



PNEUMATIC TWO WHEELER RAMP:-

Mr. Mahalungkar R. S.*¹, Mr.Yewale S.B.², Mr. Kale S .K.³ & Mr.Shelar K.D.⁴

^{*1}Dipoma Student, Mechanical engineering, Jaihind Polytechnic, Kuran, Pune, India.

²Dipoma Student, Mechanical engineering, Jaihind Polytechnic, Kuran, Pune, India.

³Dipoma Student, Mechanical engineering, Jaihind Polytechnic, Kuran, Pune, India.

⁴Dipoma Student, Mechanical engineering, Jaihind Polytechnic, Kuran, Pune, India.

Keywords: Pneumatic ramp, cylinder, DCV

ABSTRACT

Two wheeler ramps are widely used in service stations and weight lifting applications. These products are manufactured by using high quality raw material & other components with the help of ultra-modern machinery of cutting edge technology, these products are highly in demand. A Pneumatic System is a system that uses pressurized air to produce and transmit mechanical energy. Pneumatic systems are used in controlling production lines and are also used in mechanical clamps, rock drills, hammer drills, grinders, conveyers, automobiles brakes and doors, dentistry applications etc.

INTRODUCTION

Pneumatics is the Study and application of compressed gas to produce mechanical motion. As a word 'pneumatics' is new but we see and use pneumatic devices daily in our life. Air filled in the cycle tube is the best example for its use. Pressure is the force applied per unit area and the force applied is perpendicular to the area. The unit of pressure is Pascal (Newton / metre²). $\text{Pressure} = (\text{Normal Force})/(\text{Area of Application})$

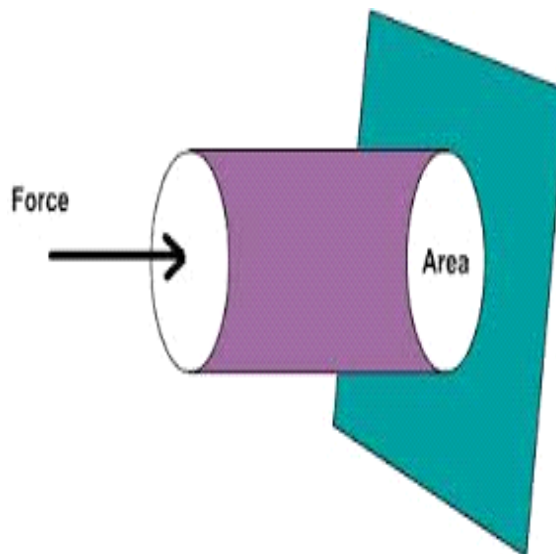


Fig.Pascal law

**MATERIAL**

Electrical Components	Pneumatic Components
Battery	Compressor
Switches	Valves
Wires	Pipes
Bulb	Cylinders

METHODS**Air Compressor**

A compressor compresses air up to the required pressure. It converts the mechanical energy of motors and engines to potential energy of compressed air. The task performed by a compressor is same as a cycle pump but the same task is accomplished by a motor.

*Fig.Compressor***Air Service Unit**

This is present after a compressor in a pneumatic circuit. The function of this system is to remove dust particles, moisture, humidity etc. from the compressed air. There several parts in an air service unit which is also called an air preparation system.

Filter: removes impurities present in compressed air before it is delivered to the pneumatic components

Pressure Regulator: allows us to regulate pressure manually

Lubricator: .provides lubrication for pneumatic components

*Fig.FRLunit*

International Journal OF Engineering Sciences & Management Research

Pneumatic Pipes: These are hollow polyurethane pipes which are used to transport air from one component to other.



Fig. Pneumatic pipes

Control Valves: Valves generally alter the flow of air. These can be controlled either manually, electrically or pneumatically. These are basically of two types:

Direction Control Valves

Direction control valves are pneumatic switching elements. They are used to control various pneumatic actuators. A pneumatic valve is represented by 'a/b' where 'a' represents number of ports and 'b' represents the number of positions any valve can have. For example a normal electrical switch can be called 2/2, it has 2 ports (+ and -) and 2 positions (ON and OFF). There are various valves like 2/2, 3/2, 5/2, 5/3, 4/2 etc. Each valve has its own symbol. A typical symbol of a pneumatic valve contains 2 or more squares. The number of squares represents number of switching positions of the valve.

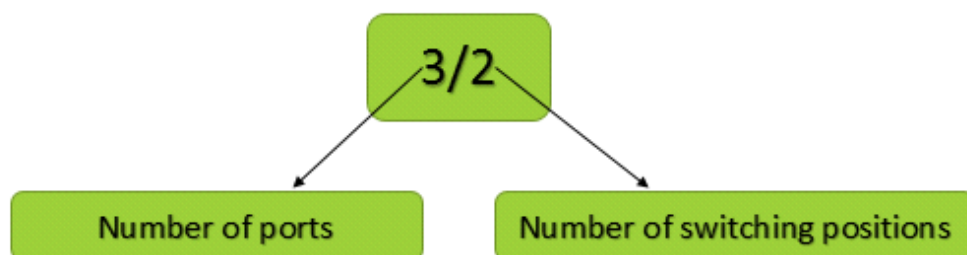


Fig. 3/2 DCV

Flow Control Valves:

A Flow control valve is a valve that controls the flow of air. Examples include non-return valves, one way flow control valves, shuttle valves; etc. We will talk more about control valves in Tutorial 4.

Actuator

An Actuator is a component which can undergo linear, rotary or reciprocating motion. Cylinders are very common actuators in pneumatics but pneumatics motors also find its place in pneumatic applications. When we talk about cylinders, basically they are of two types:

1. Single Acting Cylinders
2. Double Acting Cylinders

RESULTS & DISCUSSION

In this project to minimize the cost of two wheeler ramp by using pneumatic system.

CONCLUSION

We can increase the weight lifting capacity and decrease cost of the two wheeler ramp by using the well construction of pneumatic two where ramp.



International **J**ournal OF **E**ngineering **S**ciences & **M**anagement **R**esearch

ACKNOWLEDGEMENTS

We are profoundly grateful to Prof. Mr. GODASE Sir (PROJECT COORDINATOR) for his expert guidance and continuous encouragement throughout to see that this project rights its target since its commencement to its completion. We would like to express deepest appreciation towards Prof. KOHINKAR Sir (HOD, Mech. Dept), whose invaluable guidance supported us in completing this project. At last we must express our sincere heartfelt gratitude to all the staff members of Mechanical Department who helped us directly or indirectly during this course of work.

REFERENCES

1. <https://www.merriam-webster.com/dictionry/pneumatic>