



# **iJRASET**

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***Index Words:* Chairless Chair, Exoskeleton, Ergonomics.**

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### III. EXPERIMENTAL SETUP



Fig - Experimental Set up of Chairless Chair

#### A. Links

Mild Steel links selected as per the ergonomics guidelines such that the links between the waists to knee is of 380 mm and the knee to ankle is 420 mm which is most common for Indian people. The Mild Steel square bar available in the market of mostly two size of thickness one is 1 mm and another is 3 mm thick. So as per market availability and safety we select the Mild Steel links of cross section = 30\*30\*1 .Square hollow section of Mild Steel is selected, as sectional modulus of Square section is more shown in

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figure 3.7 . Sectional Area is related to strength in bending so square hollow section is selected, as strength in bending will be more which our requirement is.



Fig. Mild Steel Link

General purpose steel bars for machining, suitable for lightly stressed components including studs ,bolts, gears, shafts, link ,rounds ,clips etc. Often specified where weldability is requirement can be case hardened to improve wear resistance .Available in bright rounds, squares and flats , and hot rolled round.mild steel is readily available in abundant quantity and is less costly, it has good resistance to dust, fumes, it has rugged construction

### B. Shoe Link

Shoe Link is used for attachment of our shoes with chairless chair. It facilitated for easily walking along with chairless chair. It is fixed with the help of nut bolt with lower link.



3.2 Shoe Link

### C. Stopper

It is the most important part of our project. This Part gives stability to whole project. It is made up of mild steel.



Fig 3.3 Stopper

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### D. Tie Belt

Belt is used for strapping of exoskeleton to human body. Belt will be taken as standard material available in market to wrap the model as waist and thigh

### E. Software

The computer system consists of the software. The software used for plotting is “CATIA Software And Software”.

## IV. CONCLUSION

In this project design and fabrication of chairless chair has been done. The main goal of our project was to give the comfort to workers, who work on production line for hours. Also to make the model at least cost, that has been achieved. The work started with designing of model and procurement of required material. ANSYS Software used for analysis. Finally fabricated Chairless Chair at workshop. The model is working satisfactorily. This concept was new and the data available was also limited. There are some future modifications possible.

## V. ACKNOWLEDGEMENT

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