Drawing an imperial thread Solidworks 2022

Tutorial based on 1/8" B.S.P thread for a 1/8" Legris fitting

Find the required thread data using drilling and tapping charts.

Basic thread data

Tap and Drill Chart - British Standard Pipe Parallel (BSP)		
Tap size	**Drill Size (mm)**	**Drill Size (inch)**
1/16-28	6.60	G
1/8-28	8.80	11/32
1/4-19	11.80	29/64
[illegible]	[illegible]	[illegible]

Because we are creating a thread using CAD, it is essential to get the hole diameter correct. If you look at the charts above, you will see the metric and imperial drill diameters. let's convert them….

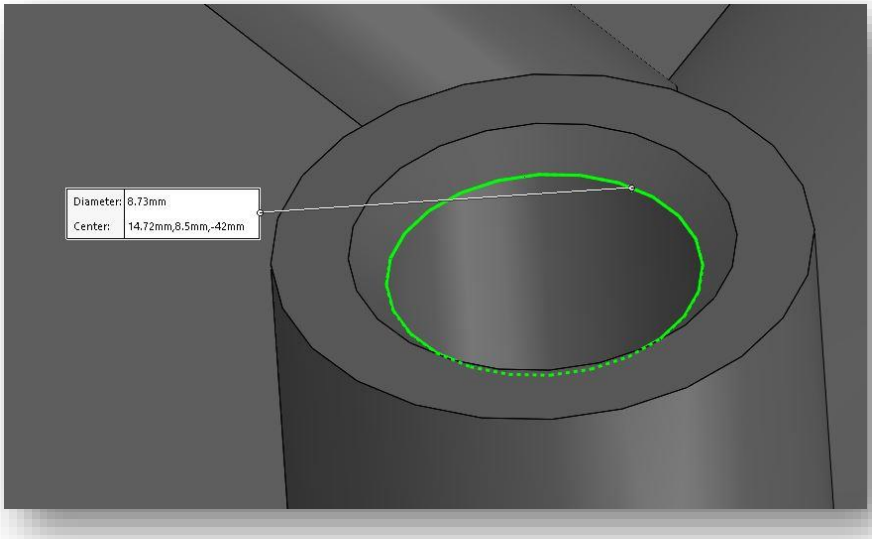
11/32" = 11 ÷ 32 = 0.34375" *convert to metric* **0.34375 x 25.4 = 8.73125 mm**

When you create a thread in Solidworks you are asked to select a face/feature/surface in which to apply the desired thread, if we simply draw an Ø8.80mm then our thread will actually be incorrect by 0.06875mm (the difference between 11/32" and 8.8mm when converted).

When using cutting tools to create threads, the tools have the thread nomenclature ground on to them, thus creating the perfect thread profile. If you are going to use another manufacturing method like 3D printing, it is vital that you get the thread data correct in the CAD model.

Creating the thread

Hole Diameter = 8.73mm
(1/8" BSP tapping drill size)



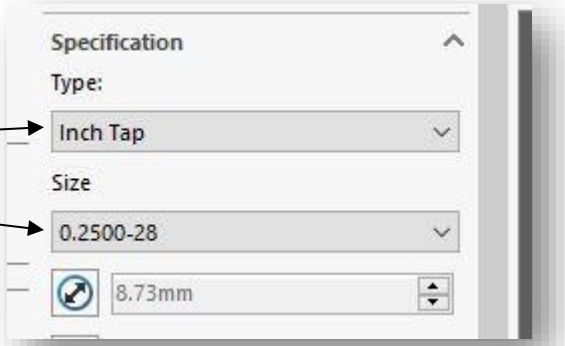
Advanced thread data

British Standard Pipe Thread - Parallel (BSPP/BSPF) Inner					Tap			
Outer Diameter			Threads		Pitch	Thread		Drill
Nominal Size	Dash Size	Diameter (mm)	Male Thread (mm)	Pitch (mm)	per inch	Diameter (mm)	Height (mm)	Diameter (mm)
1/8"	02	9.728	8.566	0.907	28	9.147	0.581	8.7
1/4"	04	13.157	11.445	1.337	19	12.301	0.856	11.6

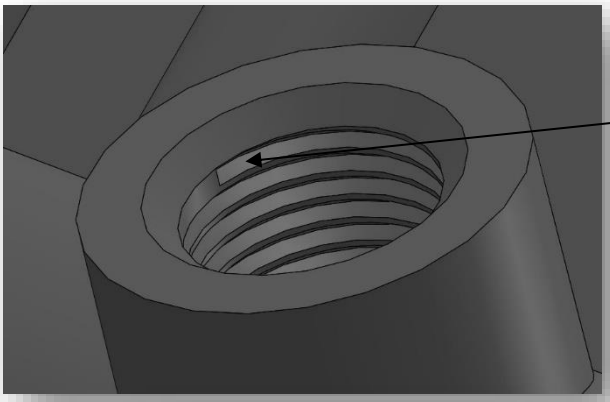
I have used a more advanced thread data chart as we need to find the T.P.I (threads per inch) in this case, for a 1/8 bsp thread it is 28 T.P.I.

Using the Solidworks thread feature, the inch tap and 0.2500-28 size are selected

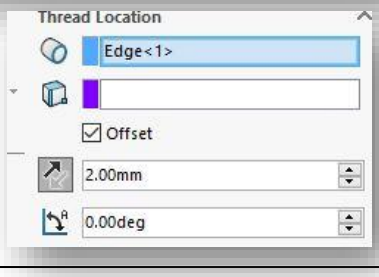
Apply this to the Ø8.73 edge



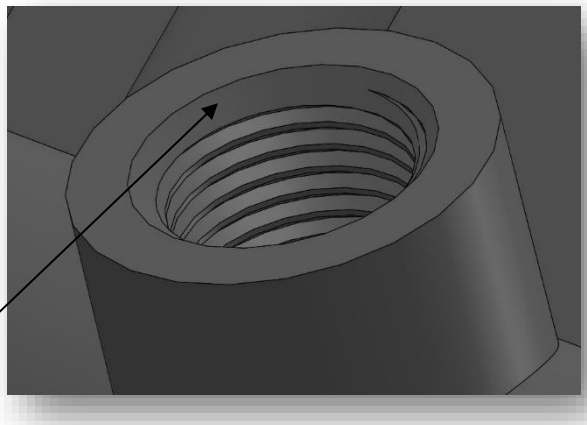
Finalise the thread



You will notice as with any thread that we do not have a complete lead-in/start.



Select the offset option and choose a 2mm offset. (approx. 2 x pitch/tpi)



You will now see a complete thread with a lead-in/start.

End of tutorial