

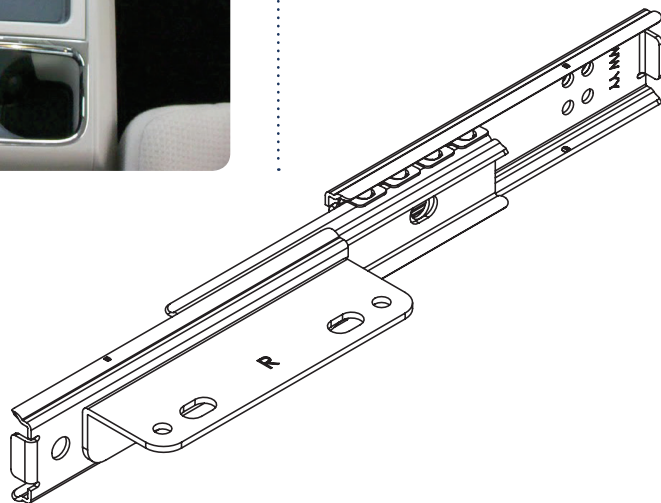


Automotive Interiors in Motion:

A design resource for automotive developers

Designing tomorrow's car interiors demands unprecedented creativity and the ability to leverage every millimeter of interior space. More storage. More flexibility. Better security, ergonomics, and comfort.

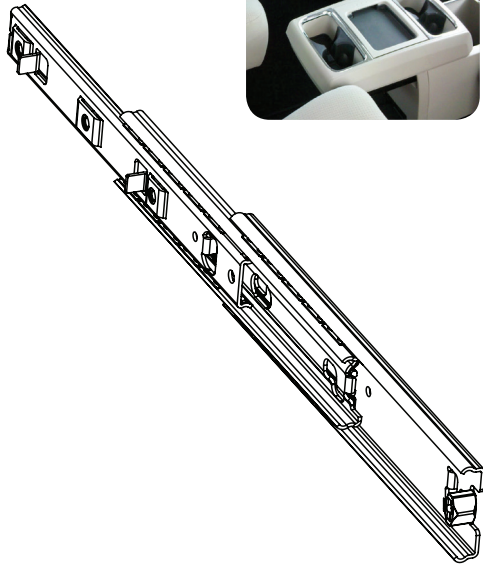
As you put your interiors into motion—with moving center consoles, moving armrests, pull-out drawers, sliding cupholders, seat cushion extenders and other innovations—put Knap & Vogt's sliding systems expertise to work on your biggest challenges.



KNAP & VOGT®



Floor Console



Move your vision into reality with a proven and experienced partner.

Every model year, new demands emerge in the realm of interior amenities, storage, comfort, style, and innovation. When you want to lead the market, you want a supply partner in your corner with proven “get-it-done” capabilities.

At Knap & Vogt our sliding systems engineers work with the world’s top OEM automakers and Tier 1 suppliers to lead today’s fastest-moving trends and developments. We partner with VentureSource Solutions, a company focused on bringing innovative and unparalleled solutions to the Automotive market.

We live and breathe sliding systems and have dedicated the past century to engineering and manufacturing some of the most reliable and popular components ever built.

If you have a vision for putting something into motion in your vehicle design, Knap & Vogt has the engineering and manufacturing expertise to make it a reality—on-time and on-budget.



KNAP & VOGT



Floor Console



Pull-out Drawer



Center Arm Rest



Cup Holder



Seat Cushion Extender



Slides for every objective

- Create new storage spaces
- Improve access to storage and amenities
- Optimize space utilization
- Enhance driver comfort & safety
- Address ergonomic challenges

We've seen a lot of automotive innovation in our 100+ years in "the business of motion." And we bring a perspective on the use of slides that extends beyond cars and trucks—to help you consider new ways of approaching tough storage and ergonomic challenges.

In numerous applications, we've solved problems around:

- Heavy loads / High usage
- Complex motion
- Low-profile / Space restrictions
- Extreme environments (e.g. High/low temperatures, noise-sensitive, heavy vibration, etc.)
- Custom-built solutions



KNAPE & VOGT



Early stages

- Identify Trends
- Define Problem/opportunity
- Ideation
- Brainstorm project specs
- Explore existing solutions
- Share application expertise
- Refine concepts & designs

Development/Testing

- Benchmarking
- In-house prototyping
- In-house testing
e.g. Key DVPR criteria
- CAD integration
- Sample production/support

Tooling/Manufacturing

- U.S. & International
- Pre-tool sample support
- Project management
- Schedule-driven

Deliver and Support

- Global QA & support
- On-time / On-budget
- Responsive services
- Proven logistics and inventory support

A well-honed process keeps everything moving forward.

Working together with automakers and product development experts, Knapé & Vogt's sliding systems engineers, testers, fabricators, and logistics personnel ensure the success of your design—from initial ideation and concepting to steady shipment of finished components and on-the-ground service anywhere in the world.

Tap us at any point in the process and we'll quickly become a responsive and effective part of your team.

Together with VentureSource Solutions, our expertise includes:

- Market Intelligence & Analysis
- Ideation
- Engineering, Modeling and Prototyping
- Project Management
- Fabrication and Manufacturing at-Scale
- Product Testing, QA, and Regulatory Validation
- Value Engineering
- Global Supply Chain Support & Service



KNAPE & VOGT



Case study: Breakthrough innovation for best-in-class Chrysler 200

When Chrysler interiors engineers started rethinking every aspect of the cabin for the 2015 Chrysler 200, they turned to a trusted partner to help put a revolutionary idea into motion.

Central to the re-imagining of the design was a groundbreaking rotary electronic gear shifter, which promised to free up a lot of center console space for unexpected and innovative uses. The new floor console's storage space includes a stow zone underneath a dual cupholder unit.

In a previous interview with Automotive Engineering, the 200's Chief Engineer Doug Verley said that the sliding cupholder unit is indicative of a detail-focused interior. "The precision in how this unique mechanism moves the cupholder unit is remarkable. It's definitely not disappointing," said Verley.¹

Knapé & Vogt is proud to have worked with Chrysler's engineers to fulfill their vision—co-engineering a custom slide mechanism that perfectly suited the design.

¹<http://articles.sae.org/12950/>



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Optimizing your slide design characteristics

*In designing a precision ball bearing slide, there are 10 main characteristics to consider.
The Knap & Vogt team is ready to match our products and capabilities to your requirements.*

PROFILE PLATFORM

To meet application needs
2- and 3-member solutions
www.knapeandvogt.com/slide-profiles

EXTENSION/TRAVEL

- One-way travel
- Two-way travel
- Full extension
- Less or more than full extension

EFFORT

Target effort specs needed
to put the slider in motion
and/or keep it in motion

ATTACHMENTS

Key attachment &
locating features

- Threaded studs/nuts
- Brackets
- Locator/assembly assist

POSITIONING

Detent options include:

- Full forward
- Rearward
- Multiple position

LOCKING

- Lock-out-open
- Lock-in-closed
- Lock-in and out

CLOSURE

- Push-to-open
- Self-close
- Soft-close

STABILITY

- Structural enhancements
include C-channel and
L-channel reinforcements

SOUND

- Sound-sensitive
applications
- Dampening requirements

APPEARANCE

What materials and finishes
are required?



KNAPE & VOGT®



Collaborative development with VentureSource allows Knapé & Vogt the opportunity to develop best-in-class solutions for our customers' most pressing challenges.

Everywhere you need us to be.

Based in Grand Rapids, MI—with manufacturing in North America and Asia—Knapé & Vogt and VentureSource partner to exceed the highest demands of global automakers, matching uncompromising quality with reliable logistics and superior customer support.

Our global support network, including VentureSource Support and Distribution Centers in Michigan, Spain and Shanghai, is available to you at a moment's notice.

We welcome your inquiries.

Whether you're just beginning to brainstorm a new design—or you're struggling to execute a project that's already underway, our engineers and sliding systems experts stand ready to lend a hand. Please contact us and let us know how Knapé & Vogt can help you create automotive systems and interiors that will set you apart.



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