

REQUEST # 66555

Low Noise Vacuum Pumps for Small Consumer Products

RESPONSE DUE DATE: [August 27, 2010](#)

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SOLUTION PROVIDER HELP DESK

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Opportunity

Licensing, product acquisition, proof of concept leading to scale-up to manufacturing, supplier agreement for up to **1.4 million units / year @ <€15 (single pump) or <€25 (dual pump)**

Timeline / Financials

Phase 1 – Proof of concept – 1 month up to \$45k

Phase 2 – Decision on Commercialization leading to supply agreement

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REQUEST FOR PROPOSAL DESCRIPTION

NineSigma, representing a **Global Consumer Products Company**, invites proposals for a desktop vacuum pump and control unit that are both cost-effective and quiet.

Proposals that adapt existing technologies from military, medical, printing, automotive or other positive pressure/vacuum pump applications are highly desirable.

The successful technology will use either one or two pumps/unit to achieve the following **functional specifications:**

- Have cycle frequency $\geq 1.7\text{Hz}$ (atmospheric to max. vacuum and back to atmospheric)
- Evacuate 70ml air/cycle/pump
- Achieve a max. vacuum of 300mmHG/cycle
- Maintain maximum vacuum for 0.5 secs
- Exhibit no loud or harsh sounds (Max. noise $\leq 52\text{dBA}$)
- Be durable (>1100 hrs of repeated cycles)
- Include rechargeable batteries capable of providing >3 hrs of vacuum pump use
- Include 110/240V transformer capable of recharging batteries in 1- 3 hrs.
- Able to achieve functional specifications at $0 - 40^\circ\text{C}$

- Able to be used as a regulated medical device

Physical Specifications:

- Complete unit must include motor, vacuum pump, electronic controls and software
- Electronic controls must include switches to control power on/off, charging, frequency/mode selection & vacuum level
- Complete unit must have dimensions that are compatible with a desktop appliance (approx. 30x15x15cm)
- Complete unit must be $<0.5\text{Kg}$

Intellectual Property:

The ideal response will include patented technology available for licensing.

Technologies meeting most but not all of these criteria will be considered.

BACKGROUND

A number of consumer products contain electric pumps. Unfortunately, the pumps used in most of these products are noisy, irritating and unreliable. Products containing electric vacuum pumps are especially offensive.

The goal of this request is to find a consumer vacuum pump system that is compact, quiet, reliable and pleasant to use.

POSSIBLE APPROACHES

Possible approaches might include, but are not limited to:

- Novel piston, diaphragm or rotary electric pump designs that meet most or all of the stated specifications

Existing electric pump designs adapted from other industries or applications are highly desirable.

APPROACHES NOT OF INTEREST

The following approaches are not of interest:

- Systems further than 1 year from commercialization
- Systems unsuitable for consumer products

ANTICIPATED PROJECT PHASES OR PROJECT PLAN

Phase 1a –Evaluation of economic and operability studies.

Phase 1b- Testing of prototype devices for performance against specifications

Phase 2 – Commercial development

APPROPRIATE RESPONSES TO THIS REQUEST

Responses from companies (small to large), academic researchers, other research institutes, consultants, entrepreneurs, or inventors are welcome.

Solutions should include any available data that support the stated performance requirements for a novel vacuum pump design. For example, evidence that the design can evacuate 70ml of air/cycle/pump with a maximum noise level \leq 52dBA.

Responses should include information about whether or not the proposed technology:

- Meets the stated criteria for successful technology
- Is mature enough to provide prototypes for laboratory testing

- Has a well defined intellectual property position (patented or patentable)
- Is capable of scaling to large scale production

RESPONDING TO THIS REQUEST

NON-CONFIDENTIAL DISCLOSURE

By submitting a Response you represent that the Response does not and will not be deemed to contain any confidential information of any kind whatsoever.

Your Response should be an executive summary (about 3 pages). The Response should briefly describe the technical approach and provide information on technology performance, background, and description of the responding team and their related experience.

By submitting a Response, you acknowledge that NineSigma's client reserves the sole and absolute right and discretion to select for award all, some, or none of the Responses received for this announcement. NineSigma's client also may choose to select only specific tasks within a proposal for award. NineSigma's client has the sole and absolute discretion to determine all award amounts.

RESPONSE EVALUATION

NineSigma's client will evaluate the **Response** using the following criteria:

- Overall scientific and technical merit of the proposed approach
- Approach to proof of concept or performance
- Potential for proprietary position (i.e., is the technology novel or protectable)
- Economic potential of concept
- Respondent's capabilities and related experience
- Realism of the proposed plan and cost estimates

The client will contact respondents with highly responsive proposals for next steps.