

October 26, 2011

Via EDGAR Submission and Overnight Delivery

Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549

Attn: Pamela A. Long, Assistant Director

Re: Proto Labs, Inc.
Amendment No. 3 to Registration Statement on Form S-1
Filed October 26, 2011
File No. 333-175745

Ladies and Gentlemen:

Proto Labs, Inc., a Minnesota corporation (the "Company"), has today filed with the Securities and Exchange Commission, pursuant to the requirements of the Securities Act of 1933, as amended, an Amendment No. 3 to its Registration Statement on Form S-1 ("Amendment No. 3").

On behalf of the Company, we are writing to respond to the comments raised in the letter to the Company, dated October 11, 2011, from the staff of the Securities and Exchange Commission (the "Staff"). The Company's responses below correspond to the captions and numbers of those comments (which are reproduced below in italics). For your convenience, copies of the amended Registration Statement are enclosed, and have been marked to show changes from Amendment No. 2 to the Registration Statement on Form S-1 filed on September 26, 2011. Where applicable, we have referenced in the Company's responses the appropriate page number of Amendment No. 3. Capitalized terms used in this letter, but not otherwise defined, have the meanings assigned to them in the amended Registration Statement.

Prospectus Summary

Our Industry and Market Opportunity, page 1

1. *We note your response to comment three in our letter dated September 15, 2011. Since Jon Peddie's consent was required for use of the report information in the registration statement and, as disclosed in Jon Peddie's website (see http://jonpeddie.com/publications/cad_report/), the report appears to be available only through payment of more than a nominal fee, please file Jon Peddie's consent as an exhibit to the registration statement. For additional guidance, please refer to Question 233.02 of Securities Act Rules Compliance and Disclosure Interpretation found in the Commission's website.*

Response: In response to the Staff's comment, the Company has revised page 116 of the Registration Statement to list Jon Peddie Research as an expert in market research. The Company also filed as Exhibit 23.3 to the Registration Statement the consent of Jon Peddie Research to be so listed.

Financing Arrangements, page 49

2. *We note your response to comment nine in our letter dated September 15, 2011 and believe that in light of the facility amount, covenant default, and history of accessing bank loans as one source of liquidity, this credit agreement, along with any schedules and annexes, should be filed as an exhibit. Should you terminate this agreement and enter into another credit facility, please file the subsequent agreement as an exhibit instead.*

Response: The Company acknowledges the Staff's comment and advises the Staff that on September 30, 2011, it entered into a new credit facility, which replaced the facility previously described in the Registration Statement. In response to the Staff's comment, the Company has filed as Exhibit 10.19 to the Registration Statement the agreement for this new credit facility, and a description of the new credit facility appears on pages 49 and F-15 of the Registration Statement.

Note 15 – Segment and Geographic Information, page F-22

3. *You disclose on page F-22 that your two operating segments are Protomold injection molding and Firstcut CNC machining. However, based on your CODM reports it appears that your operating segments are your US operations, EU operations and JP operations pursuant to the guidance of ASC 280-10-50-1. Additionally, we note from your disclosure on page 68 that you have a managing director for each of your foreign subsidiaries. In this regard, ASC 280-10-50-7 states that generally, an operating segment has a segment manager who is directly accountable to and maintains regular contact with the chief operating decision maker to discuss operating activities, financial results, forecasts, or plans for the segment.*

Furthermore, based on the guidance of ASC 280-10-50-12, it appears that you have two reportable segments and an Other. It does not appear that your operating segments can be aggregated given that the segments do not have similar economic characteristics. Specifically, revenue growth rates and gross, operating and net income margins for your US operations, EU operations and JP operations are materially different, which implies these segments are not economically similar, pursuant to ASC 280-10-50-11. Please tell us how you concluded US operations and EU operations were not operating or reportable segments.

Given the above, it appears that you may need to expand MD&A to separately discuss each segment pursuant to Section 501.06 of the Financial Reporting Codification.

Response: The Company acknowledges the Staff's comment and understands the CODM reports previously provided to the Staff could give the impression that the Company has operating segments other than those defined by service. The reporting packages previously provided to the Staff contained many reports with consolidated financial statements and discrete financial information based on service and legal entity. However, the Company advises the Staff that this legal entity material was mainly prepared for statutory reporting purposes, and respectfully requests that the Staff consider the following additional information, which provides clarification as to how the CODM of the Company, its Chief Executive Officer ("CEO"), utilizes that financial information to manage the Company's business and allocate resources.

Overview of the Company. The Company is a global organization that manufactures custom parts using two different processes in three countries. The CODM allocates resources and assesses the performance of its operating components. The CODM focuses on optimizing global consolidated financial performance through the use of a cross-matrix automated reporting system (described in greater detail below).

Policies, strategies, development activities, and operations are developed and managed at the corporate level in the United States. All corporate planning activities, such as strategic planning, fundraising, capital investment, human resources and financial planning, originate at the corporate level in the United States. The Company creates its marketing and sales strategy to attract new customers regardless of their physical location in the world. Marketing and sales campaigns are developed, implemented, executed and evaluated on a global basis. The Company creates and executes a global research and development strategy to expand what can be offered to customers worldwide, both with respect to additional processes and the size and complexity of parts that can be manufactured. While the Company has located its manufacturing facilities within the primary centers of product development in the world, the actual destination of the parts produced at each facility can vary significantly based on the Company's global capacity management practices. The Company is able to do this because every manufacturing location offers the same services and uses the same technology. The Company's U.S. and foreign operations are managed and overseen in the same manner at the corporate level in the United States.

Although each of the corporate activities described above benefits the global organization, the Company does not allocate these U.S. corporate costs to each of its legal entities because the CODM evaluates the Company on a global consolidated basis. Foreign legal entity financial reporting is mainly prepared for statutory purposes for each entity's respective jurisdiction and is not used by the CODM for the purpose of resource allocation.

Internal Analysis. The day-to-day business of the Company is organized as an operational matrix consisting of its two services, Firstcut and Protomold, which are fulfilled at each of its three manufacturing facilities. The CODM manages this matrix through the use of an automated online reporting system built upon a proprietary intranet platform. The CODM focuses on optimizing global consolidated financial performance through the use of this cross-matrix automated reporting system. This system allows the CODM to access discrete financial information on an immediate basis that summarizes daily, weekly, monthly, quarterly or annual financial activity on a consolidated basis or by product line. The CODM also receives a month-end financial package outside of this tool that provides detail on product revenue and margins, operating expenses, legal entity reporting, and other qualitative information such as information regarding customer counts, leads generated and quotations provided.

Each of the Company's sales transactions consists of custom made-to-order parts, which makes real-time data tracking essential to the Company's business. This translates to the vast majority of decisions on resource allocation by the CODM being made using the Company's automated online reporting system. The Company's high revenue growth rates also put a premium on decision making that is forward looking versus historically based. The Company's automated online reporting system is the primary tool, supplemented by its forecasting process and monthly financial packages, that provides the CODM with the information necessary to make decisions supporting future growth and allocation of resources. Examples of reports from the Company's automated online reporting system used by the CODM are included in Supplement A to the courtesy copies of this letter delivered to the Staff (the Company has requested confidential treatment of Supplement A pursuant to the Staff's Rule 83).

Operating Segments. The Company determined its operating segments using the management approach per ASC 280, which requires that segment information be reported based on how management internally evaluates the operating performance of its business components. The Company has a matrix organization with two operating components defined by service offerings (injection molding/Protomold and CNC machining/Firstcut) and three organizational components defined by the legal entities or the locations where its manufacturing facilities are located (United States, United Kingdom and Japan).

In such matrixed reporting structures, ASC 280-10-50-06 specifies that when the CODM utilizes more than one set of financial information, other factors may identify a single set of components as constituting the public entity's operating segments. The Company therefore considered other factors in order to determine its operating segments, including:

1. The nature of the business activities of each component. As stated above, the Company has two service components and three legal entity components. The nature of the Company's business activities is consistent across its legal entities, which were formed to provide manufacturing facilities close to the Company's customers. Legal entity delineation is not relevant to the nature of the business activities of any particular component because the foreign subsidiaries are primarily manufacturing locations and the CODM uses consolidated global data to allocate resources and assess performance as described in greater detail above.
2. The existence of segment managers responsible for the components. The Company has determined that its CEO is the CODM and the segment manager for all components. Though, as noted in the Staff's comment, managing directors are located in the United Kingdom and Japan, the Company does not consider the managing directors to be segment managers as defined by ASC 280-10-50-7. The responsibilities of the managing directors are limited to items such as hiring production and administrative staff, expense approval and payment, local credit authorization, and resource allocation within the constraints of the approved operational plan established at the corporate level in the United States by the CODM. The Company's go-to-market strategies are global and as such, the managing directors do not establish products, pricing, marketing strategies, or other customer-facing strategies or plans. The responsibilities of operations management, financial results, forecasts, and planning for the components, whether defined by service or legal entity, are performed by the CODM.
3. The information presented to the Board of Directors. Prior to 2011, members of the Board of Directors of the Company received monthly financial packages similar to what the CODM received. As the Company transitions to becoming a public company, the financial information presented to the Board has evolved also, with the primary focus now being on the consolidated financial statements and consolidated revenues by service offering. Board discussions tend to be focused on product revenue growth strategies. A copy of the most recent financial package distributed to the Board is included in Supplement B to the courtesy copies of this letter delivered to the Staff (the Company has requested confidential treatment of Supplement B pursuant to the Staff's Rule 83).

The Company also considered ASC 280-10-50-09, which states that in a matrix organization when the CODM regularly reviews operating results of both sets of components, and financial information is available for both components, the components based on products and services would constitute the operating segments.

Based on all the factors discussed above, the Company respectfully submits to the Staff that it has appropriately determined that its service components constitute two operating segments.

In addition, the Company has reviewed the aggregation criteria of ASC 280-10-50-11 and has determined that its operating segments, Protomold and Firstcut, have similar economic characteristics, similar services and production processes, sell to the same class

of customers and utilize the same distribution methods, as explained below.

1. Similar economic characteristics. Both Protomold and Firstcut have similar economic characteristics. The Company continues to experience substantial growth in the sale of both its Protomold and Firstcut products. For the nine month period ended September 30, 2011, Protomold revenue grew 50% while Firstcut grew 86%. It is anticipated that the long-term growth rates for Protomold and Firstcut will be comparable as Firstcut matures. For the same financial period, the gross margin for Protomold sales was 62.5%, while the gross margin on Firstcut sales was 58.2%. Similarly, the gross margin difference between the segments will continue to decrease as Firstcut matures.
2. Nature of services. The nature of the services is very similar. The end-products can be interchangeable from the customer's viewpoint. Many times a customer will request a quote for both services, will first buy a part utilizing Firstcut and then at a later time, especially if they need higher quantities of parts, will utilize Protomold.
3. Type of customer. The customer for Protomold or Firstcut services is the same—product developers utilizing 3D CAD software to create new products. Once the product developers have created digital models of their products, they look to the Company to provide them with physical parts for prototyping, functional testing, market evaluation or eventual production.
4. Methods of marketing, production and distribution. The Company markets its products through one sales force and utilizes one technology platform to receive the product developers' 3D CAD part designs, provide pricing quotes and begin the manufacturing process. In addition, the parts produced are distributed utilizing the same shipping process.

As previously disclosed to the Staff, the Company has determined that aggregation is consistent with the objective and principles of ASC 280—namely, aggregation helps investors better understand the Company's performance and is consistent with the Company's management structure. Therefore, the Company believes aggregating the two operating segments is appropriate.

Based on all the factors discussed above and a careful consideration of the quantitative thresholds of ASC 280-10-50-12, the Company respectfully submits to the Staff that it has appropriately determined that its service offerings of Protomold and Firstcut constitute its two operating segments, that it has appropriately presented segment information in the Registration Statement in accordance with ASC 280, and therefore that no related changes to its disclosures are required.

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In connection with responding to your comments, we acknowledge that the Company is responsible for the adequacy and accuracy of the disclosure in the filing, that Staff comments or changes to disclosure in response to Staff comments do not foreclose the Commission from taking any action with respect to the filing, and that the Company may not assert Staff comments as a defense in any proceedings initiated by the Commission or any person under the federal securities laws of the United States.

We hope that the foregoing has been responsive to the Staff's comments. Should you have any questions relating to any of the foregoing, please feel free to contact the undersigned at (612) 766-7136.

Very truly yours,

/s/ W. Morgan Burns

W. Morgan Burns

Enclosure

cc: Bradley Cleveland
Proto Labs, Inc.
Kenneth Guernsey
Cooley LLP
Charles Kim
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