

PROPOSAL FOR UPGADATION OF MCL DRIVE SYSTEM FOR 160 MPM  
LINE SPEED

TO,  
M/S ALAF LIMITED, TANZANIA  
TECHNICAL & PRICE PROPOSAL  
IBACPL/ALT/19/125 – REV 3.0  
21/08/2019

Customer	ALAF LIMITED, TANZANIA
Kind Attn	Mr. Sujit Saha
Project	Upgradation of MCL Drive System For 160 MPM LINE SPEED
Customer Ref No.	Discussions
Our Reference No.	IBACPL/ALT/19/125
Prepared By	Mohsin Rashid
Revision	3.0
Office of Issue	I & B Automation & Controls Pvt. Ltd. F-436, Sector-63, Noida - 201301, (U.P.)

To,

ALAF LIMITED, TANZANIA

SUB: Proposal for Upgradation of MCL Drive System for 160 MPM Line Speed

Dear Sir,

Thank you for giving us an opportunity to work with you on this prestigious project.

The Proposal is for Design, Engineering, manufacturing, supply, Testing, Supervision of Erection/Installation & Commissioning of Upgradation of MCL Drive System for 160 MPM Line Speed on site.

Based on the inquiry document, please find herewith our technical & commercial proposal, which comprises of the following:

1. Scope of Work and supply
2. Services
3. Price Offer

We hope you will find the same in line with your requirement. If you have any questions, do not hesitate to ask the same, we shall be pleased to address them.

Thanking and assuring you of our best services at all times to you.  
With Best Regards,

For I & B Automation & Controls Pvt. Ltd

Mohsin Rashid

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## 1.0 EXECUTIVE SUMMARY

Rockwell Automation, whose leading brands include Allen-Bradley and Rockwell Software, is uniquely positioned to supply PLC based control System to meet the requirements of the Automation for Batch Handling Systems since our products and solutions have been built off of Rockwell over 115 years of experience in serving the automation industry. Customers implementing our solutions today benefit from the expertise we've developed and refined from providing the same type of solutions to many customers globally over the past many years executing and automating their Total Plant Solution concepts. With this said, the success of this project, and for that matter, any Automation project is universally recognized to rest on the end user's, in this case, your selection of an experienced partner. Success is paramount on the selection of a partner who can not only provide a robust Automation system but also with a partner who is experienced and has the knowledge of how to integrate and optimize the automation layer solutions with the middleware solutions. Rockwell Automation has this knowledge, the products, the solutions, and the experience to successfully deliver the requirement.

This proposal will define the Automation System for Design and detailed engineering, project management, procurement, supply, fabrication, expediting & inspection, installation supervision, testing, pre-commissioning, supervision of erection/installation and commissioning of supplied material onsite.

### 1.1 I&B Automation Company Overview

I&B Automation & Controls incorporated in India by technocrats having more than 60 years' experience with Rockwell Automation's product & Industry in India. We are Automation & Drives System Integrator having in-depth knowledge of Paper, Tyre & Metal Industries Application and Products. We have extensive experience of successfully completing a number of Automation based Control systems with similar applications. Having done many jobs of similar nature and even having a more extensive scope, our engineers are well versed in the customer's application requirement. We commit ourselves to the full satisfaction level of the customer & align our deliverables accordingly.

Further I&B Automation (we), Rockwell Automation's Recognized System Integrators are proven, trusted and established organization that offers extensive experience in providing solutions to Automation & Drives System needs for Paper, Tyre & Metal Industry. We are customer driven and solution oriented company engaged in delivering high quality and cost-effective custom-built system. Its expertise includes:

- Integrated Automation System
- Intelligent MCC & PDB's
- MV Drives and Soft starters

## 2.0 SCOPE OF WORK/SUPPLY

The project objective is to provide design and implementation of Converter System for 160 MPM Line Speed based on the design & motor list provided by M/s. Esmech on 20 Aug 2019. Our scope of Work/Supply shall comprise of Design, Engineering, Manufacturing, Supply, Supervision of Erection & Installation and Commissioning of the following system:

### Drive System

1. 42 nos. of Power Flex Series AC Drives 18 nos. enclosed in a suitable Cubicle for motors comprising of following:

- PF 750 Series Drive Module for Line Motor (as per table below)
  - PF 525 Series Drive Module for Furnace Motor (as per table below)
  - PF 750 Series Drive Module for Aux Motor (as per table below)
  - Encoder module for Line Drives
  - HIM for Drives
  - Controlnet Communication Adapter for Drive
  - Network Communication Cable – Controlnet
  - Controlnet Redundant Interface Module
  - Ethernet Interface Module
  - Switchgear for line Drives
  - Profibus Module for interfacing Welder & CPC Unit
  - Profibus Cable
  - Profibus Cable
  - RTD
  - Fully wired panel with necessary switchgear for Aux Drive (CAG Blowers)
  - Fully wired panel with necessary switchgear for Line Drive (Hearth Roll)
  - IO for New system for TLL / New bridge / New additional control
  - Power supply for New Pneumatic Brakes
- ...22 Nos  
 ...15 Nos  
 ...05 Nos  
 ...16 Nos  
 ...42 Nos  
 ...27 Nos  
 ...01 Lot  
 ...01 Nos  
 ...01 Nos  
 ...01 Nos  
 ...22 Nos  
 ...01 No  
 ...100 Mtr  
 ...06 Nos  
 ...1 Lot  
 ...1 Lot  
 ...1 Lot  
 ...1 Lot  
 ...2 nos.

List of Drives :

Sr	No	Area	Function	KW at 160 MPM	Supply/existing	IP type	Panel	switchgear
1	Aux	Aux	Air knife 2	150	New supply	AC	Exiting	Exiting
2	Aux	Aux	Air knife 1	150	New supply	AC	Exiting	Exiting
3	Aux	Aux	CAG Blower 3	110	New supply	AC	New-1	New-1
4	Aux	Aux	CAG Blower 2	160	New supply	AC	New-1	New-1
5	Aux	Aux	CAG Blower 1	110	New supply	AC	New-1	New-1
6	Line	Line	Turn down motor	3	New supply	DC	Exiting	Exiting
7	Line	Line	Vacuum Roll 2	2.2	New supply	DC	Exiting	Exiting
8	Furnace	Furnace	Entry Seal Roll, Heart Roll2 - group 1	2.2	New supply	AC	New-2	New-2
9	Furnace	Furnace	Hearth roll 1,3- group 2	1.5	New supply	AC	New-2	New-2
10	Furnace	Furnace	Hearth roll 4,6,8,10,12 - group 3	1.5	New supply	AC	New-2	New-2
11	Furnace	Furnace	Hearth roll 5,7,9,10 - group 4	1.5	New supply	AC	New-2	New-2
12	Furnace	Furnace	heart roll 4	1.5	New supply	AC	New-2	New-2
13	Furnace	Furnace	heart roll 5	1.5	New supply	AC	New-2	New-2

14	Furnace	heart roll 6	1.5	New supply	AC	New-2	New-2
15	Furnace	heart roll 7	1.5	New supply	AC	New-2	New-2
16	Furnace	heart roll 8	1.5	New supply	AC	New-2	New-2
17	Furnace	heart roll 9	1.5	New supply	AC	New-2	New-2
18	Furnace	heart roll 10	1.5	New supply	AC	New-2	New-2
19	Furnace	heart roll 11	1.5	New supply	AC	New-2	New-2
20	Furnace	heart roll 12	1.5	New supply	AC	New-2	New-2
21	Furnace	heart roll 13	1.5	New supply	AC	New-2	New-2
22	Furnace	heart roll 14	1.5	New supply	AC	New-2	New-2
	Line	Uncoiler motor 1	30	Existing use	NA	NA	NA
	Line	Uncoiler motor 2	30	Existing use	NA	NA	NA
23	Line	New pinch roll 1	5.5	New supply	DC	Existing- modify	New
24	Line	Bridle motor # 1.1	18.5	New supply	DC	Existing- modify	New
25	Line	Bridle motor # 1.2	18.5	New supply	DC	Existing- modify	New
26	Line	Entry accumulator motor	37	New supply	DC	Existing- modify	New
27	Line	Bridle motor #2.1	18.5	New supply	DC	Existing- modify	New
	Line	Bridle motor #2.2	18.5	Existing use	NA	NA	NA
	Line	Hot bridle motor A	15	swap use	NA	NA	NA
	Line	Hot bridle motor B	18.5	Existing use	NA	NA	NA
	Line	Bridle motor 3.1	30	swap use	NA	NA	NA
28	Line	Bridle motor 3.2	45	New supply	DC	Existing- modify	New
29	Line	Bridle motor 5.1	55	New supply	DC	Existing- modify	New
30	Line	Bridle motor 5.2	110	New supply	DC	Existing- modify	New
31	Line	Bridle motor 6.1	110	New supply	DC	Existing- modify	New
	Line	Bridle motor 6.2	75	swap use	NA	NA	NA
32	Line	Bridle motor # 6A.1	55	New supply	DC	Existing- modify	New
33	Line	Bridle motor # 6A.2	45	New supply	DC	Existing- modify	New
34	Line	#1 Chemcoater 1 Top Applicator Roll	30	New supply	AC	Existing- modify	New
35	Line	#1 Chemcoater 3 Bottom Applicator Roll	30	New supply	AC	Existing- modify	New
	Line	#1 Chemcoater 2 Top Pickup roll	22	swap use	NA	NA	NA
36	Line	#1 Chemcoater 4 Bottom Pickup Roll	22	New supply	AC	Existing- modify	New
	Line	Bridle motor 7.1	30	swap use	NA	NA	NA
	Line	Bridle motor 7.2	18.5	Existing use	NA	NA	NA
37	Line	Exit acc. Motor	37	New supply	DC	Existing- modify	New

01	Powerflex 2.2 KW with accessories	01
02	Powerflex 55 KW with accessories	01
03	Powerflex 160 KW with accessories	01
04	Digital input module	01
05	Digital output module	01
06	Adapter communication module	01
07	Network cable & connector	01
08	Encoder card	01
09	Communication card	01

### 3. Spare Drives & accessories :

01	Flex I/O Dual Port EtherNet/IP Adapter Module	02
02	Input Module, 24VDC, 32 Sink Inputs	05
03	Input Module, 24VDC, 32 Sink Inputs	03
04	Analog Input Modules, 8 Single-Ended Inputs	01
05	Analog Output Modules, 4 Single-Ended Outputs	02
06	RTD input module	01
07	Terminal Base	12

### 2. Additional PLC Modules for New system :

- Motors, Encoders, Field cable will be in customer scope.
- All Line drives are considered with ControlNet communication card, HIM, & encoder card.
- We have considered 120 mandays onsite for 4 Engineers & 4 Technician for the Supervision of Installation/erection and Commissioning services where the Design, Engineering, Manufacturing, Software Development, Testing, FAT will be done onsite and the Commissioning of the supplied material onsite.
- All the existing equipment panel switchgear shall be reused.
- Drives marked as Existing Use ( 3 nos. ) & swap used ( 5 nos. ) shall be use existing along with its switchgear. They are indicated in above list for indication purpose.

Note: -

38	Line	Existing pinch roll 1	1.5	New supply	DC	Existing- modify	New
39	Line	Existing pinch roll 2	2.2	New supply	DC	Existing- modify	New
40	Line	Bridle motor 8.1	30	New supply	DC	Existing- modify	New
41	Line	Bridle motor 8.2	37	New supply	DC	Existing- modify	New
42	Line	Recoiler motor	160	New supply	DC	Existing- modify	New

14	Switch buttons & accessories	01 lot
56	Absolute encoder for Looper position (entry & exit)	02

**4. Additional equipment :**

10	Controlnet T Tap adapter	01
11	Controlnet BNC connector	01
12	Controlnet End terminator	01
13	Ethernet communication Switch	01

### 3.0 Panel/Cubicles

#### Drive Panels

Fully wired Custom designed panels/cubicles will be provided to house the Drive System along with the necessary switchgear, control gears, etc. The panels will be of protection class **IP42, Pyrotech** makes. They will be painted with RAL7032 / 7035 gray enamel exterior and interior. They will have bottom cable entry, with suitably rated earth bus bar, un-drilled removable gland plate of 3mm thick CRCA sheet. The enclosure will have front and rear access with hinged door.

We have considered standard vendor approved make switchgear and Control gear. Rest all other hardware (Bus-bar/ Metering/ Cables/ Wires) shall be of vendor-approved/equivalent make only.

#### Notes:

Exact GA/ Layout of the cubicles shall be provided during detailed Engineering

## 4.0 SERVICES

### 4.1 Project Management

This includes:

- Project organization and project scheduling.
- Accurate and timely dissemination of information to the customer.
- Monitoring of contract documents with regard to scope of supply.
- Maintaining the project schedule.
- Dissemination of information to the customer of contract revisions and schedule changes.
- Submission of project status reports.
- Internal schedule co-ordination and co-ordination of sub contracted services.

### 4.2 Project Engineering

This includes:

- System designing.
- Preparation of Functional Specifications and Functional Diagrams showing connectivity along and communication details in the close coordination of customer.

### 4.3 Testing & Inspection

We have a commitment to providing a reliable control/ automation system tailored to meet the specific application requirement. An equipment test is performed to ensure the system is operating correctly to both the customer's and we have our satisfaction.

### 4.4 Site Services

Services for Supervision of commissioning will be provided as per commercial terms and conditions of our offer.

#### i. Pre-Commissioning Services

We will provide pre-Commissioning services to ensure that the control system hardware, software, field devices and control devices are fully ready as per design drawings and specifications to ensure smooth commissioning and start up

#### ii. Commissioning Services

We will provide commissioning and startup services during system installation to ensure that the control system hardware, software, field and control devices are fully wired as per design drawings and specifications. System defects discovered if any during the production testing will be documented in the fault log and duly dated with a target resolution date. Once the fault has been fixed, it will be signed off by I&B Automation and client to as a confirmation of fault resolution.

#### 4.5 Documentations

Our documentation package is broken down into separate groups of information. The following would be provided:

- Project specifications
- Hardware schematics
- Hardware interconnection drawings
- Cabinet/ Panels dimensional drawings
- Power converter description - Hardware & Software
- Installation, User and troubleshooting manuals of Rockwell Automation products

#### 4.6 Exclusions

The present proposal specifically excludes the following:

- Motors
- Encoders
- Removal of old drives
- Field Devices (Like prox. Switch , limit sw. etc.) and Instrumentation
- Field Devices and Instrumentation
- Output Filter (Sine Wave Filter)
- Power Cables (Power/Special)
- Earthing and its Calculations
- Civil Work
- Anything not specifically spelt out in the scope of supply as included

**5.0 PRICE OFFER**

<b>S.No</b>	<b>Item</b>	<b>Price(USD)</b>
01	Package Price for the Design, Engineering, Manufacturing, Supply, and Supervision of Erection & Commissioning of the Retrofit ABB Drive System for 160 MPM mentioned above in the Scope of Supply/Work & Service section. Also including Spares mentioned in Section 3 & 4 of offer.	138,000/-

## 6.0 TERMS & CONDITIONS

<b>Price Basis</b>	The prices mentioned above are on Ex. Works (Noida, U.P.) basis. These prices are Exclusive of Packing & Forwarding, all taxes, duties, levies, insurance, freight etc., which shall be charged extra as applicable at the time of dispatch.
<b>Delivery</b>	12-14 weeks after getting your Purchase Order along with Advance & Drawing Approval
<b>GST</b>	Not Applicable
<b>Payment Terms</b>	20% advance along with P.O., 30% against Drawing approval, 40% along Performa Invoice Before dispatch and remaining 10% after successful commissioning.
<b>Packing &amp; forwarding</b>	Extra 2% of basic order value
<b>Freight &amp; Insurances</b>	Quoted price is exclusive of freight and transit insurance which shall be charged extra at actual.
<b>Installation &amp; Commissioning</b>	We have presently included Total 120 man-days for 4 Engineers & 4 Technician above scope in case more Mondays are required for reasons not attributing to us, the same shall be chargeable @ 250 USD per man-day for engineer and USD 150 Mandays for Technician
<b>Lodging/Boarding</b>	In Customer's Scope
<b>To &amp; Fro/Visa Fee</b>	In Customer's Scope
<b>Validity of Offer</b>	1 Month
<b>Warranty</b>	The warranty will be fifteen month from the date of supply or twelve month from date of Commissioning whichever is earlier. The warranty is however subject to the provision of Proper usage and its applicable against manufacturing defects only.
<b>Billing Address</b>	I & B Automation & Controls Pvt. Ltd., F-436, Sector 63, Noida, 201301, (U.P.)