

Date – Time

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Budgetary Proposal For: (Your Company)

Fax: (555)555-5555

Phone: (555)555-5555

From: Field Automation Engineer

Re: R500 Machine Control

Quote: (Title of your quote)

Message:

Thank you for calling us in to help with this project. This solution will meet your requirements, as we currently understand them. Please review this estimate and make any changes necessary. We want you to be completely satisfied.

Our understanding of the system requirements:

- Mechanics: Rotary Knife
 - Motor 42 in-lbs @ 3000 RPM
 - Gearbox 5:1 w/ 6 arcmin backlash
 - Label lengths set speed of knife
 - Single or dual blade (recipe selected; speed determined)

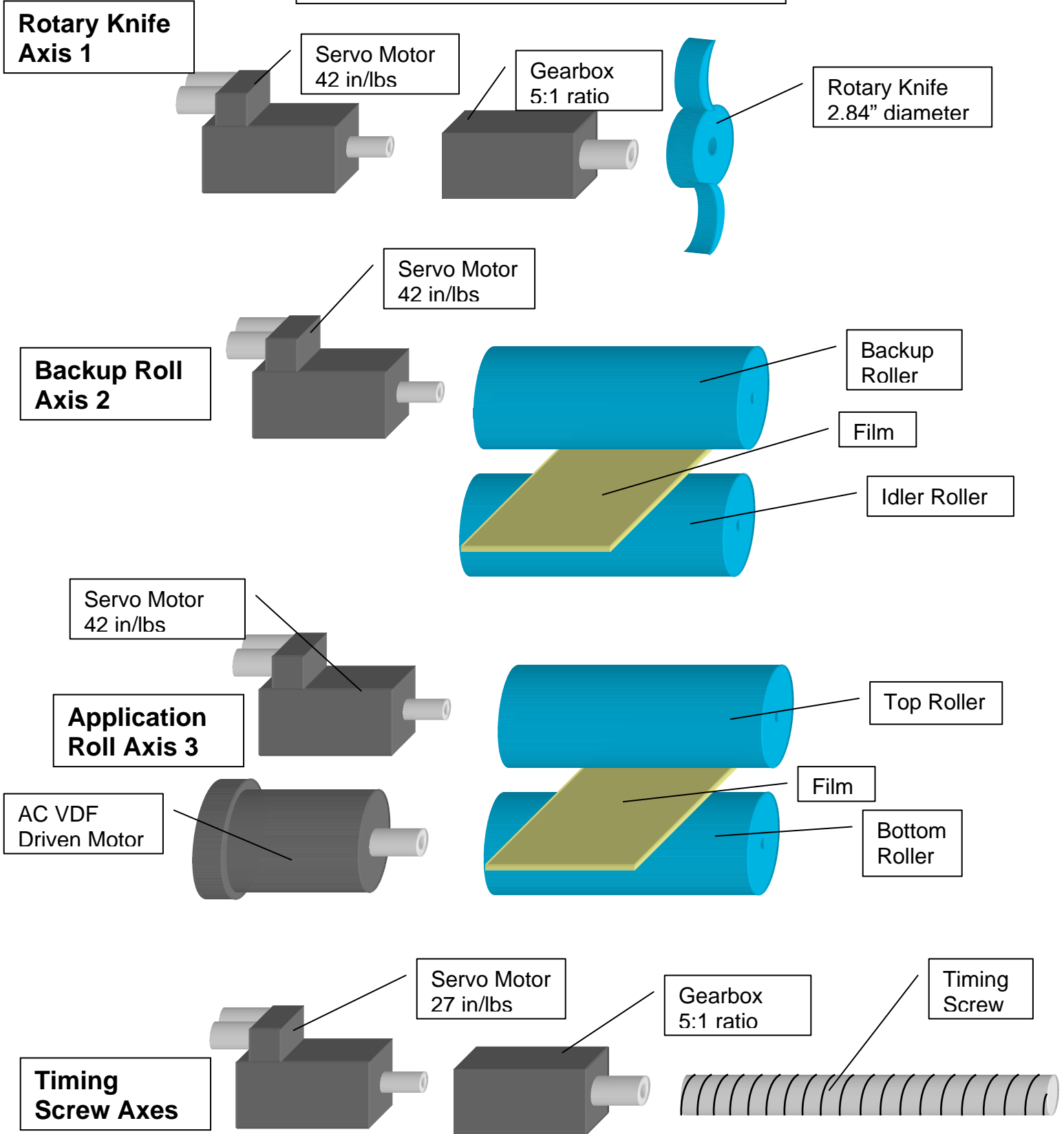
- Mechanics: Backup Roll
 - Motor 42 in-lbs @ 3000 RPM
 - Match surface speed of label film to knife
 - Roller clamped to rubber idler for band length correction
 - Registration correction done using electronic cam based on a photo-eye

- Mechanics Application
 - Motor 42 in-lbs @ 3000 RPM
 - Variant speed to match label size
 - Driven off electronic cam based on a photo-eye

- Mechanics: Timing Screw Drive (2)
 - Motor 27 in-lbs @ 3000 RPM
 - Gearbox 5:1 w/ 6 arcmin backlash

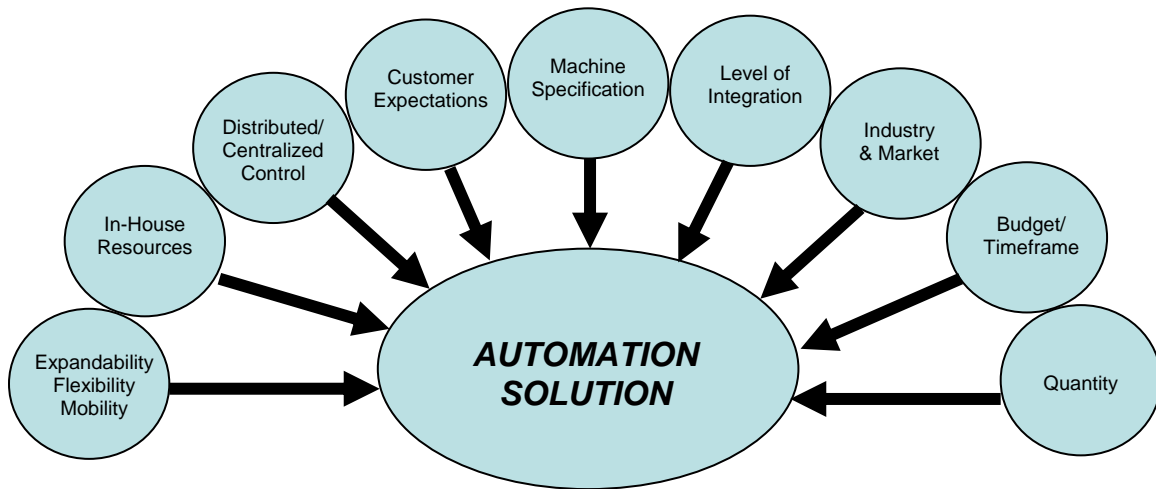
- Control
 - Drive with 230 VAC input power
 - 5 Axis Controller
 - 8 inputs and 8 outputs at 24 VDC (expandable to 16 or 56 more IO points)
 - Controller fully programmable and multitasking
 - 24 VDC, 2 AMP Power Supply

Axis Layout for R500



Technology Assessment:

Our goal at AutomationSolutions is to make our clients' projects successful. We understand there are many ways to solve an application. When we looked at your application, we didn't just look at the machine specification to solve the application; we looked at the whole picture. Our first question was, "What do you want to accomplish?" Then we worked with you to determine how to best accomplish it. In our proposal, we didn't just select components. Our solution was based on your specifications and the following criteria:



Each of these questions helps us to narrow down the components we selected. We don't want to be just your automation supplier; we want to be your automation partner.

"We view ourselves to be more an extension of our customers' engineering departments than we do an extension of our suppliers' sales organizations."

- Rich Manders, President

After serious consideration of the above, we came up with the following solution:

- **Axis 1: Rotary Knife**
 - Motor: Baldor BSM90C-2150AF
 - 46 in-lbs of continuous force
 - 5000 LPR rotary encoder
 - IEC mount
 - Gearbox: CGI 056PLX0050
 - Planetary precision gearbox
 - 5:1 ratio
 - 6 arc-min of backlash
 - Drive: Baldor FMH2A06TR-EN23
 - 230 VAC input
 - 6 Amps continuous current

- **Axis 2: Backup Roll for Rotary Knife**
 - Motor: Baldor BSM90C-2150AF
 - 46 in-lbs of continuous torque
 - 5000 LPR rotary encoder
 - IEC mount
 - Drive: Baldor FMH2A06TR-EN23
 - 230 VAC input
 - 6 Amps continuous current

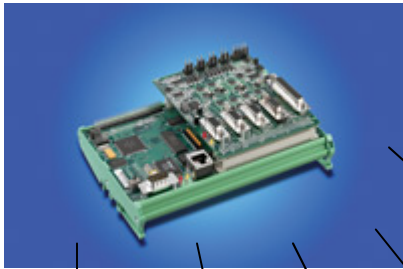
- **Axis 3: Application**
 - Motor: Baldor BSM90C-2150AF
 - 46 in-lbs of continuous torque
 - 5000 LPR rotary encoder
 - IEC mount
 - Drive: Baldor FMH2A06TR-EN23
 - 230 VAC input
 - 6 Amps continuous current

- **Axis 4 & 5: Timing Screw Drive**
 - Motor: Baldor BSM80C-3150AF
 - 31 in-lbs of continuous torque
 - 5000 LPR rotary encoder
 - IEC mount
 - Gearbox: CGI 042PLX0050
 - Planetary precision gearbox
 - 5:1 ratio
 - 6 arc-min backlash
 - Drive: Baldor FMH2A03TR-EN23
 - 230 VAC input
 - 3 Amps of continuous current

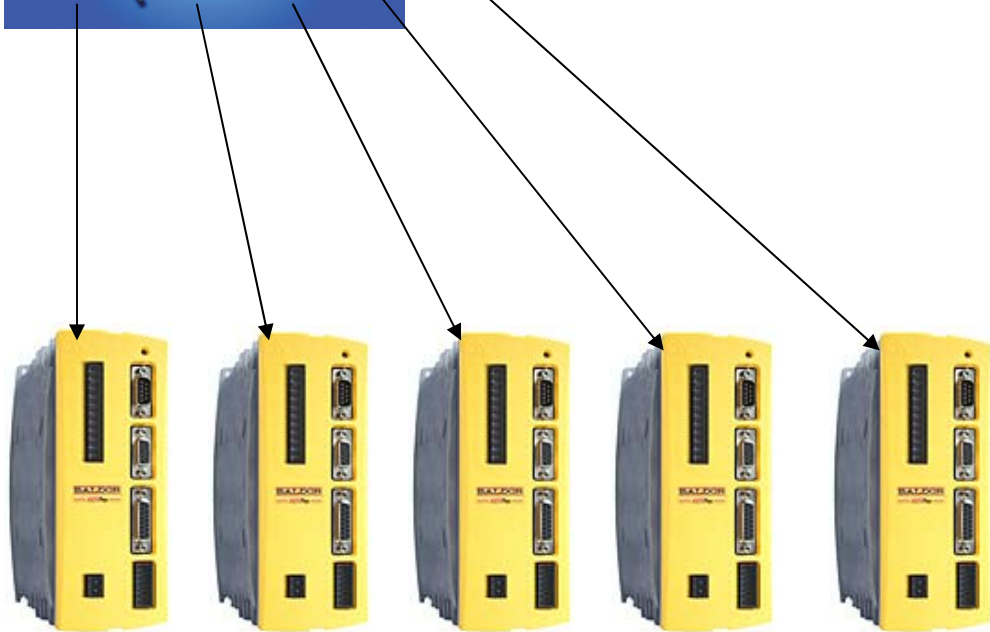
- **Control**

- Motion controller: Galil DMC2153-DC24-DIN
 - 5 axis motion controller
 - Fully programmable
 - 8 threads of multi-tasking
 - Din rail mount
 - DC to DC converter (Single 24V power supply needed)
- I/O: Galil ICM20105
 - IO breakout module for DMC2153
 - Optically isolates limit switches and IO
 - D-sub connectors to access IO points
- Power Supply: V-Infinity VS-60
 - 24 VDC power supply
 - 115/230 VAC input
 - 2.5 Amps of output current
- Cables
 - Motor power cable (3 meter length)
 - Motor feedback cable (3 meter length)
 - MicroFlexII to Galil motion controller (2 foot length)

Electronic Layout for R500



Galil DMC-2153-DC24-DIN five axis motion controller with ICM-20105 breakout module



FMH2A06 Servo Amplifier

FMH2A06 Servo Amplifier

FMH2A06 Servo Amplifier

FMH2A03 Servo Amplifier

FMH2A03 Servo Amplifier



BSM90C Servo Motor

BSM90C Servo Motor

BSM90C Servo Motor

BSM80C Servo Motor




BSM80C Servo Motor

What you will provide:

- Verification of product selection
- Compliance with all applicable safety codes
- 230/115 VAC Power
- Integration of components including all necessary tooling, mounting, wiring, and programming

Project Development Assistance (PDA):

Mechanical integration not specified in this quote, electrical wiring, motion programming, and commissioning the system is the client's responsibility, unless you use our Project Development Assistance (PDA). With PDA, you gain access to our experienced motion control engineers at a modest hourly charge to help get you up and running as quickly as possible. You remain in control of the project while we put our development, programming, and construction talents to work for you. PDA can include (but is not limited to) programming the motion controller, bench wiring the controls, setting up the mechanics, and constructing panels or turnkey systems. We've seen and done it all before, so using our expertise will save you time and money. Below are a few examples of the PDA we have done for other clients:

<p>Turnkey Machine AutomationSolutions has responsibility for the entire controls system, including mounting components, wiring, and programming.</p>	
<p>Complete Panel This is an electrical panel ready to go. Components are mounted to a backplane inside a cabinet and wired up.</p>	
<p>Bench-Wired Example Electronics are mounted to a backplanes so the system is ready for bench testing. We often create a sample or skeleton program to get you started. This minimizes startup time. We do not include fuses, cable tracks, enclosures, etc. with this option.</p>	

Budgetary Estimate:

Name:	Your Name	Date:	Date - Time
Company:	Your Company	Pages:	13
Address:	Your Address	Project:	R500 Machine control
Tel:	(555)555-5555	Quote:	Title of your quote
Fax:	(555)555-5555	From:	Field Automation Engineer

Prototype Pricing:

Item	Part Number	Description	Unit Price	Qty	Total
1	BSM90C-2150AF	Servo motor with encoder for axes 1,2 and 3	\$0.00	3	\$0.00
2	BSM80C-3150AF	Servo motor with encoder for axes 3 and 4	\$0.00	2	\$0.00
3	FMH2A06TR-EN23	Servo amplifier for axes 1,2 and 3	\$0.00	3	\$0.00
4	FMH2A03TR-EN23	Servo amplifier for axes 4 and 5	\$0.00	2	\$0.00
5	056PLX0050-AKM	Planetary gearbox for axis 1	\$0.00	1	\$0.00
6	042PLX0050-BSM	Planetary gearbox for axes 4 and 5	\$0.00	2	\$0.00
7	VS-60	Power supply	\$0.00	1	\$0.00
8	DMC2153-DIN-DC24	Five axis motion controller	\$0.00	1	\$0.00
9	ICM20105	Breakout module	\$0.00	1	\$0.00
10	CBL030SP-MHCE	Motor power cable (3 meter)	\$0.00	5	\$0.00
11	CBL030SF-ALCEA5	Motor feedback cable (3 meter)	\$0.00	5	\$0.00
12	NEAS-GAL-MFLX-1	Galil /MicroFlexII cable (1 ft)	\$0.00	5	\$0.00
TOTAL:					\$0.00
Optional Components					
13	In-House PDA	Delivery of benchwired components (per hour)	\$125.00	8	\$1,000.00
14	On-Site PDA	On-site wiring and programming (per hour)	\$125.00	16	\$2,000.00

Quantity Pricing (50 pieces)

Item	Part Number	Description	Unit Price	Qty	Total
1	BSM90C-2150AF	Servo motor with encoder for axes 1,2 and 3	\$0.00	150	\$0.00
2	BSM80C-3150AF	Servo motor with encoder for axes 3 and 4	\$0.00	100	\$0.00
3	FMH2A06TR-EN23	Servo amplifier for axes 1,2 and 3	\$0.00	150	\$0.00
4	FMH2A03TR-EN23	Servo amplifier for axes 4 and 5	\$0.00	100	\$0.00
5	056PLX0050-AKM	Planetary gearbox for axis 1	\$0.00	50	\$0.00
6	042PLX0050-BSM	Planetary gearbox for axes 4 and 5	\$0.00	100	\$0.00
7	VS-60	Power supply	\$0.00	50	\$0.00
8	DMC2153-DIN-DC24	Five axis motion controller	\$0.00	50	\$0.00
9	ICM20105	Breakout module	\$0.00	50	\$0.00
10	CBL030SP-MHCE	Motor power cable (3 meter)	\$0.00	250	\$0.00
11	CBL030SF-ALCEA5	Motor feedback cable (3 meter)	\$0.00	250	\$0.00
12	NEAS-GAL-MFLX-1	Galil /MicroFlexII cable (1 ft)	\$0.00	250	\$0.00
TOTAL:					\$0.00
Optional Components					
13	In-House PDA	Delivery of benchwired components (per hour)	\$125.00	8	\$1,000.00
14	On-Site PDA	On-site wiring and programming (per hour)	\$125.00	16	\$2,000.00

After review, please give us a call and advise how to proceed. An engineering proposal is often an iterative process. Please verify our understanding of your requirements so we can make any needed changes to this proposal. Thanks again for letting us help.

Field Automation Engineer

AutomationSolutions – The Company

AutomationSolutions currently offers products and services throughout the northeastern United States including but not limited to Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont.

“We view ourselves to be more an extension of our customers' engineering departments than we do an extension of our suppliers' sales organizations.”

In short, AutomationSolutions helps customers compete successfully by assisting them with the identification, selection, procurement, application, and operation of the high tech components used to automate machinery. While “motion control” is our heritage and one of our core competencies, AutomationSolutions markets and applies many other major elements of the machine automation solution. These include intelligent sensors, programmable logic controllers, industrial computers, vision systems, mechanical components (rails, guides, ball screws, actuators, stages, gearheads, couplings, etc.), human machine interfaces, safety equipment, and related services (e.g. panel building, custom software, custom assemblies, product integration, and training).

By using a systems approach to automation, AutomationSolutions' goal has always been to be a "One-Stop Shop" for industrial hardware and software products. We pride ourselves in providing total solutions specific to our customer's needs through product sales, product support, services, training and implementation assistance. Through exceeding our customers' expectations, AutomationSolutions will continue to offer quality, cost-effective solutions to our customers well into the future.

Why Choose AutomationSolutions?

- **Most Competent and Tenacious Automation Engineers**

AutomationSolutions have real automation engineers. We hire the best engineers from the best schools. Then we train them in automation technologies on real-world projects. They are not salespeople, but un-biased automation engineers. They love machines, and love to find the perfect solution to our client's automation challenges.

- **Unbiased Choices**

We will not be locked exclusively into a single technology, brand, or supplier. We will represent a range of alternatives, and as such can recommend, without bias, the one that best fits a customer's application needs

- **Premier Brands, Products, and Technologies**

We don't "butter our bread" with one supplier. Our engineers take the time to do an objective technology assessment for your project. We give you choices from well-known and well-regarded brand names, as well as new emerging companies. AutomationSolutions stands, without qualification, behind the solutions, products, and suppliers it recommends. We keep our customers on the leading, but not bleeding, edge of technology.

- **A True Automation Resource**

AutomationSolutions can take a project as far as you want, from technology assessment through contract manufacturing. Services include custom assemblies, inspection and testing, custom cabling, application software development, system integration, panel building, customer training, and many others. We take the time to understand what your needs are and guarantee the performance of the solution we provide, based on the specifications listed in the proposal.

For more information on AutomationSolutions, our technical resources, and our suppliers, visit us at <http://www.Auto-Sol.com>, or just give us a call.