

# ME 305: Machining Science and Metrology



**Machine Part: Differential Spider**

**Faculty: Dr. Kazi Sir and Dr. Suhash Sir**

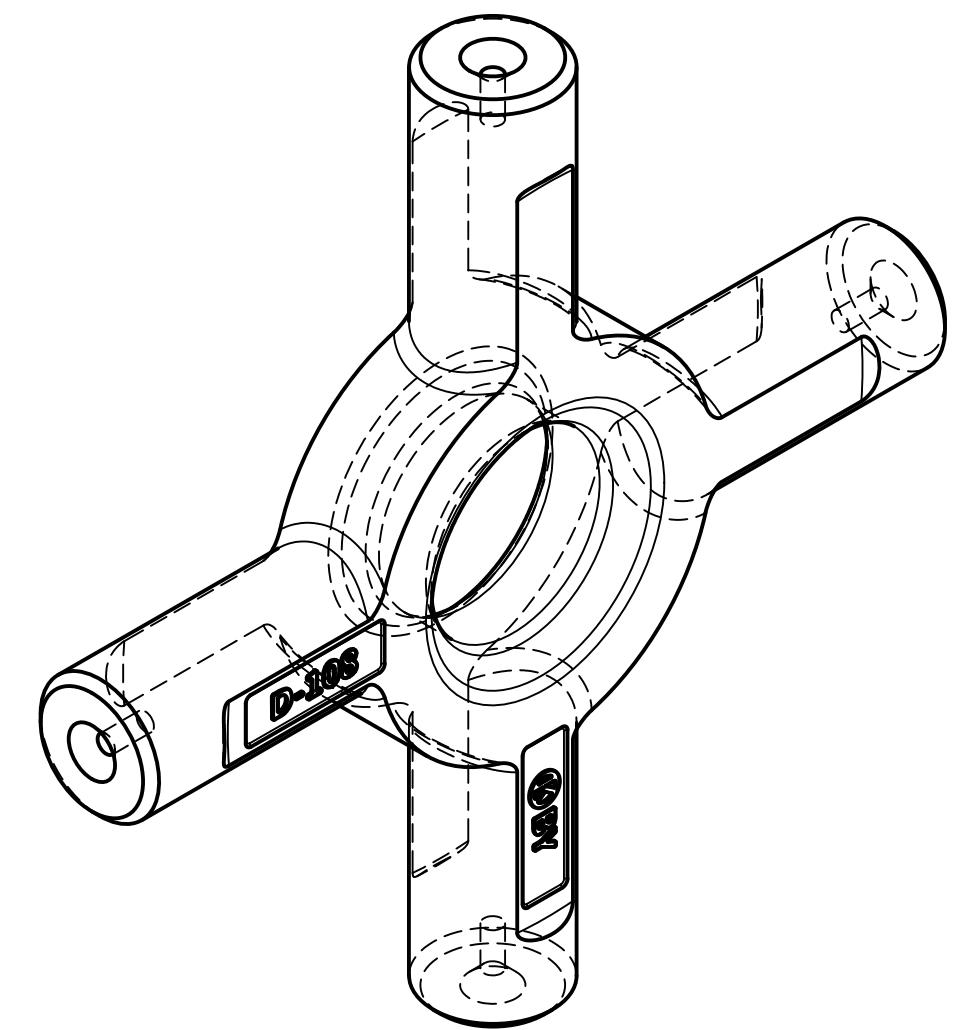
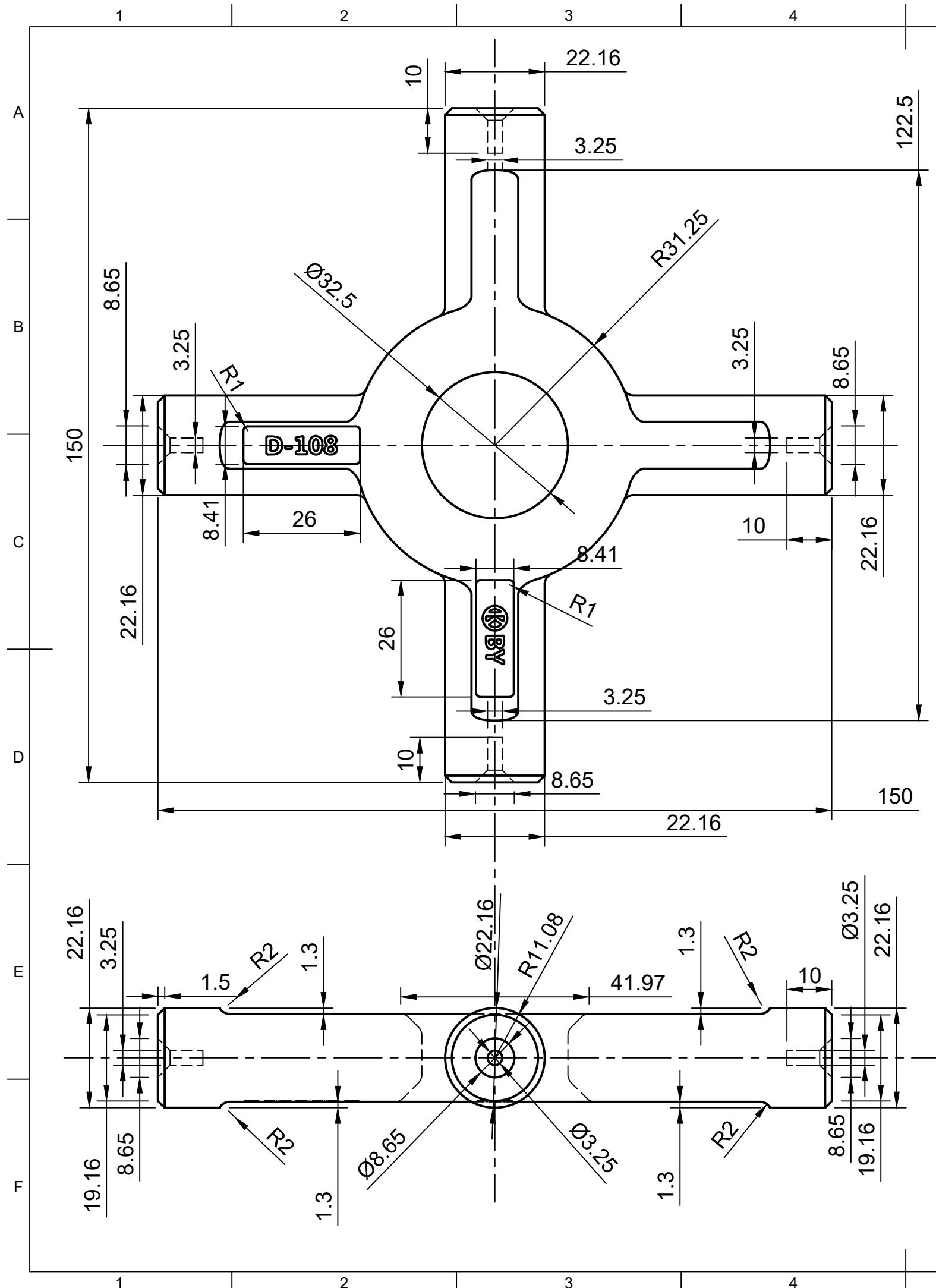
## **Team Members**

Jitendra Kumar Choudhary (200003037)

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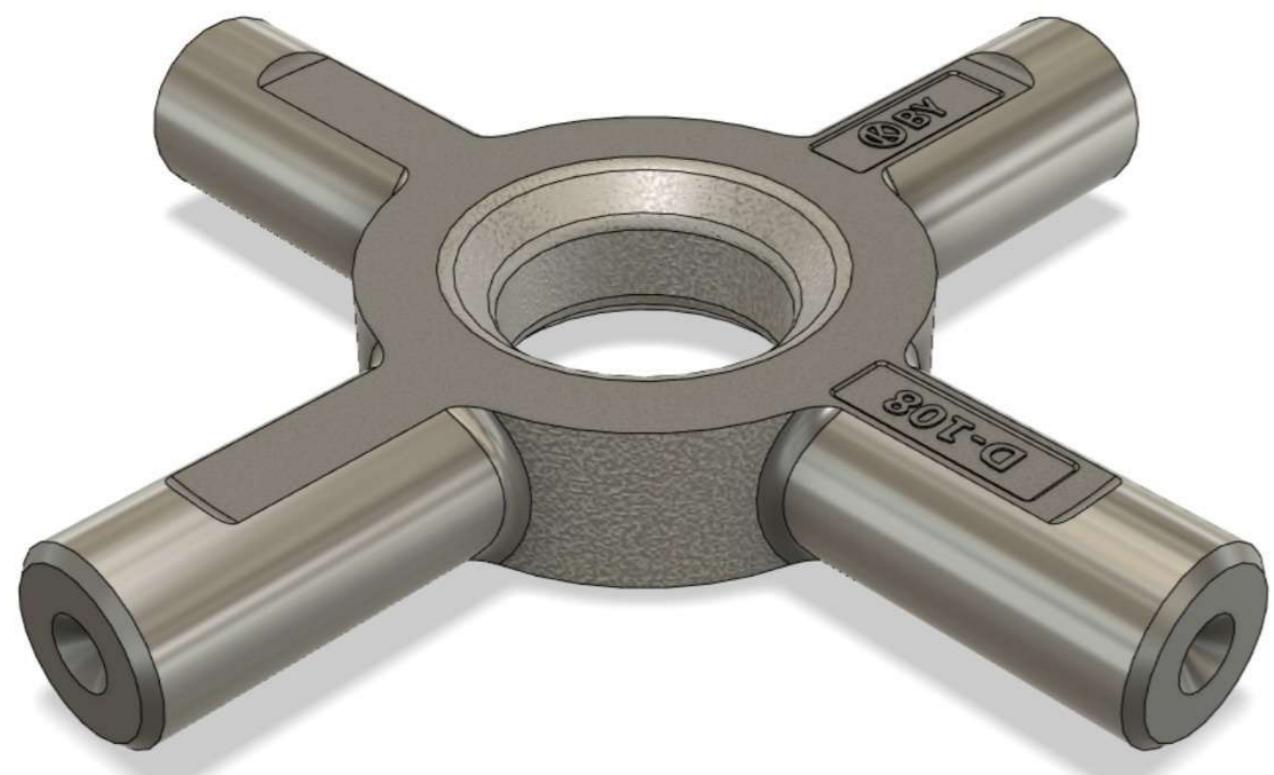
Jinesh Kumar (200003036)



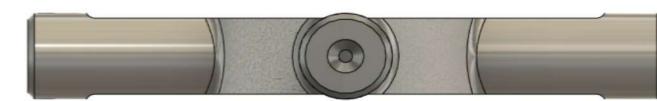
# Differential Spider

# Assignment: ME 305

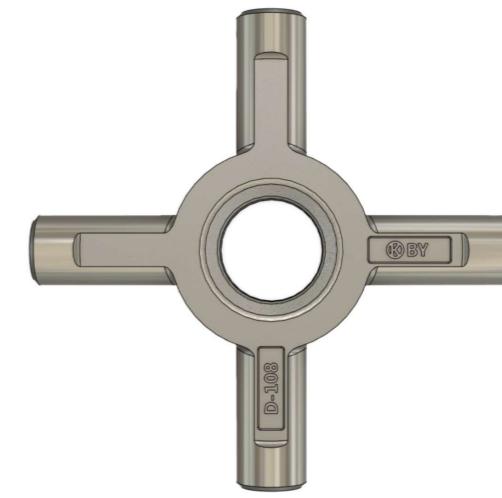
## VIEWS OF THE PART CAD MODEL



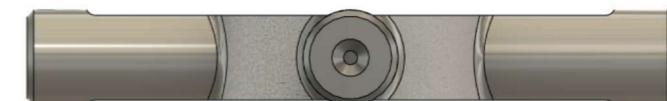
Isometric View



Side View

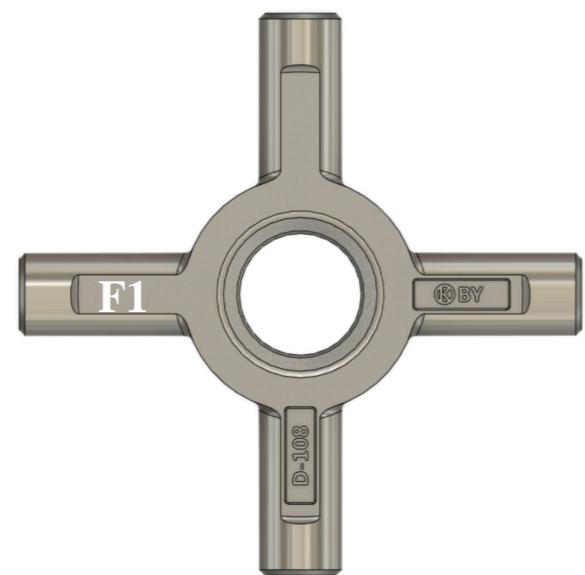


Top View

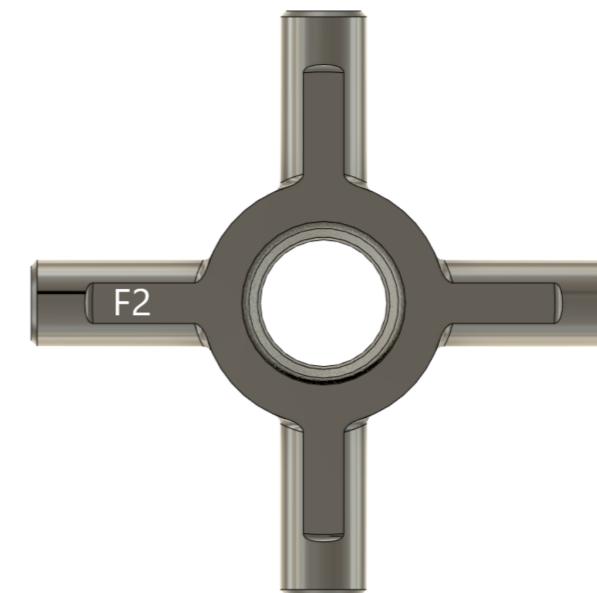


Front View

## NAMING OF FACES



**Front View**



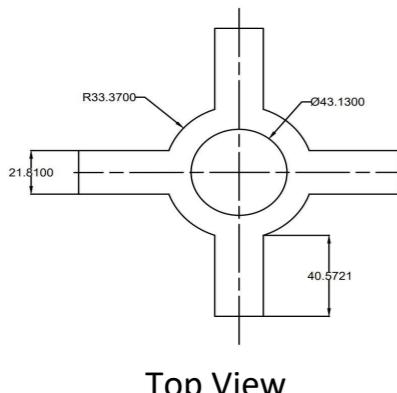
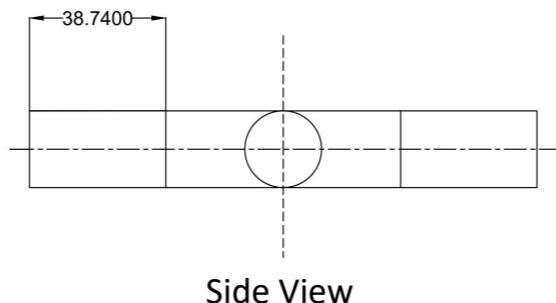
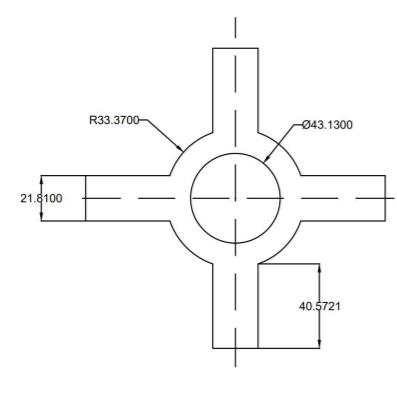
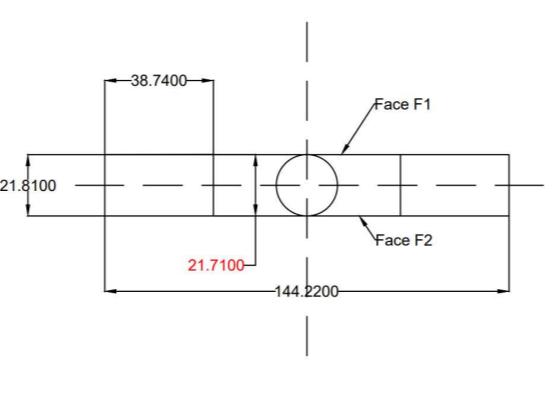
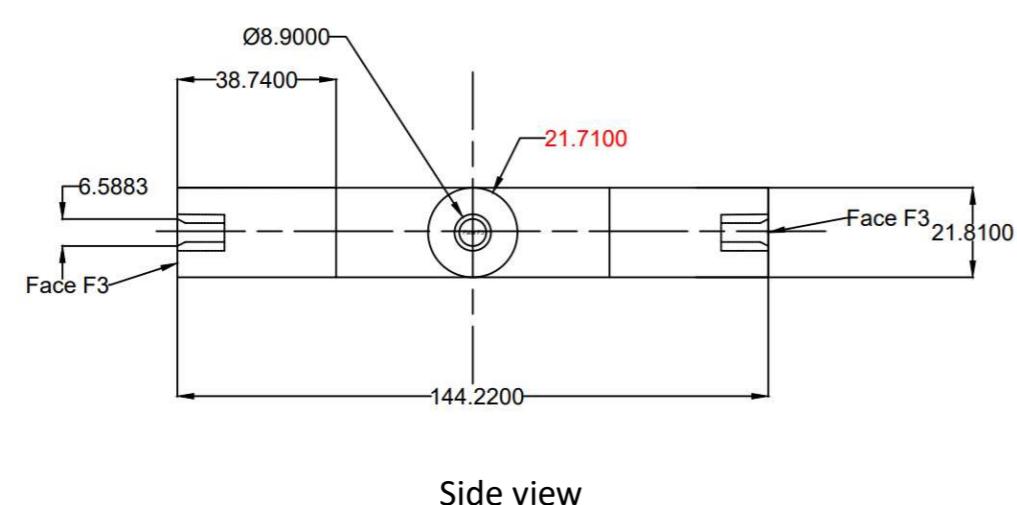
**Rear View**

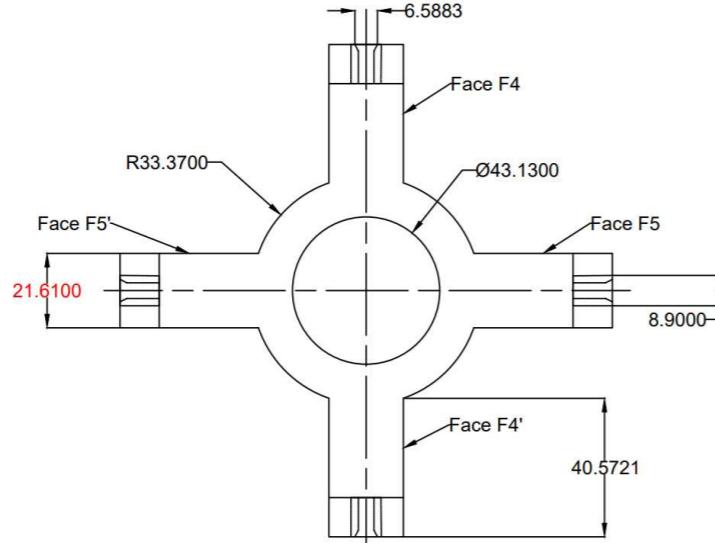
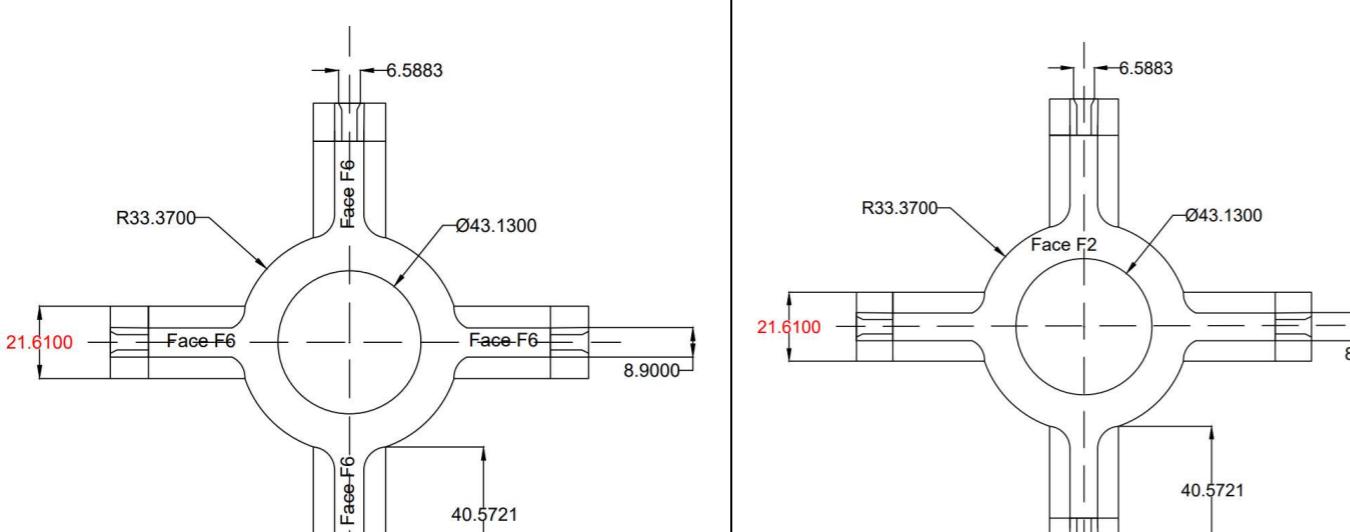


**Isometric View**



**Side View**

S. No.	Figure	Operation Description	Machine tool used	Tool material used	Locate	Clamping	Fixture	Remarks
1	 <b>Top View</b>  <b>Side View</b>	Casting	Casting tools	Wood (for pattern)	None (Liquid metal is fed into the casting box)	None	No extra fixture required	Initially casting is done to obtain the basic geometry and then the part is machined
2	 <b>Top View</b>  <b>Side View</b>	Surface Grinding	Surface Grinder	Abrasive wheel	Surface grinding on Face 1 after casting	F2 clamped on magnetic chuck	No extra fixture required	After casting, the surface grinding is done on the said surface
3	 <b>Side view</b>	Drilling	Countersink drill	HSS	Drilling on face F3 with countersink drill	F1 and F2 clamped using bench wise	No extra fixture required	Drilling is done using bench wise to clamp the said surfaces and the faces are drilled using countersink drill

4	 <p>Top View</p>	Turning	Centre Lathe	WC	Turning on faces F4 and F5	Faces F4' and F5' clamped on chuck	No extra fixture required	Turning is done on F4 and F5 clamping F4' and F5' and vice versa due to symmetric nature of the cylindrical part
5	 <p>Front View</p> <p>Back View</p>	Plunge Surface Grinding	Plunge grinder	Abrasive wheel	Plunge surface grinding on face F6	Face F2 clamped using magnetic chuck	No extra fixture required	After turning, plunge surface grinding is performed

