

We have included the biographies of the key investigators.

APPROACH

IAMS' Machining Xcellence Division will partner with the Engineering Research Center for Net Shape Manufacturing (ERC/NSM) at the Ohio State University in Columbus, Ohio. ERC/NSM has been conducting contract research for over eleven years in manufacturing of discrete parts to net or near-net dimensions by way of die-casting, polymer processing, sheet and billet forming. To support these process developments, ERC/NSM also conducts contract research in die and mold design including the high speed machining of die and molds. IAMS, a full ad hoc member of the center, is involved in these high speed machining projects.

We have also included the biographies of the key investigators from the Engineering Research Center for Net Shape Manufacturing.

Our technical approach has been divided into phases and may be funded progressively for each phase. We have assumed that the project will be interactive with your staff and experts. The first phase is directed at searching for information about candidate processes in the public domain and consulting with our network of materials experts. The final phase will be aimed at selecting one or two processes for providing Remington Arms Company with a low cost and agile method of manufacturing firearms. We may, however, need to alter or change this approach as we progress through each phase.

Phase 1: Candidate Processes

IAMS' and ERC/NSM's engineers will define the objectives of the program in concert with Remington Arms Company. The objectives will include physical and mechanical property requirements of the firearm components.

An IAMS' and ERC/NSM engineer will observe the current manufacturing of firearms at the Elizabethtown Plant. During the visit the engineers will interact with the production and engineering staff to obtain more information about the manufacturing processes, including their interaction with vendor experts.

On-line computer searches will be carried out to identify candidate processes that will meet the physical and mechanical property requirements of firearm components. The investigators will also concentrate on the cost and flexibility of the candidate technologies for

manufacturing. Sources will include: Remington Arms Company and supplier experts, published literature and IAMS' and ERC/NSM's network of world (Asia, Europe and North America) experts.

Deliverable for Phase 1 will be identification of the physical and mechanical property requirements of firearm components and identification of candidate processes for manufacturing firearm components.

The price for Phase 1 will not exceed \$10,000. We will target a time line of three weeks for Phase 1.

Phase 2: Processes for Firearm Components

The investigators will concentrate on the cost and flexibility of the candidate technologies for manufacturing firearm components. Sources will again include: Remington Arms Company and supplier experts, and IAMS' and ERC/NSM's network of world (Asia, Europe and North America) experts.

Deliverable for Phase 2 will be a state-of-the-art report recommending one or more manufacturing processes for low cost and agile manufacturing of firearm components.

The price for Phase 2 will not exceed \$8,000. We will target a time line of three weeks for Phase 2.

Phase 3: Implementing Low Cost, Agile Firearm Manufacturing

IAMS' engineers will assist Remington Arms' process engineers with the implementation of the new process for cost-effective and agile manufacturing of quality firearms.

The prices and time lines for the implementation will be determined after completing Phase 2. The deliverable will be the implementation of cost-effective methods for agile manufacturing of quality firearms.

DELIVERABLES

The result of this research will be a report that provides the information for cost-effective and agile manufacturing of quality firearm components.

DURATION

IAMS will start this program after we receive authorization to begin. We estimate that the first phase will take three week to complete. The second phase will take another three weeks to complete.

Every reasonable effort will be made to meet scheduled completion dates. However, research including technical searches and laboratory evaluation are, by their nature, somewhat unpredictable. IAMS cannot contractually guarantee a completion date for this project.

PRICE

The price for first two phases will not exceed eighteen thousand dollars (\$18,000). This project will be charged on a time and material basis.

This price is an estimate, intended only for budgeting purposes. The Remington Arms Company will be invoiced only for the actual hours and expenses used to meet the objectives of this project. Remington Arms Company will be advised before expenditures exceed 80 (eighty) percent of the estimated cost if the project will not produce the agreed deliverables within the estimated budget, and will not be invoiced for more than the total estimated cost without a written extension to the project. 83

STANDARD TERMS AND CONDITIONS

Once scheduled and underway, any job cancellation by Remington Arms Company before completion of the described work, will result in a cancellation charge of 10 percent (10%) of all unused estimates of engineering costs. Reasonable and necessary efforts are taken to meet scheduled completion dates. However, due to the nature of research and laboratory testing, IAMS cannot contractually guarantee project completion dates.

This proposal shall remain in affect for 30 days from the date on this proposal. The information in this proposal is provided to Remington Arms Company for consideration in awarding this project to IAMS. However, this proposal is the property of the Institute of Advanced Manufacturing Sciences, Inc. Once authorized, this project proposal becomes the property of Remington Arms Company. If this proposal is significantly modified or not accepted, then it must be returned to the Institute of Advanced Manufacturing Sciences, Inc.

IAMS shall carry out its tasks with reasonable care however, IAMS is not held responsible for indirect, incidental damages to Remington Arms

Company resulting from implementation of recommendations in the report.

In the course of performing the contracted tasks, IAMS staff may need access to profound knowledge from Remington Arms Company about their commercial and/or industrial methods, designs, processes, computer software and markets. IAMS will also need the assessment of value for successfully completing the project. IAMS recognizes that some of the data or information may be confidential in nature. Any such information marked **Confidential Information** by Remington Arms Company will be treated as confidential. IAMS will not disclose to others, duplicate or use, other than for the purposes contracted, any Confidential Information supplied by Remington Arms Company to IAMS or any third person or group (party), except for Confidential Information which;

- is or becomes part of the public domain
- was already in IAMS' possession prior to receipt, or
- is received by IAMS from a third party who has no confidentiality obligation.

Confidential Information shall be protected for five years after its receipt by IAMS.

Any inventions or discoveries that are made during the course of the awarded project work which are related to machinability testing and material analysis procedure shall remain the property of IAMS with exclusive authority to license others to make, use or sell the inventions in all countries.

IAMS will obtain either verbal or written permission before publishing any part of the information obtained as a result of the investigation including results of laboratory and pilot tests while under contract to Remington Arms Company

Materials supplied/purchased by Remington Arms Company and shipped to IAMS must be prepaid, including freight and delivered between 8:00 a.m. and 4:00 p.m. Monday through Friday (except on national USA holidays).

All supplied and purchased materials will returned to Remington Arms Company or disposed by IAMS' project manager within sixty days of issuing the final report.

REFERENCES

IAMS provides applied research and development contract services to industry on a cost- recovery basis. Our expertise is centered in three

divisions: 1) Machining Xcellence, 2) Regional Services, and 3) Manufacturing Small Business Development Center. IAMS serves as a one-stop help organization through our areas of expertise and linkage with unlimited networks of expertise.

The Machining Xcellence Division of IAMS is accustomed to deliver to its clients the highest quality information and reports, resulting from well-designed and precisely executed evaluations. We welcome inquiries into our performance, and recommend that you contact one or all of the references below. Each of the companies mentioned has contracted work with IAMS.

Brush Wellman Inc
14710 West Portage River South Road
Elmore, OH 43416
Contact: **Ron May**
Telephone number: 419-862-2745

Kaiser Aluminum - Tensar Division
P O Box 669
Jackson, TN 38301
Contact: **Larry Farrar**
Telephone number: 901-423-2811

Stahl International Inc
1887 Vanderhorn Drive
Memphis, TN 38134
Contact: **David Harrington**
Telephone number: 901-372-6440

Whirlaway Corporation
125 Bennett Street
Wellington, OH 44090
Contact: **Jim Widders**
Telephone number: 216-647-4711

MEMBERSHIP

IAMS also invites Remington Arms Company to become an Industrial Member. Membership services include networking contacts, manufacturing Helpline, forums and promotional display board. Tens of thousands of people pass through IAMS each year and will have the opportunity to view members promotional literature. The annual industrial membership fee is \$500 for companies with less than 500 employees and reaches a maximum of \$10,000 for industries with more

Remington Arms Company
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September 19, 1997

than 1,000 employees. If you wish to benefit from the member services, please complete contact Richard Bockstiegel at (513) 948-2000.

GETTING STARTED

We are anticipating an early response from you so that we may begin to interact in applying our expertise for enhancing your marketing goals.

Please return a signed copy of this letter and a copy of your company's purchase order not to exceed eighteen thousand dollars (\$18,000), referenced to this proposal. IAMS will then start helping Remington Arms Company make small broken chips while machining torque converters.

Sincerely yours,



Michael E Finn
Machining Technology Engineer
Sales and Service

William S Ridgway
Sr Accountant

CONFIDENTIAL 83

Proposal Agreement: IAMS - 1027	
Accepted: Remington Arms Company	
By: _____	Date: _____
Title: _____	PO Number: _____

IAMS' mission is to *enhance the competitiveness of manufacturers and related businesses by increasing productivity, improving business practices and accelerating the implementation of technology*