

# DESIGN AND DEVELOPMENT OF AUTOMATIC OPERATED GIRTH WELDING MACHINE.

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## ABSTRACT

*With an increase proportion of technology, we are manufacturing and supplying Automatic Girth Welding Machine. Offered welding machine is inspected in terms of quality in order to deliver a defect free range. This welding machine is manufactured by our competent workforce utilizing highgrade components and sophisticated tools in accordance with the set standards of industry. The working principle of arc winding is, in a welding process the heat can be generated with an electric arc strike among the workpiece as well as an electrode. Explanation: An automatic welding machine has a high amount of capacity. Its capacity ranges in between 800 to 300A. This type of machine is not portable and is suitably used for heavy welding processes. This is glowing electrical discharge among two electrodes throughout ionized gas. Our welding machine is acclaimed in the industry owing to its optimum performance. Automatic welding is a generic term for welding processes using equipment that continues welding without the need for an operator for it to run continuously. Automatic spot welders and automatic contact welding machines are used for quick welding in the manufacturing lines of connectors and other electrical components.*

**Keyword:-** 1. Automatic welding machine. 2. The machine will work on gear system. 3. Useful in automobile industry.

## 1. TITLE-1 INTRODUCTION.

Welding is a fabrication process that joins materials, usually metals or thermoplastics, by using high to melt the parts together and allowing them to cool, causing fusion. Welding is distinct from lower temperature metaljoining techniques such as brazing and soldering, which do not melt the base metal. In addition to melting the base metal, a filler material is typically added to the joint to form a pool of molten material (the weld pool) that cools to form at joint that, based on weld configuration (butt, full penetration, fillet, etc.), can be stronger than the base material (parent metal). Pressure may also be used in conjunction with heat or by itself to produce a weld. Welding also requires a form of shield to protect the filler metals or melted metals from being contaminated or oxidized. Many different energy sources can be used for welding, including a gas flame (chemical), an electric arc (electrical), a laser an electron beam, friction, and ultrasound. While often an industrial process, welding may be performed in many different environments, including in open air, under water, and in outer space. Welding is a hazardous undertaking and precautions.

### 1.1 Sub Title- Definition, Objective and Scope, Aims, types of welding.

**Definition:** Welding represents one of the most important production process for wide range of products. Visual inspection of welds is one of the most effective and cheap unrestrictive method for weld joints. This method of inspection is made by man human vision. However is can be lodead by human error because of fatigue, stress, in attention or lack of experience.

#### Objectives and Scope :

The objective of this work is to develop a new automatic operated machine of welding machine. This concept allows us to achieve our goal as well as better space management. The new model takes into account all the real time conveying system and provides solution over their short coming.

#### Aims:

- Choose the best form for welding from three different forms in which the weld quality is high and defectfree as possible..
- Reduce the time required to complete welding process with reduction of workers which increases productivity and profits.
- Automatic welding process compared with manual welding and find differences between them.

### 1.2 Sub Title- Types of welding

1. Gas welding.
2. Arc welding.
3. Carbon arc welding.
4. Shilded metal arc welding.
5. Tungsten arc welding.
6. Plasma arc welding.
7. Electro slag welding.
8. Resistance welding.
9. Solid state welding.
10. Thermo-chemical welding.
11. Radiant Energy welding.

## 2. TITLE-2 Experimental Setup.

1. **Motor with gear:-** Essentially a gearmotor is a pairing of gear reducer and ac or dc electrical motor. The gearmotors are combined into one unit. A gearmotor delivers high torque and low horsepower or low speed.
2. **Fixture plate:-** A fixture is a work holding or support device used in the manufacturing industry. Fixtures are used to securely locate (position in a specific location or orientation) and support the work, ensuring that all parts produced using the fixture will maintain conformity and interchangeability. Using a fixture improves the economy of production by allowing smooth operation and quick transition from part to part, reducing the requirement for skilled labor by simplifying how work pieces are mounted, and increasing conformity across a production run.
3. **Clamping Cylider:-** hydraulic cylinder (also called a linear hydraulic motor) is a mechanical actuator that is used to give a unidirectional force through a unidirectional stroke. It has many applications, notably in

construction equipment (engineering vehicles), manufacturing machinery, and civil engineering. A hydraulic cylinder (also called a linear hydraulic motor) is a mechanical actuator that is used to give a unidirectional force through a unidirectional stroke. It has many applications, notably in construction equipment



**Fig-1** Clamping cylinder.

4. **Guide rods:-** Alternating current is rarely used with GMAW; instead, direct current is employed and the electrode is generally positively charged. Since the anode tends to have a greater heat concentration, this results in faster melting of the feed wire, which increases weld penetration and welding speed. The polarity can be reversed only when special emissive-coated electrode wires are used, but since these are not popular, a negatively charged electrode is rarely employed. A heavy drill rod coupled to and having the same diameter as a core barrel on which it is used; gives additional rigidity to the core barrel and helps to prevent deflection of the borehole. Also known as core barrel rod; oversize rod

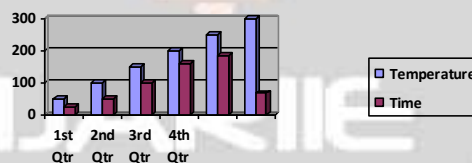


**Fig -2** Guide rods.

5. **Valves air control system:-**As highly effective and durable systems, their use of pressurised air can be easily transported through many devices. Economically, after use, this compressed air can be released back into the atmosphere without any need for extra handling. No chemicals are released when pneumatics are in operation, making these systems a favourable environmental option. Compressor valves are circular and consist of a series of plates or rings sandwiched between the valve seat and cover. When a pressure difference occurs, the rings or plates are pulled toward the area of greater pressure and use springs to return to their closed position when pressure normalizes. Even when used in lower-speed compressors, these valves may routinely open and close more than one million times per day and are often constructed of durable precision materials to compensate for this workload. Pressure relief valves keep everyone safe..

**Fig-3** valves with air control system.

**3. TITLE-3 Result and discussion:-** From this project of Design and Development of automatic operated Girth welding machine we reduce the time of welding machine and also reduce the human power and machine will work on Gear system.

**Chart -2:-** Graph of time and temperature.

#### 4. CONCLUSIONS

After our project completion and our project was really to use for production and different components. We can use this projects for welding of different components and different pattern by changing different types of fixture plates. This project can weld with more accuracy and in a even time of weld. This man power also decreases and the salary can be invested in automobile projects. Because of our project the time required to manufacture on product is less than time taken of human this leads to growth in manufacturing.

#### 5. ACKNOWLEDGEMENT





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