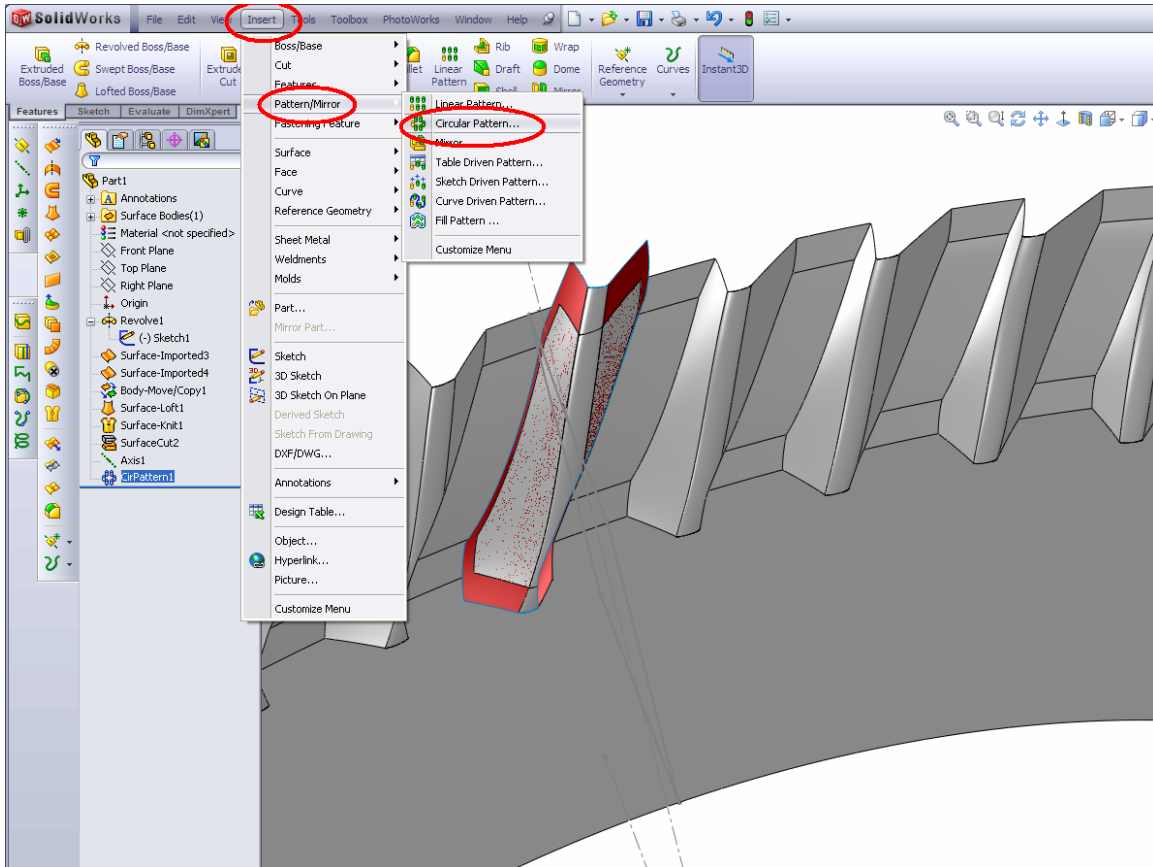Import igs surfaces into your gear blank part: Insert – Features – Import
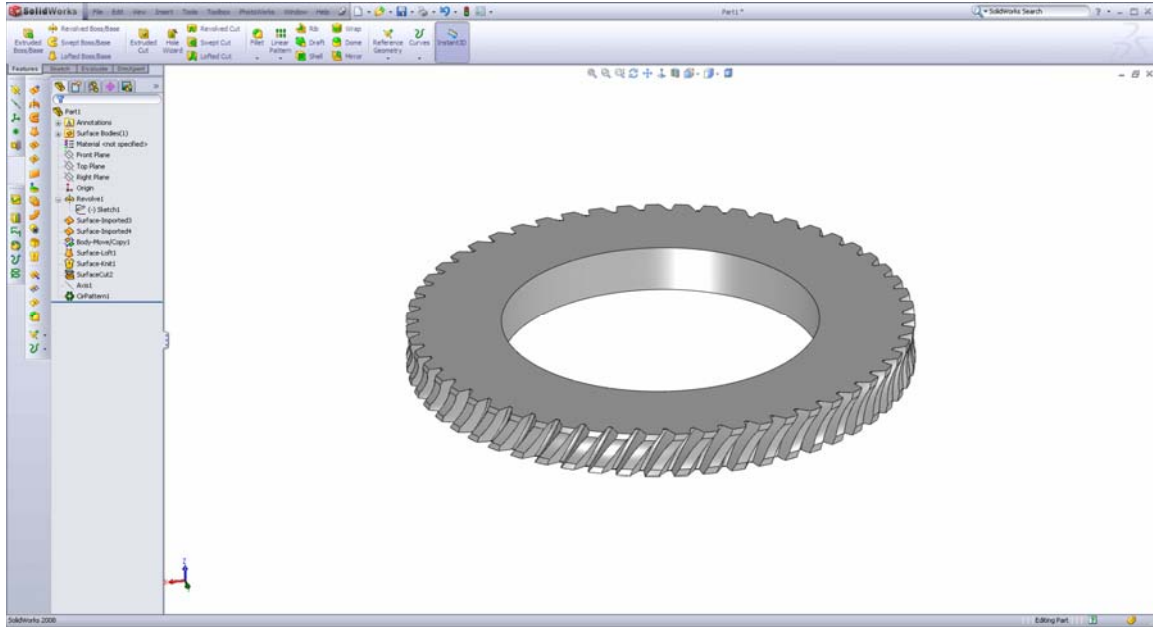
4. Cut blank with surfaces
Insert – Cut – With Surface

5. Copy the slot around the blank:
Insert – Pattern/Mirror – Circular Pattern.

Use Excel Helical program from spiralbevel.com in order to model a mating worm.