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PTC Product Focus

Advanced Rendering Extension

A picture is worth a thousand words. That's why companies invest significant time and money into building a physical prototype that can be photographed for use in marketing materials or consumer testing.



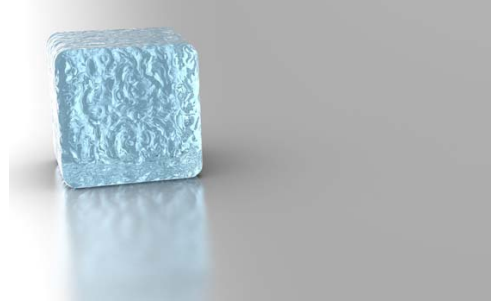
Pro/ENGINEER Advanced Rendering Extension (ARX) allows you to produce photorealistic 3D product images for use in design reviews, marketing collateral, technical documentation, user manuals, and product packaging—without having to build a prototype. And, as your design concept changes and evolves, you can easily update your images without creating a new prototype, thus reducing costs significantly.

With Pro/ENGINEER ARX, you can render images faster, with amazing realism. Simply select a specific material and apply photo-quality properties like a smooth, glossy finish or a rough, matte finish. You can represent the product's intended environment more realistically with Pro/ENGINEER ARX than with any other application.

You now have the flexibility to create the perfect effect with the power to directly manipulate the lighting through 360° of rotation. You can also create a suitable environment for the product to be rendered in, for example, an outdoor scene or an office desktop. Additionally, you can apply special effects like textures, reflections, shadows and depth of field to enhance the final image. These advanced capabilities not only create images that impress consumers, but they also give you back time to optimize your design, and more budget to produce collateral that will generate both sales revenue and excitement around your product.

Faster Design Reviews, More Impressive Documentation

With photorealistic images of the product in its actual environment, design reviews are much faster, and generate more enthusiasm. 3D-rendered images can also be used for consumer testing, and for tailoring the product and product launch to ensure success—at a significantly lower cost. High-quality images can also be used in technical publications, such as product documentation, white papers and user manuals.



Pro/ENGINEER ARX will enable your product to break into the marketplace, not only with accurate promotional material, but with stunning visuals showcasing all aspects of the product.

Key Benefits

- Improve communication via better product presentation and collateral for design, marketing, training, and customer-facing materials
- Increase time for creativity—decrease time waiting for rendering
- Achieve the highest degree of photorealism for designs
- Reduce product costs and increase efficiencies in detecting design issues, so changes can be made before costly prototypes are built

New in Wildfire 5.0:

- New Appearance and Scene Library entries, simulating real world materials.
- Shadow Catcher Support added
- New Appearance Classes, improved workflow and usability
- Photo Render engine changed to Mental Ray for more realistic images
- Skylighting has been added to give an even distribution of light
- Environmental Lighting, you can render models using only HDRI (High Dynamic Range Image) as a light source
- Light Source Color Temperature control
- Illuminance Units added
- Rendering Scene File. You can create scene files containing the lighting, room, and advanced rendering environment effects
- Direct Light Manipulation
- The Appearance editor now allows full editing of the advanced (PhotoLux) material properties
- LightWorks Material Archives (LWA) is supported

Features and Specifications:

Advanced Lighting Capabilities

- Simulate a wide range of lighting, such as spotlight, skylight and distant light
- Enhance lighting with High Dynamic Range Image (HDRI) support
- Vary shadow softness of each light, for example, by simulating sunlight
- Enable light attenuation for real-world simulation of light fall off
- Vary the intensity of each light to take into account other lights in the scene
- Increase graphical realism by showing soft shadows of your product on the floor and reflections
- Supports caustics, final gathering and global illumination
- Offers physical correct lighting with color temperature and wattage inputs

Simulate a Wide Range of Materials

- Apply both image maps and procedural maps to a model
- Utilize bump maps to create relief and to represent material texture
- Use decal maps when applying an image on the surface, such as a company logo
- Determine the finish of the material—lacquer, satin or shiny
- Access a standard library of over 200 predefined material types
- Use dynamic texture placement to precisely map materials and finishes to surfaces

Define the Product Environment

- Set the floor, wall and ceiling position, and apply the appearance scheme or use an HDRI image to generate the environment, lighting and/or background
- Snap the floor, walls or ceiling to the model
- Choose a cylindrical or rectangular room
- Use real-time rendering to view the room
- Reuse predefined settings across multiple models, such as lights, rooms and effects

Special Effects

- Global Illumination
- Depth of field
- Lens flare (best suited for point lights)
- Light scatter
- Region rendering
- Shadow control
- Color temperature
- Tone mapping



Language Support

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

Platform Requirements (consult www.ptc.com/support)

Microsoft Windows (7, Vista and XP, 32 & 64bit)

UNIX platforms (Solaris 10 64bit)

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PTC Product Focus**Windchill Webparts**

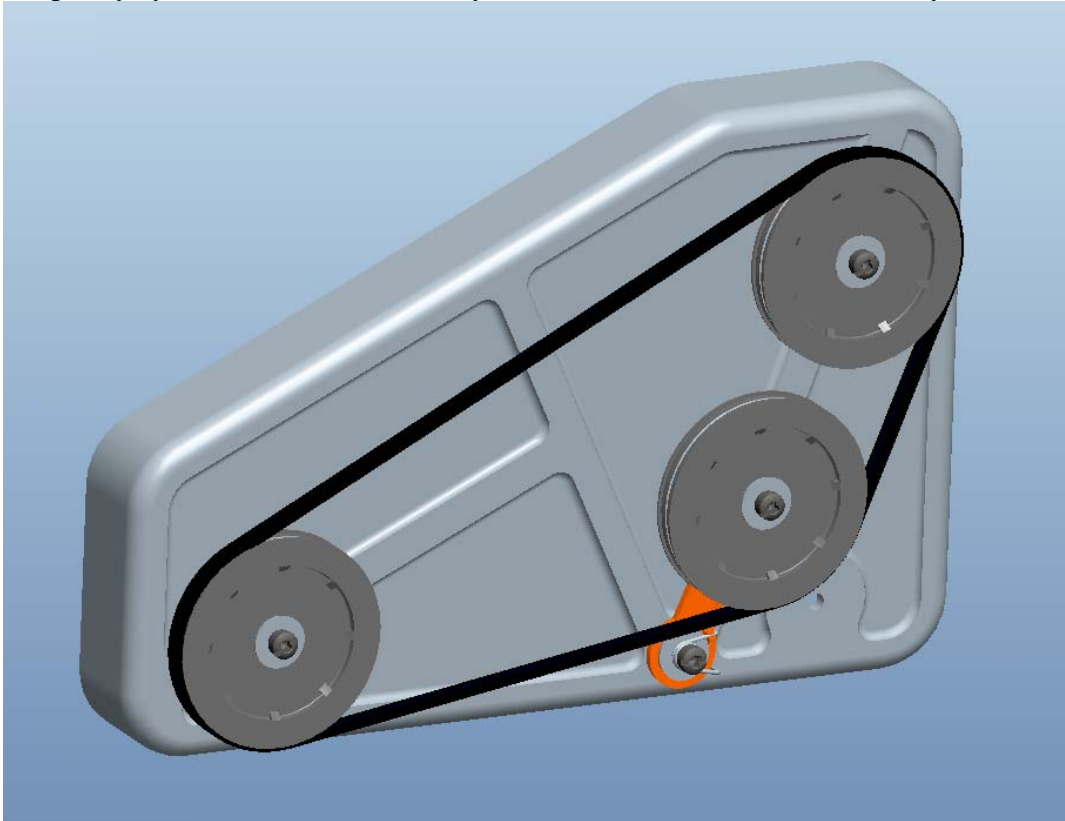
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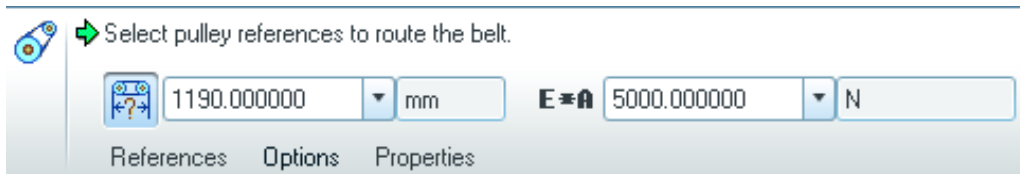
Tips of the Month

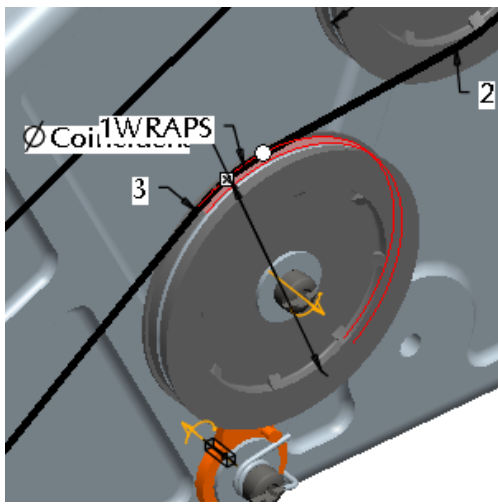
Belt Features in Mechanism Design

New in Pro/ENGINEER Wildfire 5.0 Mechanism design are belt features. This allows for the connectivity between any rotating axis, simulating belts and pulleys. Not only can the kinematics of the belt pulley system be simulated but dynamics and forces can also be analyzed.

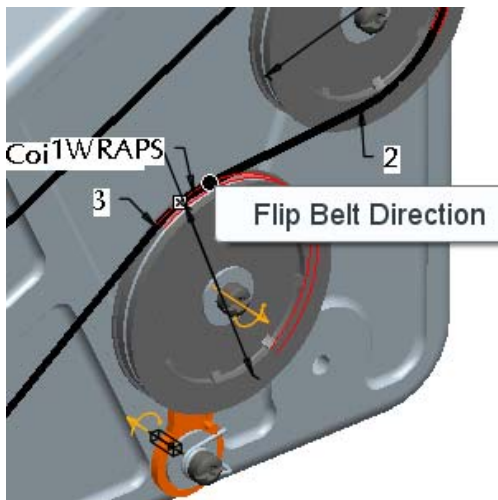


Defining and setting up the belt and pulley system is a simple process. First, using the control key select the pulleys you want to connect. In the Dashboard you can optionally define the stiffness of the belt, in this case 5000N. This is not required for creating the belt, but is very important for analyzing the forces in the mechanism and the belt itself. It is easy to add or remove pulleys at any time. Using the right mouse button (RMB) you can easily adjust the belt trajectory or switch the pulley order. Selecting the  button allows you to set the belt length, otherwise the length is determined by the pulley geometry.

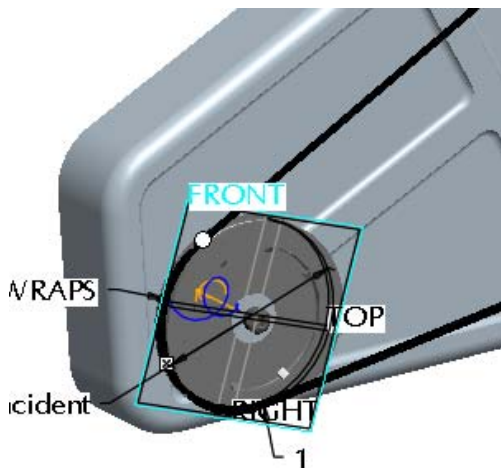




The number of wraps can also be defined by double clicking on the “WRAPS” icon in the graphics window.



If there is a tensioner in the belt loop, it will automatically adjust to any change in the length of the belt. A right mouse button pick on the round dragger icon allows you to flip the belt direction.

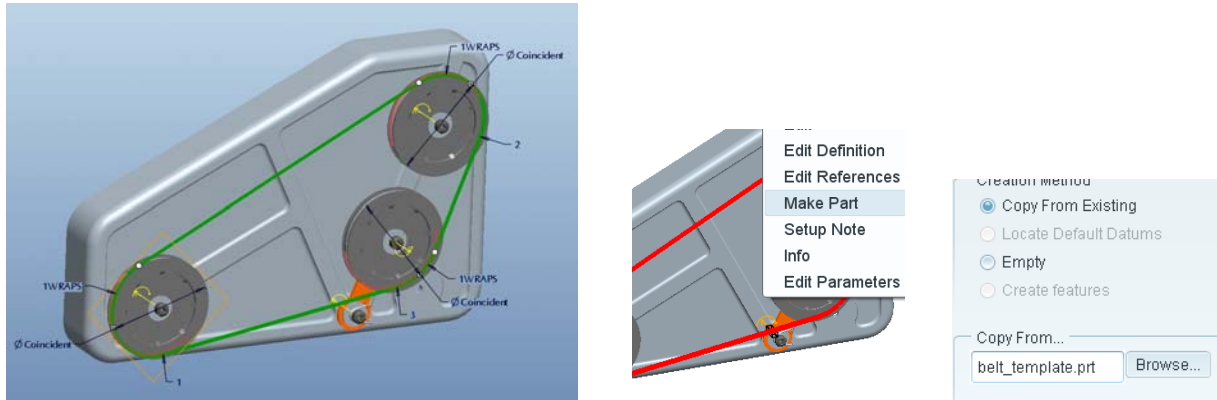


Finally, center the belt on the pulley using a central datum plane on one of the pulleys, Right mouse button on the datum plane and select Belt Plane.

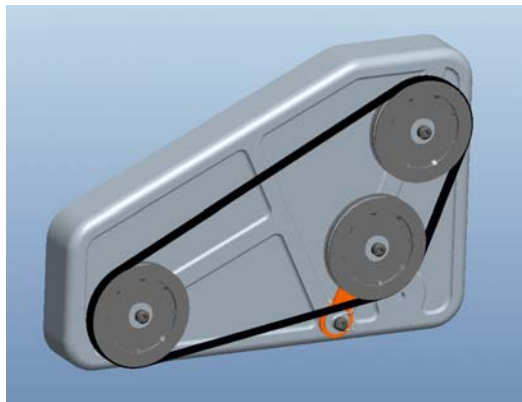
Optionally you can set the diameter of the pulley independently of the pulley geometry. Simply select a joint axis and enter the desired diameter or change the diameter inherited from the selected pulley.

The belt definition is now complete. Pushing and holding the Ctrl and Alt keys and then dragging any pulley shows the system motion.

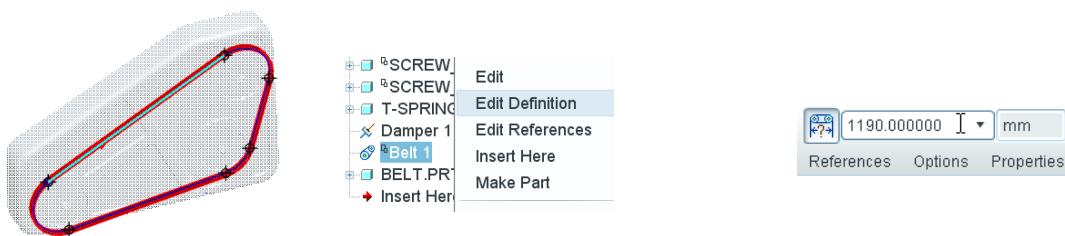
Once the belt is routed, a solid part representation of the belt can be constructed that is associative to the belt feature. Select the Belt Feature from the model tree, right mouse button, “Make Part.” A dialog opens allowing you to name the new part and specify a template part to use. Next you will be asked to assemble the new part, use the default constraint, middle mouse button to complete the part.



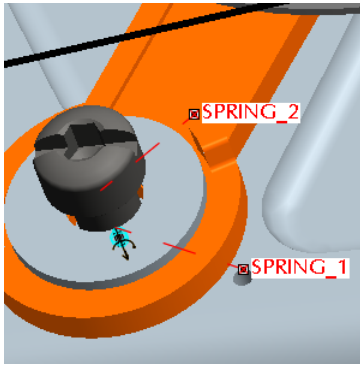
The belt curve can now be used to extrude a solid profile, or you can use it to construct a chain with individual links.



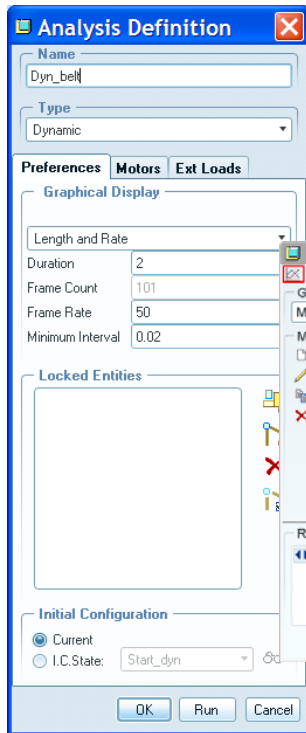
From the model tree select the belt feature (make sure you have selected the check box to display features in the model tree settings, tree filters.) Change the belt length, regenerate and see how the belt updates.



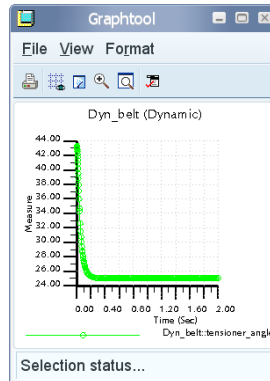
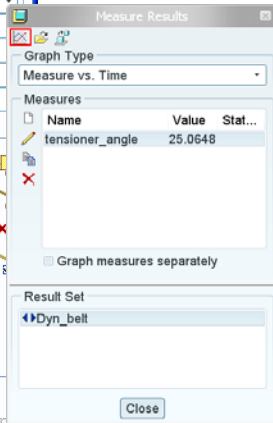
Torsion springs have been enhanced in Pro/ENGINEER Wildfire 5.0, letting users select spring arm references that represent how a “real” torsion spring would attach. Strict control of joint axis settings is no longer necessary to define a torsion spring thus saving time. Simply reference a rotational axis, the attachment points of the spring arms and enter a spring constant K.



Now let's check to see if the tensioner is doing its job. By placing a servo motor on one pulley and a load torque on another, we can analyze the tensioner angle vs. time as the motor starts. This is a dynamic analysis working against the load in the belt, the belt flexibility, and the torsion spring. Belts also have specific measures available like tension and slip.



Create an analysis using a servo motor on one pulley and a torque load on another, use the parameters show. Then run the analysis.



Once the analysis is done graph the results.

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Tips of the Month

Windchill Workgroup Manager Auto Attachment of Secondary Content

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Announcements

PTC Tips & Techniques Newsletter Archives

Did you 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.

[Customer Care Zone](#)

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!](#)

Special Hardware offers for PTC Customers

- <http://www.hp.com/go/ptc>
- <http://www.hp.com/go/ptcworkstation>

PTC Sponsored Events

- <http://www.ptc.com/company/news/events/index.htm>

Explore what is new with the Pro/ENGINEER Wildfire family!

<http://www.ptc.com/go/showcase>

Connect with PTC using the latest Social Networking resources:

facebook



LinkedIn

YouTube

Also visit <http://social-product-development.blogspot.com/>

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, 2010 Your local Pro/Engineer User Groups
<http://www.ptcuser.org/rugs/>

June 6 – 9, 2010 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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