

ALUMINIUM COIL REWINDING

1. INTRODUCTION

The Aluminum Coil Rewinding Project represents an innovative and vital endeavor within the metal processing industry. Aluminum coils are widely used in various industrial sectors, including construction, automotive, and manufacturing. The objective of this project is to establish a specialized facility dedicated to the rewinding and refurbishment of aluminum coils. This venture aims to provide cost-effective and sustainable solutions for extending the life and usability of aluminum coils, reducing waste in the process.

1. PRODUCT & ITS APPLICATION

The primary product of the Aluminum Coil Rewinding Project is the rewound and refurbished aluminum coil. These coils find extensive applications across various industries, such as construction, HVAC systems, automotive parts manufacturing, and packaging. Rewinding and refurbishing aluminum coils involve processes like cleaning, inspection, trimming, and recoiling to eliminate defects, reduce waste, and enhance the quality of the final product. By offering high-quality rewound aluminum coils, this project caters to the demand for sustainable and cost-effective materials in industrial applications.

2. DESIRED QUALIFICATION FOR PROMOTER

The promoter should possess technical knowledge in aluminum coil processing, business acumen, and quality control expertise. They should understand environmental compliance, have marketing and sales skills, and access to reliable aluminum suppliers. Operational experience in metal processing or manufacturing is advantageous to ensure the project's success.

3. INDUSTRY OUTLOOK AND TRENDS

The aluminum processing industry is experiencing steady growth, driven by the demand for lightweight and durable materials in various sectors, including aerospace, construction, and automotive industries. As a result, the demand for aluminum coils remains robust. One notable trend is the increasing emphasis on sustainability and environmental responsibility. This presents an opportunity for the Aluminum Coil Rewinding Project to position itself as an eco-friendly alternative by reducing waste and extending the lifespan of aluminum coils.

Additionally, advancements in technology, such as automated rewinding and quality control systems, are enhancing the efficiency and precision of the rewinding process. This project should stay abreast of such technological developments to maintain competitiveness in the industry.

4. MARKET POTENTIAL AND MARKETING ISSUES, IF ANY

The aluminum coil rewinding industry in India, including potential ventures in Uttarakhand, is closely tied to the national aluminum industry, which is on an upward trajectory due to increasing demands in sectors like construction, automotive, and electronics. The Aluminum Association reports a steady global increase in aluminum demand, a trend reflected in the Indian market, spurred by rapid infrastructure development and industrialization. This growth presents significant opportunities for aluminum coil rewinding services, especially in regions poised for industrial growth like Uttarakhand.

However, the industry faces challenges, including fluctuating aluminum prices and competition from manufacturers offering new coils. For a new venture in Uttarakhand, navigating these

challenges involves strategic raw material procurement and competitive pricing. Emphasizing service quality and reliability will be crucial to differentiate from new coil providers and other rewinding services. Success in Uttarakhand's aluminum coil rewinding market will hinge on aligning with the broader growth of the aluminum industry while effectively managing market-specific challenges.

India is the world's 2nd largest producer of aluminum with a significant growth rate, producing over 3.7 million tonnes annually. The country's aluminum consumption is expected to reach 5.3 million tonnes by 2025, underlining the potential for ancillary industries like aluminum coil rewinding.

5. RAW MATERIAL REQUIREMENTS

The primary raw material for the Aluminum Coil Rewinding Project is aluminum coils, which may be sourced from various suppliers or manufacturers. The project must establish reliable partnerships with aluminum suppliers to ensure a consistent and cost-effective supply of coils in various sizes and grades. Additionally, the project may require consumables like cleaning agents, lubricants, and packaging materials to support the rewinding and refurbishment process. Ensuring a stable supply chain for these materials is essential to maintain uninterrupted operations.

Here are the details of some suppliers:

- Siddhi Aluminium Trading Co.: Address: 541, Ground Floor Shivalik, Ring Rd, Jogiwala, Dehradun, Uttarakhand 248005
- I.S. ENTERPRISES: No 122, TEER GHARAN, OPP MEERUT SAMACHAAR, SUBHASH NAGAR, Meerut, Uttar Pradesh, 250002, India
- Shubh Metal Trading Co.: 29-30, Old Rollatiner Paper Mill, Pioue Maniyari Narela Road, Kundli, Sonipat, Haryana, 131028, India

6. MANUFACTURING PROCESS

The manufacturing process for rewinding aluminum coils encompasses several crucial steps to ensure the final product meets the highest standards of quality and precision. Initially, incoming aluminum coils undergo a thorough inspection to identify any defects, irregularities, or surface imperfections that could impact the quality of the rewound coil. Following this, the coils are cleaned to eliminate contaminants, oxidation, or residues, and surface treatments may be applied to enhance the adhesion of any subsequent coatings or paint. Depending on customer specifications, the coils might then be trimmed or slit to the required width and dimensions.

Throughout the manufacturing process, stringent quality control measures are in place to guarantee that the rewound coils conform to both industry standards and customer expectations. The actual rewinding and recoiling of the coils onto new spools are performed with careful attention to maintaining uniform tension and proper alignment, effectively rectifying any defects or inconsistencies present in the original coils. After rewinding, the coils are subjected to a final inspection to ensure they meet all specified quality criteria.

Once certified for quality, the rewound aluminum coils are then packaged appropriately and prepared for delivery, safeguarding their quality and integrity until they reach the customer. Notably, aluminum rod rewinders are capable of handling rods with diameters of 9.5 mm and 12 mm, and aluminum foil used in packaging typically ranges from 0.15–0.50 mm in thickness, with foil for flexible packaging being even thinner at 0.012–0.04 mm. Specifications for an automatic aluminum foil rewinding machine include a space requirement of 6' x 4' x 4', a machine weight of 500 kg, a maximum aluminum foil width of 310 mm, and a maximum unwinding diameter of 500 mm. Aluminum foil itself is a remarkably thin metal leaf with

thicknesses below 0.2 mm, and thinner gauges down to 6 micrometers are also commonly used in various applications. The efficient and precise execution of these manufacturing steps is vital for producing high-quality rewound aluminum coils that meet the diverse needs of different industries.

The BIS certification for aluminum and aluminum alloy bare is IS 15392:2003.

7. MANPOWER REQUIREMENT

Sr. No	Particulars	No. of Person	Months	Monthly Wages Amount/Person (Rs in Lakhs)	Monthly Wages - Total (Rs in Lakhs)	Annual Expenses (Rs in Lakhs)
1	Skilled	3	12	0.18	0.54	6.48
2	Semi-skilled	4	12	0.13	0.52	6.24
3	Unskilled	4	12	0.10	0.40	4.80
	Total					17.52

8. IMPLEMENTATION SCHEDULE

Sr. No.	Activity	Time Required (in months)
1	Acquisition of premises	2
2	Construction (if applicable)	1
3	Procurement & installation of Plant & Machinery	1
4	Arrangement of Finance	2
5	Recruitment of required manpower	1
	Total time required (some activities shall run concurrently)	6

9. COST OF PROJECT

Sr. No.	Particulars	Amount (Rs in Lakhs)
1	Pre-operative Expenses	1.50
2	Land and Building	10.00
3	Machinery	17.94
4	Equipment and Furniture	1.05
5	Working Capital	8.00
	Total Project Cost	38.49

10. MEANS OF FINANCE

Bank-term loans are assumed @ 75 % of fixed assets.

Sr. No.	Particulars	Percentage Share	Amount (Rs in Lakhs)
1	Promoter's Contribution	25%	9.62
2	Bank Finance	75%	28.87
	Total		38.49

11. LIST OF MACHINERY REQUIRED

A. Machinery

Sr. No.	Particulars	Unit	Unit Cost (Rs in Lakhs)	Total Amount (Rs in Lakhs)
1	Aluminium Coil Rewinding Machine	1	3.00	3.00
2	Slitting Machine	1	2.50	2.50
3	Coil Loading/Unloading Equipment	1	1.50	1.50
4	Edge Trimming Machine	1	2.00	2.00
5	Digital Weighing Scale	1	0.50	0.50
6	Forklift for Material Handling	1	4.00	4.00
7	Safety and Protective Equipment	1	0.30	0.30
	Total Amount			13.80
	Tax, Transportation, Insurance, etc.			2.76
	Electrification Expenses (Wiring)			1.38
	Grand Total			17.94

B. Furniture & Equipment

Sr. No.	Particulars	Unit	Unit Cost (Rs in Lakhs)	Total Amount (Rs in Lakhs)
1	Office Furniture and Shelves	Set	0.65	0.65
2	Computers and printers	1	0.40	0.40
	Total Amount in Rs			1.05

12. SALES REALIZATION CALCULATION

Sr. No	Product	Quantity (in Pieces)	Sales in Percentage	Total Sales (Rs in Lakhs)
1	Aluminium Coil	21000	100%	75.60
	Total		100%	75.60

13. PROFITABILITY CALCULATIONS

Sr. No	Particulars	Year-I (Rs in Lakhs)
A.	Sales Realization	
	Sales (Assuming 15% growth per year)	75.60
	Other Income (Assuming constant)	
	Total Sales Realization	75
B.	Cost of Production	
	i) Raw Materials	43.5
	ii) Utilities (Assuming constant)	0.45
	iii) Manpower (Salaries/wages)	17.52
	iv) Administrative Expenses (Assuming constant)	0.38
	v) Selling & Distribution Expenses (Assuming constant)	0.40
	viii) Interest (Assuming constant)	3.85
	Total Cost of Production	66.10
	No of Units Produced	21,322
	Cost of Goods Sold	Rs. 310
	Gross Profit/Loss (A – B)	8.91
	Less: Depreciation	3.08
C.	PBIT (Profit Before Interest and Tax)	5.83
D.	Income-tax (Assuming 28% tax rate)	1.64
E.	Net Profit/Loss (C - D)	4.20
F.	Repayment	3.85
	Retained Surplus (E - F)	0.35

14. BREAKEVEN ANALYSIS

Fixed cost	Year-I (Rs in Lakhs)
Depreciation	3.08
Interest	3.85
Manpower	5.26
Total Fixed cost	12.19
Variable cost	
Raw materials	43.5
Utilities	0.45
ManPower	12.26
Administrative expenses	0.38
Selling & distribution expenses	0.4
Total Variable cost	56.99
Contribution margin	20%
Break-Even Point in Value	60.95

15. STATUTORY/GOVERNMENT APPROVALS

To establish and operate the Aluminium Coil Rewinding project smoothly and in compliance with legal regulations, several statutory and government approvals are necessary. Key approvals and permits to be obtained include:

- **Business Registration:** Register the business entity as per the legal requirements of the region or country where the project is located. This may include choosing a suitable business structure, such as a sole proprietorship, partnership, limited liability company (LLC), or corporation.
- **Factory License:** Depending on the size and scale of operations, obtain a factory license or permit from the local authorities or state government. Compliance with safety and environmental standards is often a prerequisite for this license.
- **Environmental Clearances:** Ensure compliance with environmental regulations by obtaining clearances from the relevant environmental authorities. This is particularly important as the project may involve machinery and processes that could impact the environment.
- **Quality Certifications:** Seek industry-specific quality certifications, such as ISO (International Organization for Standardization) certification, to demonstrate the quality and standards adherence of the rewound aluminum coils.

- **Tax Registrations:** Obtain necessary tax registrations, including Goods and Services Tax (GST) registration, as applicable in the region or country.
- **Labor and Employment Compliance:** Comply with labor laws and regulations by obtaining any required permits for hiring and managing employees.
- **Fire Safety Approvals:** Ensure adherence to fire safety regulations and obtain necessary fire safety approvals for the premises, especially if flammable materials are used or stored.
- **Local Permits:** Depending on the location and specific regulations of the area, additional permits may be necessary, including zoning permits, signage permits, and health department permits.

16. BACKWARD AND FORWARD INTEGRATIONS

Backward Integration:

- **Aluminum Sheet Production:** Backward integration could involve establishing or acquiring facilities for the production of aluminum sheets. This ensures a direct and controlled supply of the primary raw material used in the manufacturing of aluminum coils.
- **Aluminum Alloy Manufacturing:** Integrating backward might also include getting involved in the production or sourcing of specific aluminum alloys required for the manufacturing of high-quality aluminum coils.
- **Coating and Finishing Processes:** Backward integration may involve the integration of coating and finishing processes for aluminum sheets. This allows better control over the quality and specifications of the raw material.
- **Metal Recycling Operations:** For sustainability and cost control, backward integration could extend to metal recycling operations. This involves the collection and recycling of scrap aluminum to be used in the production of new aluminum sheets.

Forward Integration:

- **Coil Finishing and Customization Services:** Forward integration may involve offering services for coil finishing and customization according to specific customer requirements. This could include slitting, cutting, and surface treatment services.
- **Manufacturing Downstream Products:** Diversifying into the production of downstream products, such as stamped components or fabricated parts, using the rewound aluminum coils as raw material can be a form of forward integration.
- **Packaging and Distribution Services:** Establishing packaging and distribution services for the finished aluminum coils, ensuring timely and efficient delivery to clients. This creates a one-stop solution for customers' aluminum coil needs.
- **Developing End-User Products:** Forward integration might involve moving into the development of end-user products that utilize aluminum coils, such as components for the automotive industry, construction materials, or consumer goods.

17. TRAINING CENTERS AND COURSES

- **Aluminum Coil Processing Courses:** Collaborate with technical institutes or experts to provide specialized training to employees involved in the coil rewinding process. These courses should cover aspects such as coil inspection, cleaning, trimming, recoiling, and quality control.

- **Machinery Operation and Maintenance:** Ensure that the technicians responsible for operating and maintaining machinery receive comprehensive training. Courses should encompass machine safety, troubleshooting, and routine maintenance practices.
- **Quality Control and Assurance Training:** Train quality control inspectors in quality assurance techniques, including visual inspections, measurements, and compliance with industry standards.

Swayam portal (link: <https://swayam.gov.in/>) can also be accessed for enhanced learning on business commerce, accounting, production, marketing, and areas of entrepreneurship.

Disclaimer

Only few machine manufacturers/institutes are mentioned in the profile, although many machine manufacturers/institutes are available in the market. The addresses given for machinery manufacturers/institutes have been taken from reliable sources to the best of knowledge and contacts. However, no responsibility is admitted, in case any inadvertent error or incorrectness is noticed therein. Further the same have been given by way of information only and do not carry any recommendation.

