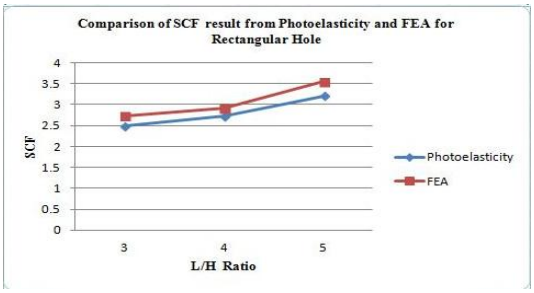

Figure 22: Comparison of SCF result from photoelasticity and FEA for Rectangular hole

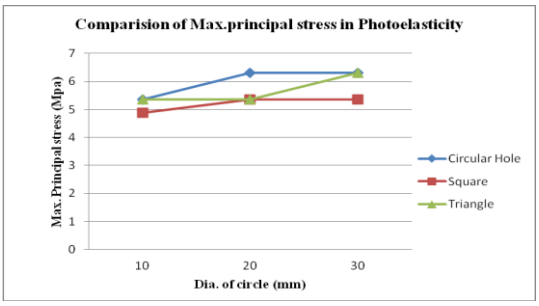

Figure 23: Comparison of Max. principle stress result from photoelasticity for circular, triangular, square hole

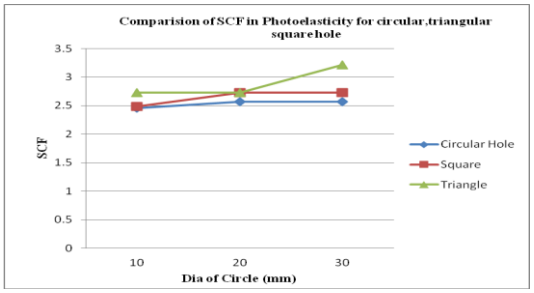

Figure 24: Comparison of SCF result from photoelasticity for circular, triangular, square hole

7. Conclusion

The high stress concentration at the edge of cut out is of practical importance in designing of engineering structures. The SCF_S of these type of cutout determined experimentally using photoelasticity and numerically using Finite Element Analysis (FEA).The result presented herein indicated that the stress concentration factor of plate with hole can significantly changed using proper cut out shape and size. From experimental and numerical analysis it is found that the SCF for circular cut out is less than triangular, square and rectangular cut out. The SCF for square cut out is less than Triangular cut out. The triangular cut out has highest stress concentration Factor. From graph it is observed that the stress concentration for plate with cut out by experimentally and numerically, are in good agreement for various cut out shape and size.

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