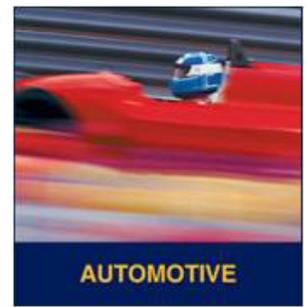


# Problem Solved!

## TECHSEAL INNOVATIONS - LOW CLOSURE FORCE NOTCHED HOLLOW-D SEALS



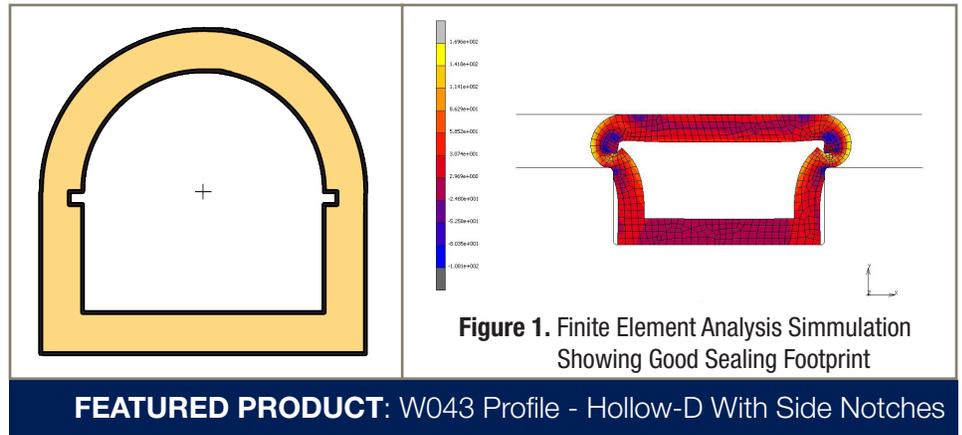
### Application

Automotive lithium-ion battery enclosure.



(The image above is only illustrative, not representative of the actual application.)

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### Problem

The engineers at an automotive battery manufacturer approached TechSeal early in their design process for an environmental sealing system. Their original choice for sealing the lithium-ion battery enclosures was a square-profile foam ring but the foam seal took a compression set and leaked during testing.

The customer was looking for a more robust sealing solution that would meet the following requirements:

- Better resistance to compression set and tear than foam.
- Low closure force (due to the material used to construct the enclosure).
- Resistance to the effects of weathering and occasional oil splash.

Taking all this into consideration, TechSeal recommended the W043 profile - a notched hollow-D profile - from the ParFab™ product line and produced an extruded and spliced hollow sealing solution that met and exceeded the customer's requirements.

### Parker Solution

TechSeal's Application Engineers worked closely with the customer to configure a custom sealing solution. The particular W034 profile - a ParFab notched hollow-D profile - was chosen because the added notches on both sides helped reduce the seal closure force without having to over-decrease the seal wall thickness or lower the material hardness. These notches gave our engineers the ability to control the compressive force while preserving the seal's structural integrity. The overall shape of the hollow-D profile also provided a good sealing footprint (see Figure 1).

For withstanding the corrosive effects of weathering and occasional oil splash, TechSeal recommended a silicone compound S7426 which has excellent resistance to weathering, acceptable resistance to hydrocarbon-based fluids, and higher resistance to compression set and tear than foam materials.

The W043 profile was extruded from the S7426 compound and then spliced into 4-foot-diameter rings. TechSeal was able to supply the products to the customer with minimal tooling cost, due to TechSeal's flexible manufacturing capability. To learn more about the W043 profile and other ParFab custom profile offerings, please review TechSeal's **ParFab Design Guide** (TSD 5420) at <http://bit.ly/TSDParFab>.

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