

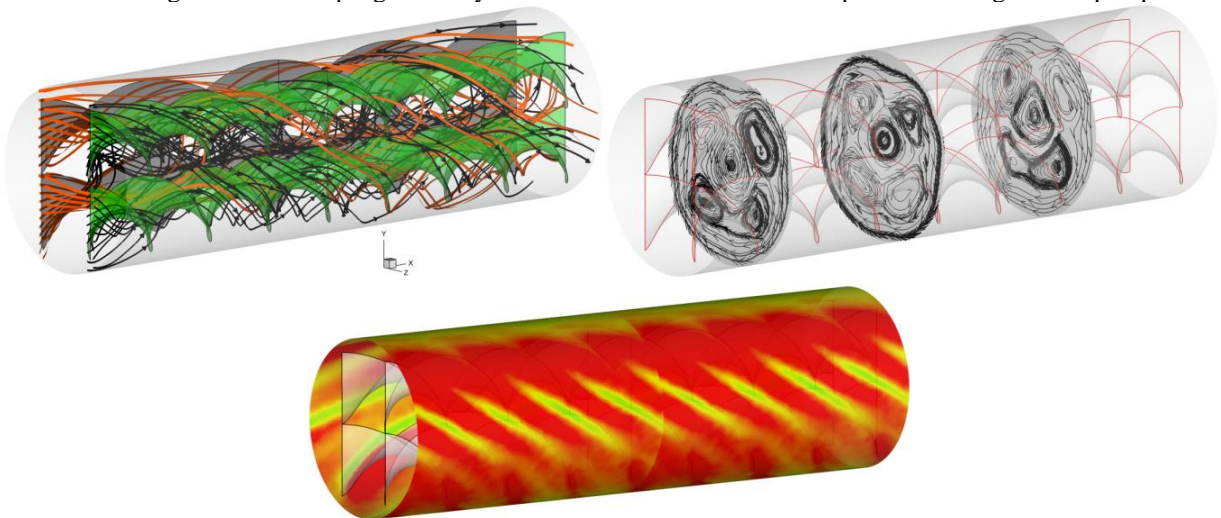
Velocity vectors inside the impeller

NUMERICAL INVESTIGATION OF PERFORMANCE OF A CONICAL HOLLOW SHAPED IMPELLER FOR PUMP

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A conical hollow shaped impeller is a new design for farm pump. The impeller blade is made from a pipe wall or sheet metal by cutting, bending, and forming into a conical hollow shaped. The pump impeller diameter is 163 mm with 4 blades of cone angle. The flow patterns throughout the pump are analyzed by numerical flow simulations (a commercial code CFX), and the impeller's height was set as the design variable. The results from CFD reveal that the performance of the pump is dependent on flow rate which was affected as impeller height was changed. The influence of height causes the pump to develop pressure in a given flow rate. But the change in height of each design to the pressure development along the impeller is not greatly affected. This means that the flow rate of the pumps vary with height value. The variation of pressure development, on the other hand, is not greatly affected. The detailed insight the flow help significantly to understand the flow and to improve the design of the pump.



(a) $y_o/y = 0.5$