

GEARCAM app lets you draw 2 D gears in Auto-Cad very easily by just entering the gear dimensions of your choice or calculated values. The drawing can then be converted to a G-code file by using “GCODECAM” app to cut the gear in a CNC milling machine.

To use this app, type “gearcam” in the command lone of auto cad and hit the enter button. The following dialog box opens:

Help

Enter module(mm) : 1

Select required TOOTH PROFILE : INVOLUTE PROFILE

Select type ofgear : EXTERNAL GEAR

Enter Pitch Circle diameter(in mm) : 16

Enter resolution in degrees, 0(fine) to 10(coarse) : 2
[Finer resolution implies more number of points and vice versa]

Enter width of top-land : 0.4
(as a fraction of the module i.e. enter 0.4 for top-land width of 0.4*m)
[minimum top-land width is about 0.25*m by standards]

Enter no. of rack teeth desired : 10

INVOLUTE/RACK

Enter Pressure angle(in degrees) : 20

CYCLOIDAL

Enter dia of generating circle(in mm) : 5
(should be larger than the module)

Create Gear Profile

(Centre is at (0,0), marked by a cross)

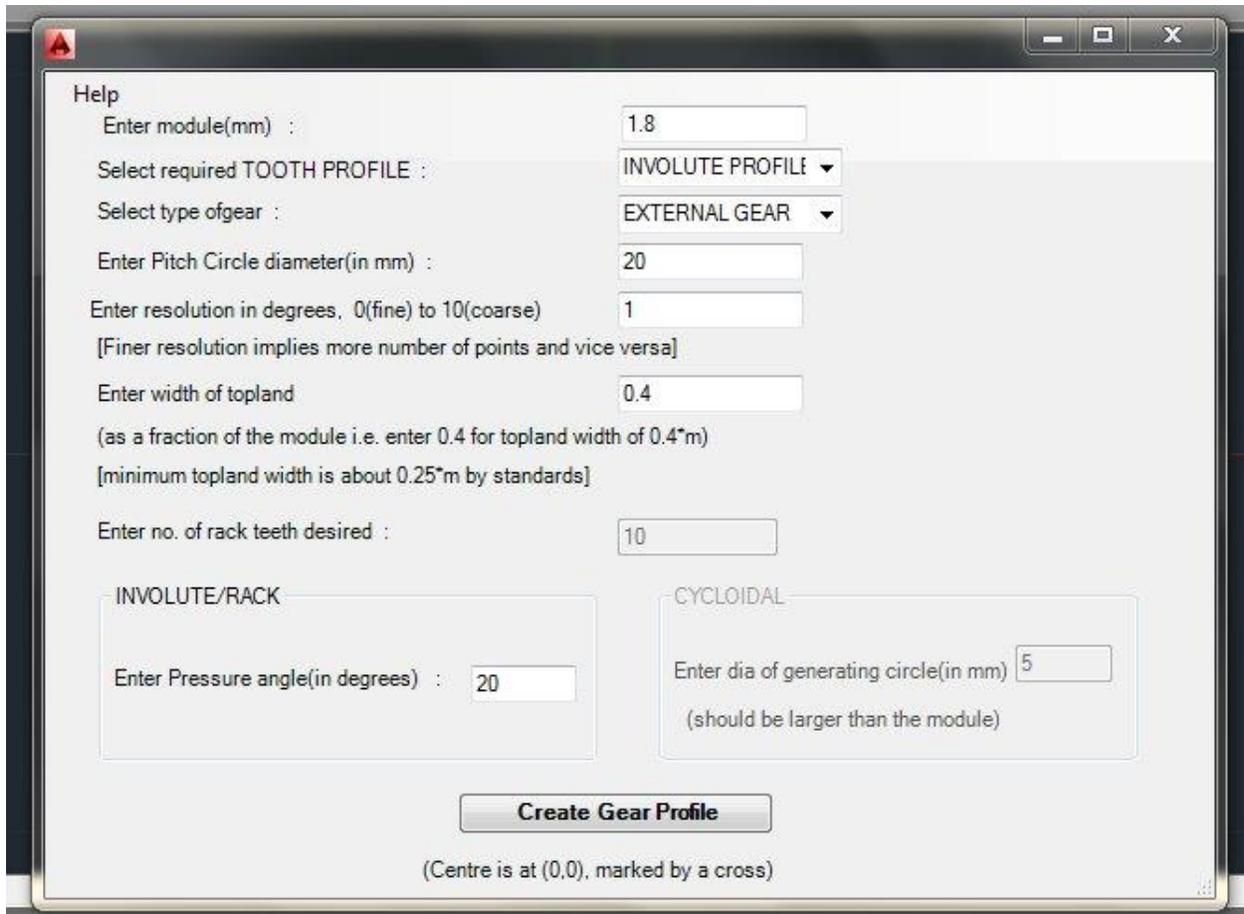
You need to specify the following parameters:

1. Module of the gear
2. Type of tooth profile – involute, cycloid and involute rack.
3. Type of gear – internal or external
4. Pitch circle diameter in mm.
5. The resolution of the gear drawing in units.
6. Width of Top-land – it should be a value that is to be multiplied with the module.
7. Number of rack teeth should be entered if the profile selected previously was – Involute Rack.
8. Enter the pressure angle if the profile previously selected was either – Involute or Involute Rack.
9. Enter the diameter of the generating circle if the profile previously selected was – Cycloid.

Finally click the “Create Gear Profile” to create the drawing of the gear for the parameters entered. The gear will appear on the Auto-Cad screen with the center of the gear being the 0, 0 of the x and y coordinates in Auto-Cad.

For demonstration purpose we will generate different types of gears using different gear dimensions. First we will generate an external gear.

Type “gearcam” in Auto-Cad command line and enter the values as shown below. The values can be calculated values or trials for different geometries of gear desired.

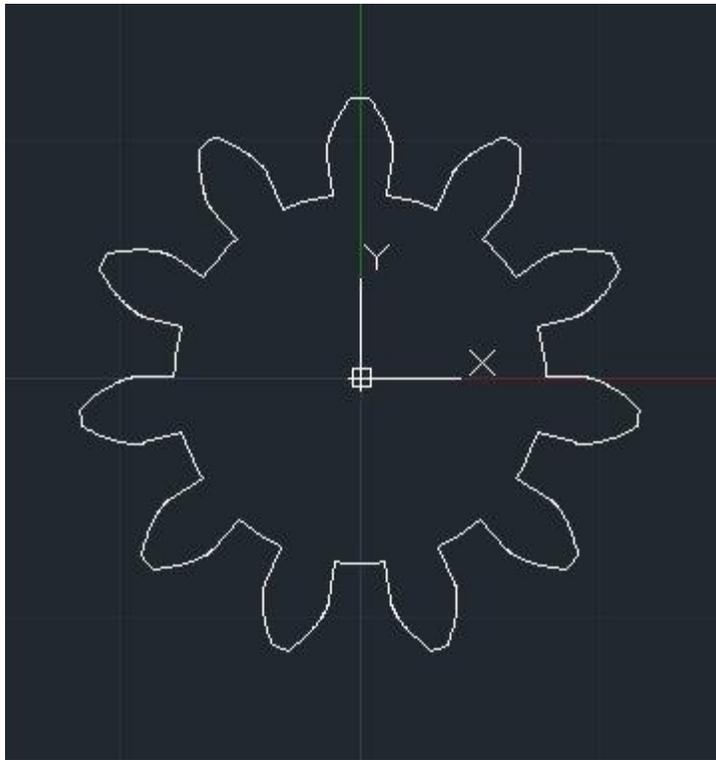


The screenshot shows the GearCam software interface with the following parameters entered:

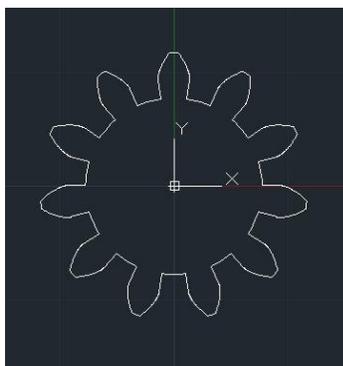
- Enter module(mm) : 1.8
- Select required TOOTH PROFILE : INVOLUTE PROFILE
- Select type of gear : EXTERNAL GEAR
- Enter Pitch Circle diameter(in mm) : 20
- Enter resolution in degrees, 0(fine) to 10(coarse) : 1
[Finer resolution implies more number of points and vice versa]
- Enter width of top land : 0.4
(as a fraction of the module i.e. enter 0.4 for top land width of 0.4*m)
[minimum top land width is about 0.25*m by standards]
- Enter no. of rack teeth desired : 10
- INVOLUTE/RACK: Enter Pressure angle(in degrees) : 20
- CYCLOIDAL: Enter dia of generating circle(in mm) : 5
(should be larger than the module)

At the bottom, there is a button labeled "Create Gear Profile" and a note: "(Centre is at (0,0), marked by a cross)".

After entering the values click “Create Gear Profile”. A message box will appear saying “done”, just click “OK”. If close the “GearCam” app you can see the generated gear with the center lying on the 0, 0 of Auto-Cad.



Here is another gear with same parameters and dimensions but with a cycloid profile where the diameter of the generating circle is 5mm:



To create an internal gear enter the parameters for the gear like shown below and then in the drop down list select the type of gear as Internal and click “Create Gear Profile”. Click “OK” in the message that follows.

Help

Enter module(mm) : 1.5

Select required TOOTH PROFILE : INVOLUTE PROFILE

Select type of gear : INTERNAL GEAR

Enter Pitch Circle diameter(in mm) : 20

Enter resolution in degrees, 0(fine) to 10(coarse) : 2
[Finer resolution implies more number of points and vice versa]

Enter width of top land : 0.4
(as a fraction of the module i.e. enter 0.4 for top land width of 0.4*m)
[minimum top land width is about 0.25*m by standards]

Enter no. of rack teeth desired : 10

INVOLUTE/RACK

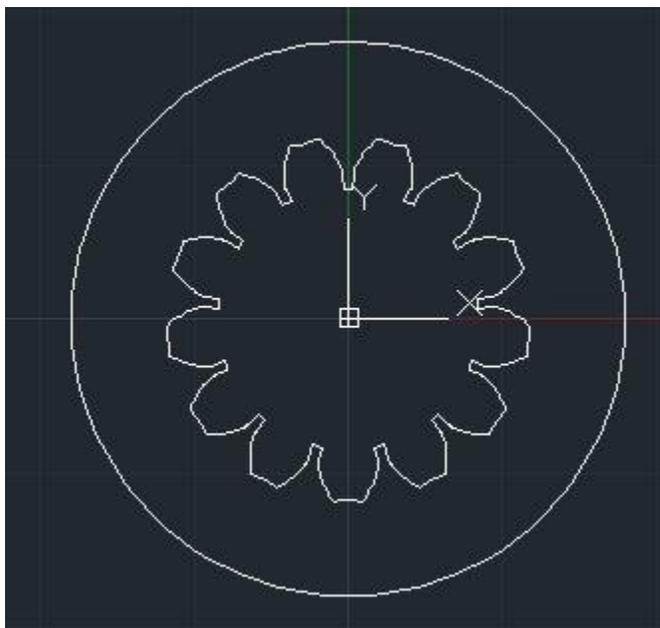
Enter Pressure angle(in degrees) : 20

CYCLOIDAL

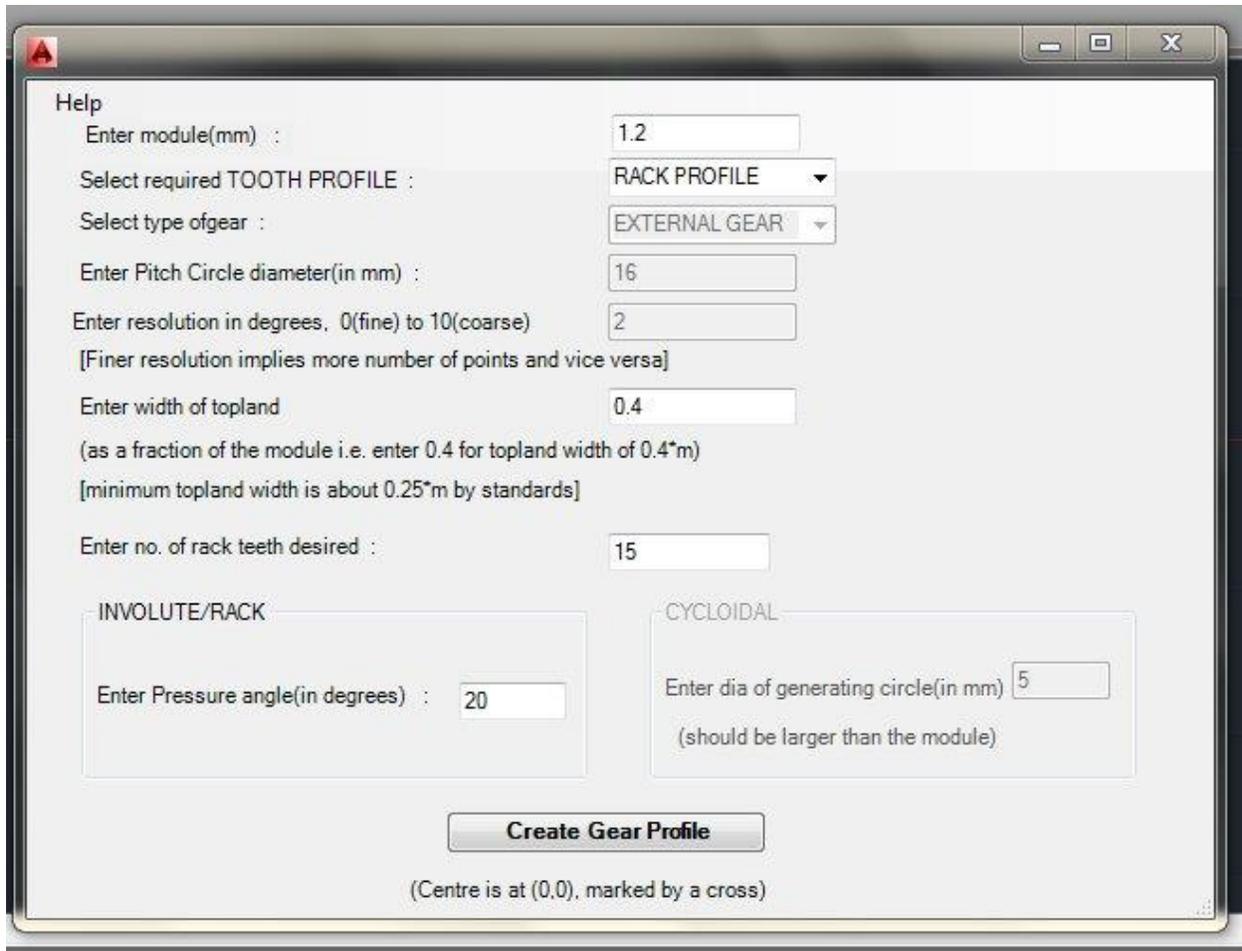
Enter dia of generating circle(in mm) : 5
(should be larger than the module)

Create Gear Profile

(Centre is at (0,0), marked by a cross)



To create an Involute Rack profile, enter the parameters as shown below and from the drop down list select the type of tooth profile as “involute rack” and type the number of rack teeth required in the box and click “Create Gear Profile” then click “OK” in the message box that follows and close the gear cam app.



Help

Enter module(mm) :

Select required TOOTH PROFILE :

Select type of gear :

Enter Pitch Circle diameter(in mm) :

Enter resolution in degrees, 0(fine) to 10(coarse)
[Finer resolution implies more number of points and vice versa]

Enter width of top land
(as a fraction of the module i.e. enter 0.4 for top land width of 0.4*m)
[minimum top land width is about 0.25*m by standards]

Enter no. of rack teeth desired :

INVOLUTE/RACK

Enter Pressure angle(in degrees) :

CYCLOIDAL

Enter dia of generating circle(in mm)
(should be larger than the module)

Create Gear Profile

(Centre is at (0,0), marked by a cross)



