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PTC Product Focus

Pro/ENGINEER Interactive Surface Design Extension (ISDX)

Pro/ENGINEER Interactive Surface Design Extension (ISDX) delivers the ultimate integration of 3D design and engineering. By combining the power of parametric modeling with the flexibility of free-form surfacing, you can create complex, free-form curves and surfaces directly within a single, intuitive and interactive design environment.

Pro/ENGINEER ISDX combines industry leading free-form surfacing tools within the parametric modeling environment of Pro/ENGINEER. Designers and engineers can create conceptual designs and free-form surfaces while having the ability to model the specific engineered components essential in every successful product. This unique environment allows designers and engineers to not only utilize the power of free-form surfacing, but also to leverage rich functionality, such as behavioral modeling, drafting, simulation and manufacturing from within a single application, making Pro/ENGINEER the ultimate solution for product design.

Key Benefits

- Build free-form geometry at any point in the design, using as many or as few constraints as desired, for maximum design flexibility
- Focus on adding value to your design, not on transferring and interpreting data
- Easy to learn and use, to quickly define curves and surfaces resulting in a faster ROI
- Full associativity allows surfaces and curves to instantly adapt to design changes, reducing product development time

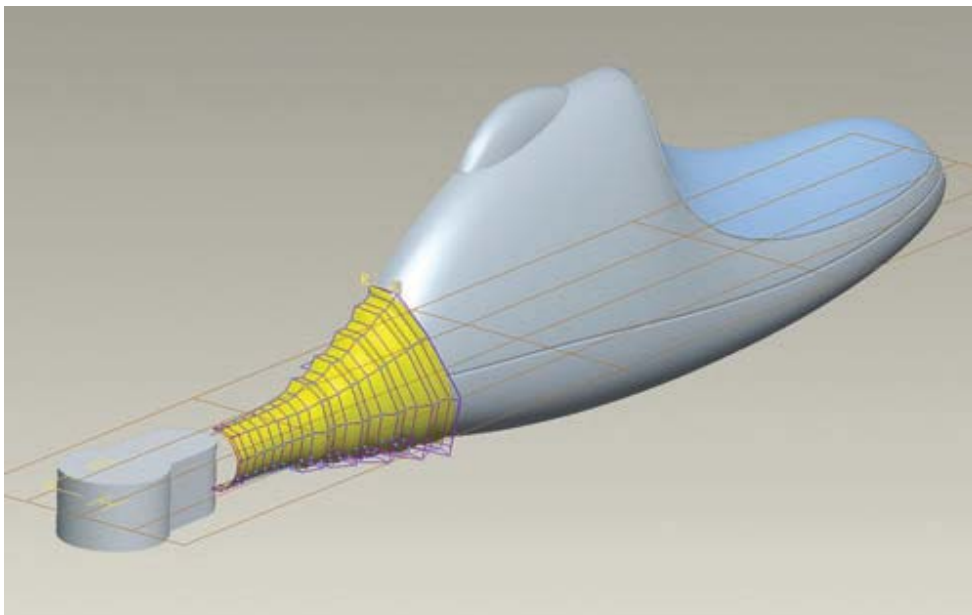
Features and Specifications

Curve Creation

- Create 3D curves by specifying interpolation or control points in one or more views
- Set up references dynamically by snapping to any object
- Create planar curves referencing a plane or radial to another curve
- Create Curve-on-Surface (COS), Sketch-on-Surface, or Project-on-Surface
- Create style curve copies of imported or native Pro/ENGINEER curves/edges
- Copy curves proportionally
- Offset COS

Curve Edit

- Move control points dynamically or numerically
- Edit multiple curves simultaneously
- View original curve while editing
- Interactively delete or change references to any object
- Modify tangent constraints dynamically or numerically
- Connect curves and surfaces with positional, tangent and curvature continuity
- Add interpolation or control points interactively
- Extend dynamically, with or without constraints
- Delete individual points or curve segments
- Combine and split curve
- View dynamic curve and surface analysis
- Change curve types from free to planar or COS
- Unlink curves and individual points from references



With the ability to create free-form surfaces and to optimize curvature, you have the tools to design great-looking products.

Surface Creation

- Share and manage assembly design data efficiently using predefined skeleton model interfaces
- Define and automate the enforcement of design rules, ensuring that only appropriate relationships are created within the context of the design, so they can be reused easily
- Develop unique sequence steps to provide models, views and separate BOM listings for each step of the assembly process

Surface Edit

- Manipulate surfaces faster with direct surface editing
- Regenerate surfaces in real time
- Make automatic surface connections
- Reshape surfaces by editing the defining curves
- Add or remove multiple internal curves in two directions
- Replace boundary curves/edges to redefine surface shape
- Change surface types between boundary, loft and blend while maintaining all references
- Trim surfaces

Connections

View surface connections interactively to define the following:

- G0 Positional
- G1 Tangent
- G2 Curvature continuous
- Establish leader/follower relationships (G1 or G2)

Modeling Environment

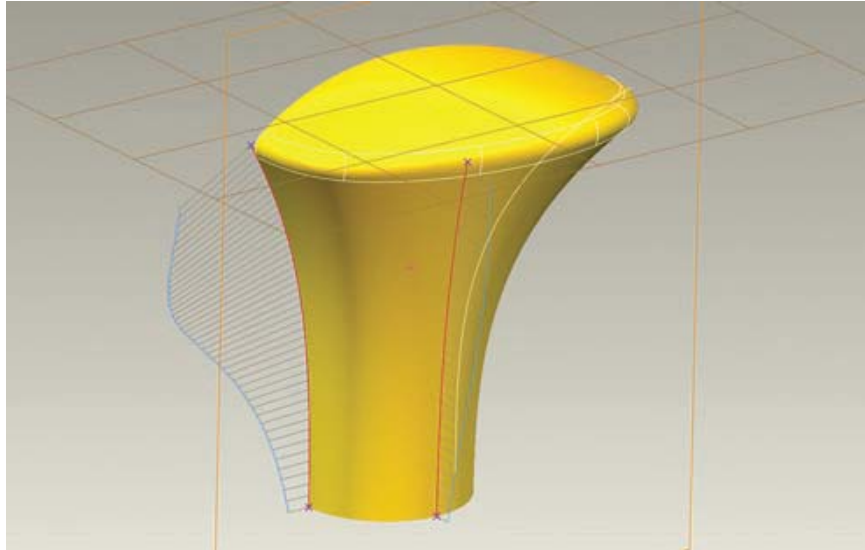
- Import images and scale accurately to modeling environment to use as underlays
- Work within a four-view window
- Reference defining geometry such as points, planes, axes, curves, surfaces and solids
- Create reference geometry asynchronously while modeling
- Work directly off imported geometry, facets and sample data
- Drive model changes through parametric modifications
- Optimize designs using Pro/ENGINEER Behavioral Modeling (available separately)
- Benefit from downstream use for additional geometry creation, engineering, simulation and manufacturing

Scan Tools

Includes entry-level tools for transforming imported surfaces, quilts, triangulation data or raw data into manufacturable models.

- Import, generate and filter raw data
- Import geometry, including curves, surfaces and faceted data
- Create and modify curves

- Heal geometry manually or automatically (part of Pro/ENGINEER Foundation XE Package)



Pro/ENGINEER ISDX is a highly intuitive and flexible free-form surfacing tool that allows you to develop compelling design variations quickly.

Language Support

- English, German, French, Italian, Spanish, Japanese, Chinese (Simplified and Traditional) and Korean

Platform Requirements

- Microsoft® Windows® (XP, 2000)
- UNIX® platforms (Solaris®, HP-UX®, Linux®)

For specific operating system levels, visit:

www.ptc.com/partners/hardware/current/support.htm

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PTC Product Focus

Windchill Translation Management Library

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Tips of the Month

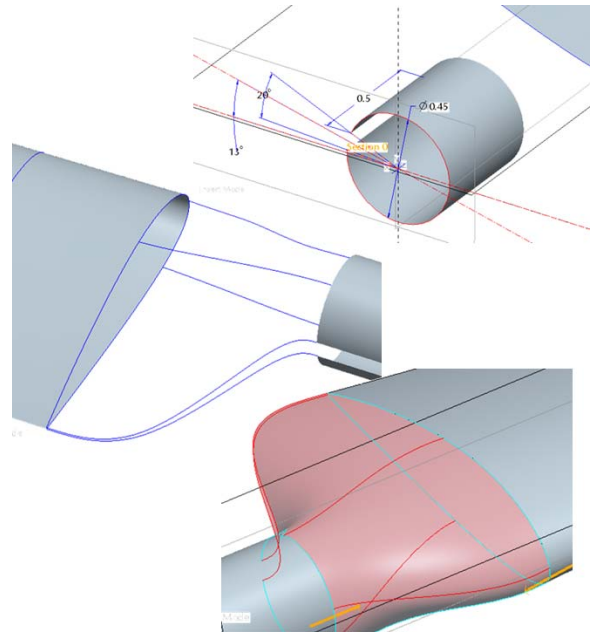
Surfacing Tips

These tips are excerpts from the “**Modeling Airfoil Geometry**” webcast delivered a couple of months ago.

Transition Modeling

Wind Turbine Blade Example

- Create a hub extrusion as an almost full circle
 - Avoids the seams
 - Makes for an easy trailing edge transition
- Create ISDX curves to define the transition
 - Surface curvature
 - “Horizontal” as a secondary control
- Create Pro/Surface or ISDX transition surface
 - Curvature continuity at boundary



Trailing Edge – Main Portion

Trailing edge will be a simple conic

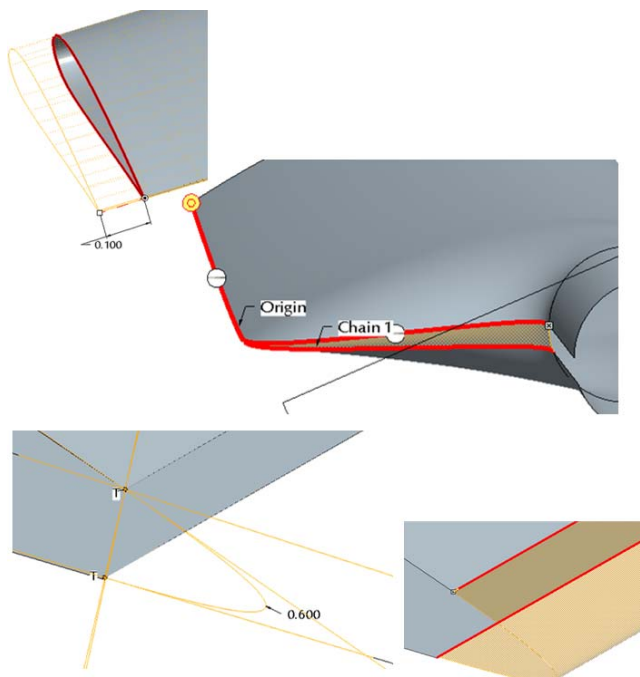
- Swept along both trailing edges and tangent to them
- Section kept parallel to the root plane

In preparation

- Merge the blade and transition surfaces
- Extend the tip out a little

Create a variable-section sweep

- Select 2 **tangent** chains – top and bottom of blade+transition
- Set **constant section direction** as the root plane
- Sketch a simple conic

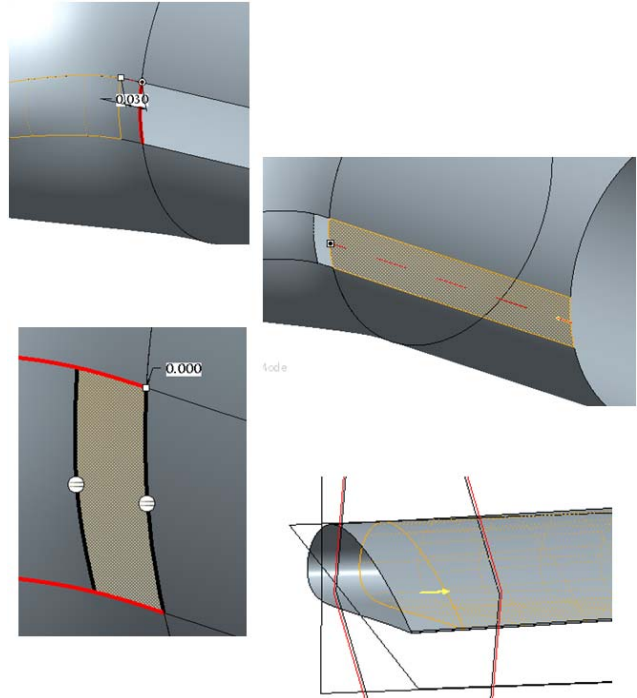


Trailing Edge – Transition

To allow the trailing edge to join with the hub

- Create a negative extend on the just created trailing edge sweep
- Build the remaining segment of the hub
- Create a transition blend
 - Between the new hub section and the trailing edge
 - Set curvature continuity where available

Now you can merge everything together and trim the tip back to the datum plane created earlier.

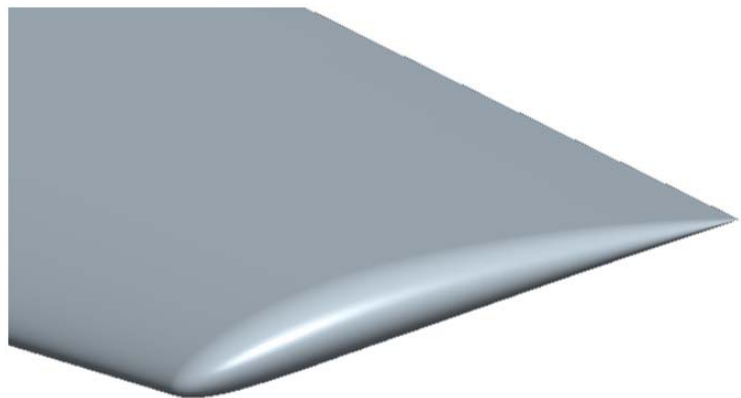


Tip Geometry

The trick here is to generate high quality, round-off surfaces

- Triangular patches are degenerate and will likely not create good parting lines
- Overbuild and trim-back to get 4-sided patches

ISDX is the likely tool here, but one could use Pro/Surface.

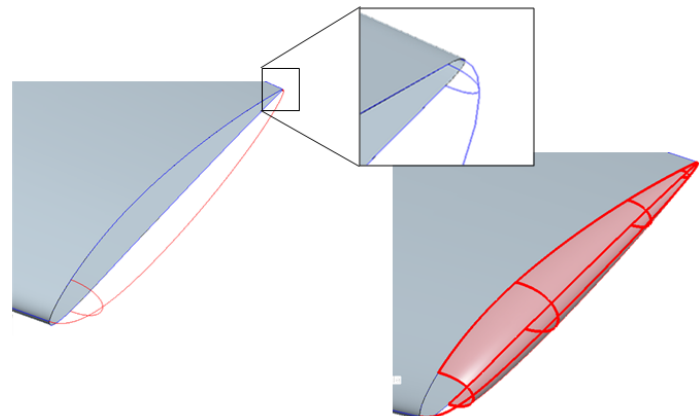


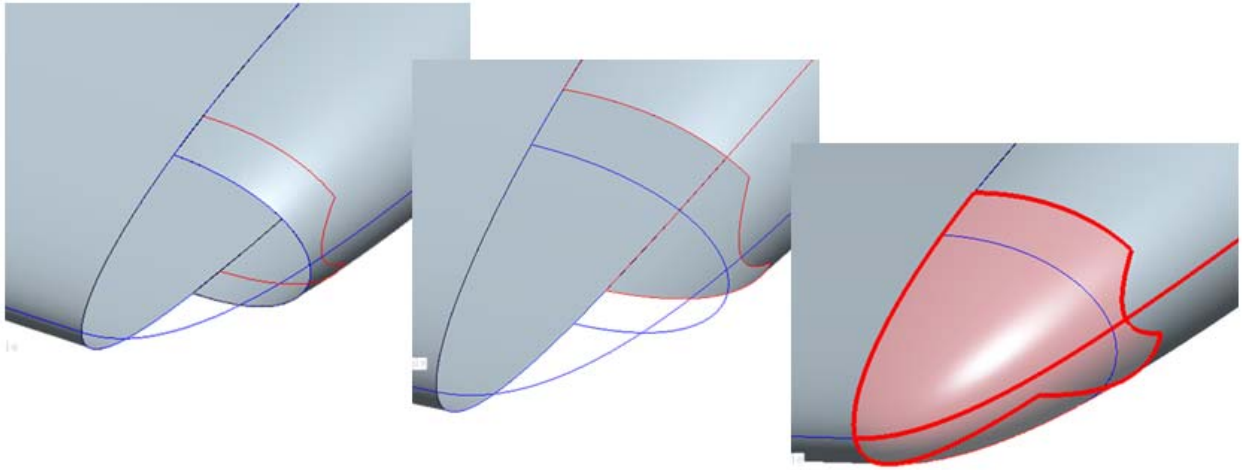
Base Geometry

- Build guide curves for the overall shape
- Build main tip body surface
- Maintain tangency to the blade geometry

Leading edge blend

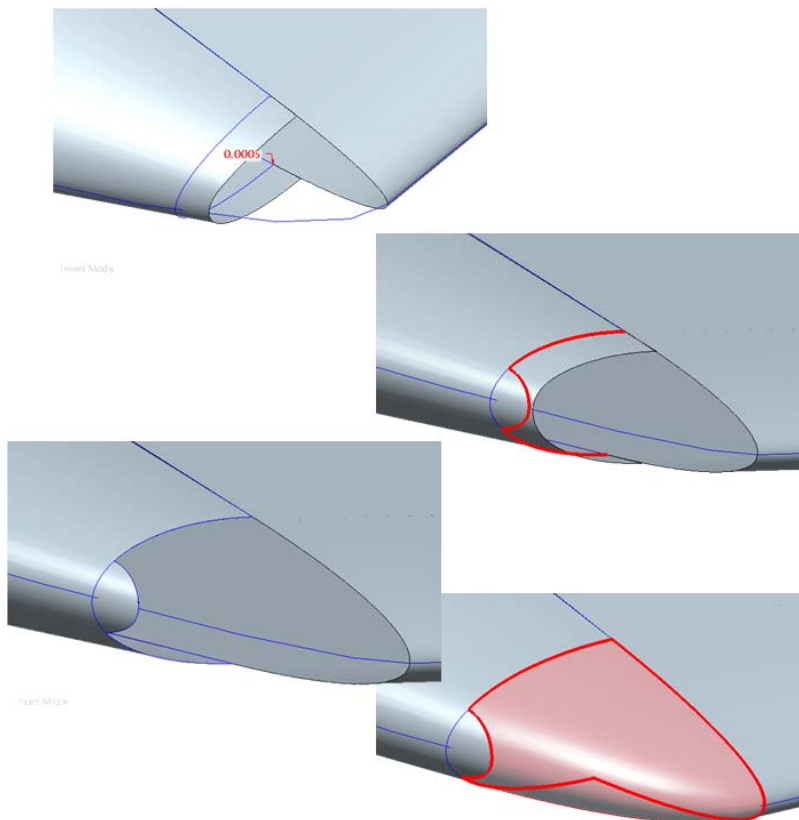
- Create curves-on-surface for this
- Build patch





Trailing edge blend – Slightly different method from leading edge blend

- Extend the main body surface a little
- Create a curve-on-surface for the rounded portion
- Copy and trim back the existing curves
- Trim extended surface
- Build patch



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Tips of the Month

Boxing Paragraphs in Arbortext

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Announcements

Educational Resource Library

Learn things you always wanted to do - but didn't know you could.

This one stop educational resource library will help you learn more about PTC Solutions and provide you with technical materials developed by the product experts to help you become more productive.

Get tutorials, how-to videos and expert advice for:

- Pro/ENGINEER
 - Conceptual and Industrial Design
 - Detailed Design
 - Simulation/Analysis
 - Production
 - Design Collaboration
- Windchill PDMLink
- Windchill ProjectLink
- Pro/INTRALINK
- PTC Online Tools

Check out the [Educational Resource Library](#) today.

PTC Tips & Techniques Newsletter Archives

Miss an issue! Can't find that awesome technique you read about? Fear not, you can click on the link below and go through our Customer PTC E-Newsletter archives.

[Click Here To Access](#)

It's better than finding the Ark of the Covenant!

PTC Tips & Techniques Webcasts: Work Smarter. Not Harder.

Click below to see regularly scheduled Tips & Techniques technical Webcasts that are designed to provide you with the most popular time-saving tricks that Pro/ENGINEER users of all skill levels will find useful. Get more out of your maintenance dollars!

[Tips & Techniques: Work Smarter Not Harder!](#)

E-PROFILES IS HERE!!

We have been eagerly anticipating the debut of the new electronic version of Profiles Magazine and now it is here! This new web site will supplement the print edition of the magazine and will

provide new useful features not feasible with paper media. e-Profiles will provide you with 24x7, worldwide access to key information previously available exclusively in the print version. "Tips & Tricks," a popular feature pioneered by Pro/USER, has also moved to the web and will be expanded as the site matures.

Please take a few minutes to check out this new web site. We don't think you will be disappointed.

<http://profilesmagazine.com/>

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Upcoming Events & Training Class Schedules

Upcoming, 2009 Your local Pro/Engineer User Groups
<http://www.ptcuser.org/rugs/>

June 7 – 10, 2009 Orlando, FL USA
PTC/USER World Event
<http://www.ptcuser.org/>

Events

Our seminars and conferences seek to provide you with relevant information regarding product development trends in your industry as well as innovative software learning experiences. Think of them as a constructive day off where you can share experiences and swap ideas with your peers.

If you can't manage to get away, we'll bring it to you. Check back often for regularly scheduled live webcast events.

[You're Invited to Attend...](#)

Please visit the [PTC Education Services](#) website for the latest training information including course descriptions, schedules, locations, and pricing.

- Attend a course at any PTC Center and receive a **free** copy of Pro/ENGINEER Wildfire Student Edition!

<http://www.ptc.com/services/edserv/index.htm>

Live Instructor-Lead Virtual PTC Training Courses

Virtual Classrooms provide interactive learning with a trained PTC instructor in convenient and manageable sessions that last approximately 4 hours over a series of days. It's easy to join a class right from your desk using a phone or voice-over IP technology.

Sessions are performed just like a traditional ILT (including interactive exercises where you and the instructor can work on lab exercises together) and feature some of our most popular ILT courses. These sessions cover the exact same material as the traditional ILT in-center courses. Also look for some of our most frequently requested mini-topics delivered in the same format that are only an hour - two hours in duration.

If you have any questions about these sessions or would like to see getting other courses, not on this list, on the schedule please feel free to contact me for more details. They are a great way to bring training to you without you having to worry about location or being out from work for long stretches.

You can register for these sessions just as you would for any normal ILT class either by:

1. calling order admin at <http://www.ptc.com/services/edserv/training/registra.htm> or
2. you can go to PTC University directly at <http://www.ptc.com/learning> and submit a registration request directly. All you have to do is search the catalog by typing in “virtual” in the search field and you will see a listing.

PTC

Note: This PTC E-Newsletter will continue to be used for the following:

- 1) Inform you on events related to PTC products (user groups, conferences, training schedules, etc.)
- 2) Educate you on solutions that are available at PTC
- 3) Tips & Techniques using PTC Products

Note: These messages are compiled in the local PTC office and will be distributed via e-mail.

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