বাংলাদেশ শিল্প কারিগরি সহায়তা কেন্দ্র(বিটাক)
শিল্প মন্ত্রণালয়
১১৬(খ), তেজগাঁও শিল্প এলাকা,ঢাকা ১২০৮।

গবেষণা শিরোনাম (Title of the Research)

Development of hydraulic opening and closing system for gravity die casting

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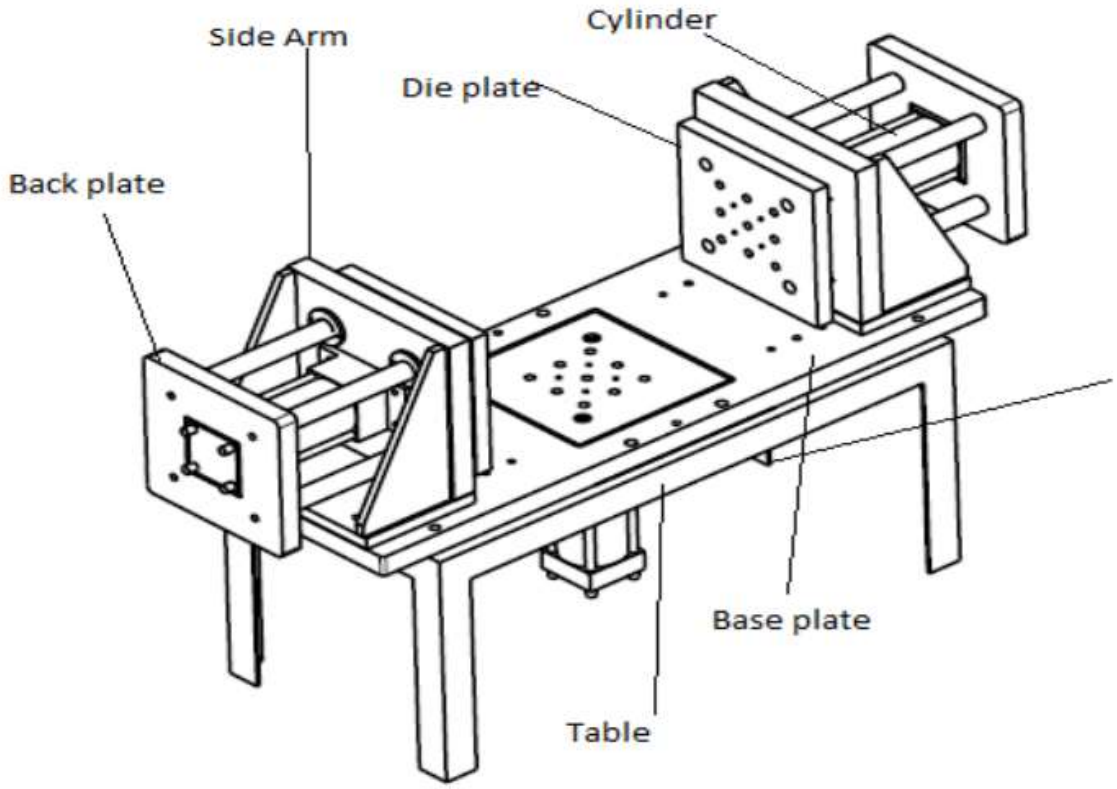
Cylinder
Side Arm
Die plate
Back plate
Base plate
Table

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গবেষণা প্রস্তাব

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সমস্যার বর্ণনা (Statement of the Problem)

Recently, our foundry shop has gained a significant amount of production rate by leveraging the existing gravity dies they have. But during production hour, they have to face some difficulties with those gravity dies. The prominent one is opening and closing the dies which are quite laborious. Sometimes, after pouring molten metal, the cope and drag of the dies stick to each other. In that case, a considerable amount of force has to be applied to separate them. That force causes nearly unrecoverable damage to the dies. Through our research, we'll try to develop a mechanism to open and close the die hydraulically which will require only a minimum force. Thus die longevity and production rate will increase.

গবেষণার উদ্দেশ্য সমূহ (Objectives of the Study)

1. To develop this technology locally.
2. To reduce manual labor.
3. To reduce cost
2. To reduce production step and time
4. To automate the production line.
5. To support young entrepreneur.
6. To improve job quality.
7. Increase die life

গবেষণার গুরুত্ব (Rationale of the Study)

This indigenous technology can be adopted by SMEs (Small & Medium Enterprises) and young entrepreneurs who are running small workshops and support our industries. Thus all over the foundry industry we can expect a massive boost in productivity. In order to be a developed country, efficient and automated production line is necessary. By using this

hydraulic opening and closing system for gravity die casting anyone can reduce production lead time, increase productivity and reduce manual labor.

গবেষণা পদ্বতি (Methods of the Study)

1. Data collection and market analysis

2. Load calculation

3. 3D CAD designing

4. Raw Material, hydraulic pump, hydraulic cylinder, and other related components acquisition

5. Machine components manufacturing and fabrication

6. Components assembly

7. Performance test and necessary adjustments.

প্রত্যাশিত ফলাফল (Expected output)

A common problem in foundry division will be solved through local technology. Thus rejection rate of casting products will be minimized, die life will be increased. As a result, better economic competitiveness will be achieved. Increase in productivity will increase the GDP of our country. Work risk will be reduced and a safe work environment can be ensured.

কর্ম পরিকল্পনা এবং সম্ভাব্য বিবরণী (Action Plan and Tentative Budget)

Time Frame:

1.Data collection -4 weeks

2.Design -4 weeks

3.Procurement -5 weeks

4.Manufactureing -8 weeks

5.Re-design and manufacturing-5 weeks

6.Quality Control- 4 weeks

7.Final Test -2 week

Total-32 weeks

Tentative Budget:

1.Raw Material - 170K

2.Hydraulic Pump, Cylinder and Others - 290K

2.Machining and fabrication - 100K

3.Consultancy - 40K

4.TA & DA - 30K

5.Contingency-30K

Total Cost- 660K

রেফারেন্স (Reference) :

1. Mr. Chirag Sanghavi, Mr. Soham Patil, Prof. S M Narayankar, *Design and Fabrication of Semi-Automatic Gravity Die Casting Machine*, International Journal for Scientific Research & Development, 2018, Vol. 6, Issue 04
2. https://www.indiamart.com/proddetail/gravity-die-casting-machine-13693823133.html

Gravity Die Casting Machine: