

# THE KNAPHEIDE MANUFACTURING COMPANY

Growing service truck body business into new markets with SolidWorks solutions



*Using SolidWorks design, simulation, PDM, and technical communication solutions, Knapheide has accelerated product development and throughput, enabling the company to expand its products into six new markets.*

From wagons to service truck bodies, the Knapheide Manufacturing Company has grown and prospered since its founding in 1848 by leveraging design and manufacturing technologies to capture new markets. Throughout its history, the company has relied on design innovation and engineering expertise to evolve its product line. While its early wagons drove a nation's move westward, its current service and utility truck bodies support a diverse range of industries that require specialized vehicle equipment and capabilities. Today, Knapheide is the leading US manufacturer of service and utility truck bodies.

As part of its new product development strategy, Knapheide moved from AutoCAD® 2D design tools to a 3D development platform in 2003. Although the truck body manufacturer initially implemented the Autodesk® Inventor® 3D CAD system, its engineers became dissatisfied with the software after two years, according to Vice President of Engineering Chris Weiss.

"We believed that another 3D CAD system might be more efficient, particularly for sheet metal design, which encompasses roughly 90 to 95 percent of what we do," Weiss recalls. "Our manufacturing operations utilize advanced sheet metal fabrication techniques, such as specialized punching and roll-forming processes, and we decided to benchmark all of the leading 3D CAD packages to validate our initial 3D decision."

That benchmark, which was conducted by a cross-functional team of eight Knapheide professionals, winnowed the field to two finalists: Solid Edge® and SolidWorks® software. A subsequent, more extensive analysis in 2005 led Knapheide to migrate to SolidWorks as its preferred product development solution.

Knapheide chose SolidWorks software because it is easy to use; includes integrated SolidWorks Simulation, eDrawings® communication, and advanced sheet metal design tools; and is configurable through the open SolidWorks Application Programming Interface (API).

By 2013, Knapheide had acquired 55 licenses of SolidWorks Standard, 22 licenses of SolidWorks Professional, and three licenses of SolidWorks Premium design software; two licenses of SolidWorks Simulation Professional and one license of SolidWorks Simulation Premium analysis software; 75 licenses of SolidWorks Enterprise PDM product data management software; and two licenses of SolidWorks Composer technical communication software.

## Challenge:

Accelerate and advance service truck body development to create more complex solutions and expand into new markets.

## Solution:

Implement SolidWorks Professional and SolidWorks Premium design software, SolidWorks Simulation Professional and SolidWorks Simulation Premium analysis software, SolidWorks Enterprise PDM product data management software, and SolidWorks Composer technical communication software solutions.

## Results:

- Increased speed of product development
- Created more complex design solutions
- Automated sheet metal design and fabrication
- Expanded business into new markets

## Expanding business into new markets

Since its initial SolidWorks implementation in 2006, Knapheide has dramatically expanded its traditional business in utility and service truck bodies into six additional markets, including military/defense, industrial products, alternative fuels vehicles, dump truck bodies, forestry/chipper vehicles, and van equipment and accessories. By providing product development agility and flexibility, SolidWorks solutions are helping Knapheide continue its record of quickly responding to changing customer needs.

"What SolidWorks solutions have allowed us to do is increase the speed of development and design more complex solutions," Weiss stresses. "That has enabled us to significantly grow our business. We value the SolidWorks platform because it gives us a real competitive advantage. With SolidWorks software, we can develop better service bodies—and customize them for unique applications—faster than anyone else, which has been critical for helping us create products that capitalize on new market opportunities."

## Automating sheet metal production

Much of the productivity gains that Knapheide has realized with SolidWorks stem from the automation of its sheet metal design and fabrication operation. Through a combination of SolidWorks capabilities, using the SolidWorks API, and custom programming, Knapheide has integrated SolidWorks design models with a customized tooling interface to automate sheet metal production.

"By driving our bending data forward directly from the SolidWorks 3D CAD model, we can automatically set the perimeter of a part, access our bend and gauge tables, and begin fabrication programming on the fly," explains Engineering Manager Lucas Creasy. "The process has resulted in substantial gains in fabrication productivity on top of greater design speed, helping us to accelerate throughput."

## Adding solutions to support growth

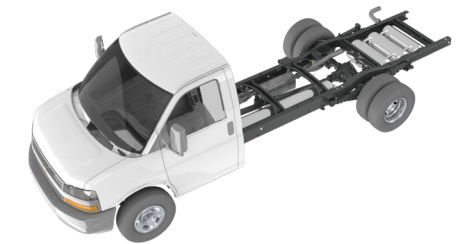
Knapheide continues to sustain its business growth trajectory by building on its initial success with SolidWorks software through the implementation of additional SolidWorks simulation, product data management (PDM), and visualization solutions.

With SolidWorks Simulation Premium software, Knapheide can perform more complex nonlinear structural analyses, involving body-chassis interaction and assemblies of multiple moving parts, to validate product designs. The addition of SolidWorks Enterprise PDM software has enabled the company to implement automated workflows for processes governing design, engineering change orders, and release to production. Adding SolidWorks eDrawings communication and PhotoView 360 photorealistic rendering tools lets Knapheide communicate more effectively with its customers.

"SolidWorks has consistently provided the integrated solutions that we need to grow our business," Weiss says. "Our speed and professionalism are growing along with our business, and SolidWorks has helped to make it happen."

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Chris Weiss  
Vice President of Engineering



*Over the course of eight years, Knapheide has added integrated SolidWorks simulation, PDM, visualization, and technical communication solutions to its design platform, which has helped the service truck body manufacturer grow its business.*



The Knapheide Manufacturing Company  
1848 Westphalia Strasse  
Quincy, IL 62305 USA  
Phone: +1 217 223 1848  
www.knapheide.com  
VAR: Computer Aided Technology, Inc.,  
Buffalo Grove, IL, USA



Dassault Systèmes  
SolidWorks Corporation  
175 Wyman Street  
Waltham, MA 02451 USA  
Phone: 1 800 693 9000  
Outside the US: +1 781 810 5011  
Email: generalinfo@solidworks.com  
www.solidworks.com

