

## A Gearless Power & Motion Transmission

Acharya Meet<sup>1</sup> Jay<sup>2</sup> Rana Shubham<sup>3</sup> Jayesh Patel<sup>4</sup> Nilamkumar S. Patel<sup>5</sup>

<sup>1,2,3</sup>BE Student <sup>4</sup>Assistant Professor <sup>5</sup>Head & Assistant Professor

<sup>1,2,3,4,5</sup>Department of Mechanical Engineering

<sup>1,2,3,4,5</sup>Sardar Patel College of Engineering, Bakrol Gujarat Technological University India

**Abstract**— Power transmission for skew shafts is with the help of either crossed helical gear or worm gear or hypoid gears in a machine, but the manufacturing of this gear is very complex, power loss in gears due to sliding motion and the shaft orientations is very limited, so need arises for a better system. In Gearless power transmission for skew shafts which reduce the losses, cost & save the time and space. This system allows the changing in the orientation of shafts during motion which is very interesting and fascinating about this mechanism. In this transmission system no. of pins or links used must be odd 3,5,7,9... Pins or links are fixed in the drilled holes at the both shaft ends due to which motion is transferred. The Working of this arrangement is very smooth & work effectively with a very minimum amount of power losses, which is skillful and is having something precise in transmitting power at right angle without any gears being manufactured.

**Key words:** Gearless Motion Transmission, Gearless Power Transmission

### I. INTRODUCTION

Gearless mechanism is a link mechanism of slider and pair, which is also known as El-bow mechanism Gears, is costly to manufacture. Its need to increase the efficiency of transmission which cannot be done using geared transmission.

Gearless transmission mechanism is capable of transmitting power at any angle without any gears being manufactured. So a gearless power transmission system for skew shafts which reduce the losses, cost & save the time and space. This system allows the changing in the orientation of shafts during motion which is very interesting and fascinating about this mechanism.

Also during analysis of mechanism and working it is seen that this gearless transmission can be used for both intersecting shafts and skew shafts.

Prof. Jayesh Patel, Prof. Vikram Panchal and Lab. Ass. Mr. Hitesh Patel Who give use the way and guidance for development of this Gearless power transmission.

### II. LITERATURE REVIEW

The review of literature will help in understanding the concepts, theorems and different factors that affects the performance of machine. (Strength of Materials by RS Khurmi & Gupta), (Machine Design by Bhandari.) in their book helps to find "An arrangement for power transmission between co-axial shafts of different diameter"

Prof. Jayesh Patel, Prof. Vikram Panchal and Lab. Ass. Mr. Hitesh Patel Who give use the way and guidance for development of this Gearless Power transmission.

### III. WORKING

The Gearless transmission is a device for transmitting motion at any fixed angle between the driving and driven shaft. The synthesis of this mechanism would reveal that it comprises of a number of pins would be in between 3 to 8, the more the pins the smoother the operation. These pins slide inside hollow cylinders thus formatting a sliding pair. Our mechanism has 3 such sliding pairs. These cylinders are placed in a Hollow pipe and are fastened at 120 degree to each other. This whole assembly is mounted on brackets wooden table.

Power is supplied by an electric motor. The working of the mechanism is understood by the diagram. An unused form of transmission of power on shaft located at an angle. Motion is transmitted from driving to the driven shaft through the roads which are bent to conform to the angles between the shafts. These roads are located at in the holes equally spaced around a circle and they are free to slide in & out as the shaft Revolves.

This type of drive is especially suitable where quite operation at high speed is essential but only recommended for high duty.

### IV. CONCLUSION

This projects which looks very simple & easy to construct was actually very difficult to conceive & imagine without seeing an actual one in practice. Motions demands to be studied first & we have done that very thing. We find that while acceptable analysis for existing mechanism can often be made quite easily we cannot without insight & imagination make effective synthesis of new mechanism hence we are mould to present this our project gear less transmission or (El-bow mechanism) .

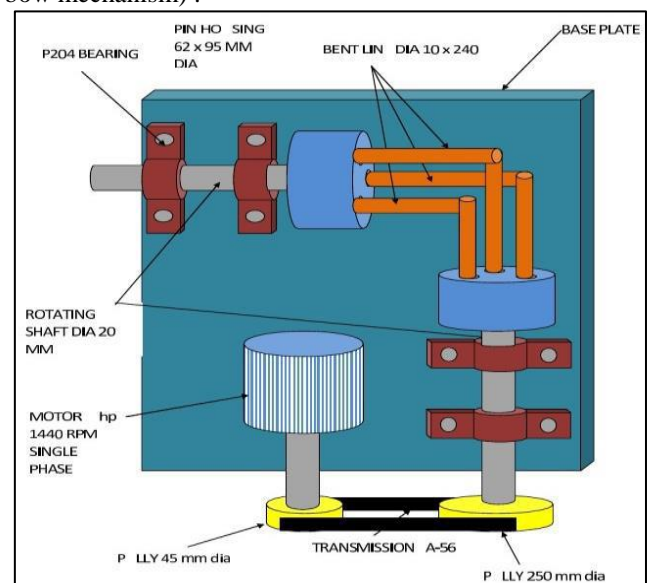


Fig. 1: Construction

REFERENCES

- [1] A. Kumar and S. Das, "An arrangement for power transmission between co-axial shafts of different diameter", International journal of engineering research and technology.
- [2] "Gear less power transmission: parallel offset shaft coupling", Journal
- [3] <https://www.youtube.com/watch?v=> School of Mechanical and Building Sciences.

*Books*

- [4] Strength of Materials by RS Khurmi & Gupta.
- [5] Design Data Hand Book by Mahadevan.
- [6] Machine Design by Bhandari.

