

RIM	.366x 10 ⁹	.682 x 10 ⁸
CUT	.181x 10 ⁹	.337 x 10 ⁸
SPOKE	.557x 10 ⁹	.145 x 10 ⁹

5. Conclusions

Different type of flywheels are designed and analyzed for high reliability and long life. Smart design of flywheel geometry has significant effect on its specific energy performance. Amount of kinetic energy stored by wheel –shaped structure flywheel is greater than any other flywheel. To obtain certain amount of energy stored; material induced in the spoke/arm flywheel is less than that of other flywheel, thus reduce the cost of the flywheel. From the analysis it is found that maximum stresses induced are in the rim and arm junction. Results shows that efficient flywheel design maximizes the inertia of moment for minimum material used and guarantee high reliability and long life.

References

- [1]. Bawane G —Analysis and optimization of Flywheel
ijmerr/vol.1/no.2/july2012, pp272-276.
- [2]. Bolund B, Bernhoff H, Leijon M -Flywheel energy and power storage systems / Renewable and Sustainable Energy Reviews 11 (2007) 235–258.
- [3]. Bitterly G, “Flywheel technology: past, present, and 21st century projections,” *IEEE Aerospace and Electronic Systems Magazine*, vol. 13, no. 8, pp. 13–16, 1998.
- [4]. Choudhary M —Design and Optimization of Flywheel - A Past Review IJMERR/Vol.1,Issue.XII/June 2012pp.1-4
- [5]. Dhengle M —Investigation of stresses in arm type rotating flywheelIJEST/vol.4/pp641-650.
- [6]. Dilip:P.N.,Kamal,R(2010) -An evolutionary approach for the shape optimization of flywheelI.E.(1) journal-MC,Vol.90,pp8-12
- [7]. Forrester, A. I.&Keane, A. J. (2009). Recent advances in surrogate-based optimization, *Progress in Aerospace Sciences* 45(1-3): 50–79.
- [8]. Kaftanogly B -Flywheels And Super flywheels Energy storage system/vol. I/213-219.(2010)
- [9]. Mofid M—An Optimal Two-Dimensional Geometry of Flywheel for Kinetic Energy Storage Int. J. of Thermal & Environmental Engineering Volume 3, No. 2 (2011) 67-72
- [10]. Sudipta S —Computer aided design & analysis on flywheel for greater efficiency IJAERS/Vol. I/ Issue II/299-301