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Title: CFD SIMULATION CENTRIFUGAL PUMP IMPELLER BY USING ANSYS

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6. RESULT TABLE

6.1 COMPARISON OF DIFFERENT TYPES OF BLADES IMPELLER

Models	Speed (rpm)	Pressure(Pa)	Velocity (m/s)	Mass flow rate(kg/s)	Heat transfer rate (W)
5 blades	925rpm	7.84e+06	1.68e+02	1.07759	370595
	965 rpm	9.15e+06	1.82e+02	1.1297913	392329
6 blades	925rpm	8.19e+06	1.70e+02	1.5560913	160334
	965 rpm	8.94e+06	1.77e+02	1.87817	183024
8 blades	925rpm	1.34e+07	1.93e+02	3.828	288559
	965 rpm	1.50e+07	2.05e+02	4.1717682	313562

7. CONCLUSION

Centrifugal pump impeller were modeled in CREO software with optimizing the impeller blades (5, 6 &8 blades) model Computational Fluid Dynamics is most commonly used tool for simulation and analysis. 3-D numerical CFD tool is used for simulation of the flow field characteristics inside the turbo machinery. CFD simulation makes it possible to visualize the flow condition inside centrifugal pump. The present paper describes the heat transfer rate, mass flow rate, pressure drop, velocity and to evaluate the pump performance at different speeds (925 & 965 rpm) using the, a computational fluid dynamics simulation tool. By observing the CFD analysis the heat transfer rate, mass flow rate, pressure drop and velocity increases by increasing the speed of the impeller and increasing the n0, of blades in impeller. So it can be concluded the impeller 8 blades model is better model and when speed will increase the heat transfer rate will increase

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