



WHITE PAPER:

HARNESSING THE POWER OF CASTERS AND WHEELS

**DON'T OVERLOOK CASTERS
AND WHEELS IN DESIGNING
HIGH QUALITY PRODUCTS**



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Every day, all over the world, people depend upon casters and wheels. From moving food in a grocery store to moving million-dollar pieces of medical technology into a surgical suite, casters and wheels are a critical, yet overlooked link, to helping tens of millions of people work smarter and enjoy life more.

So, it goes without saying, that design engineers and procurement managers should think twice before specifying a lower quality caster or wheel just to shave a few pennies. Because what you may not realize is that a lower quality caster or wheel may put your entire product at risk if it should fail.



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TAKING A WHOLISTIC APPROACH, THE ALLEGIS WAY

When manufacturers come to Allegis Corporation to help them think through the design of their products, regardless of what the product is, Allegis takes a wholistic approach to the desired experience we want for the end-user.

In specifying a latch or a hinge system for a heavy-duty truck cab, for example, we believe that you can't isolate a part, such as a gas spring, from the rest of the product. If you decide to use a lower quality part here or there, you lower the quality of the entire product.

This is especially true of points of contact – those parts of a product where a human interacts with a product (grabs, holds, pushes, pulls, lifts, moves) — whether it's a moveable tool chest in a diesel mechanic's garage to a bank of computing equipment that needs to be moved for servicing. Because we work with a wide range of companies, from start-up manufacturers to Fortune 100 corporations, at Allegis, we understand this better than anyone.



When people feel that the part that they're touching or interacting with is less than quality, it affects their perception of the entire product, and ultimately, the entire experience.

Let me put this in another way: Have you ever grabbed a shopping cart at the grocery or big box store and the wheel squeaks? Or it jams up? And step by step as you roll throughout the store, you become more and more irritated.

KEY FACTORS IN SELECTING CASTERS AND WHEELS

It's not just a matter of how a caster or wheel moves or how it feels to the end-user.

The question that every design engineer should ask themselves is, "What is the cost of a catastrophic product failure?"



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What if, for example, a worker is moving a large load of aluminum tubing in your plant with a moving cart and a caster fails, which leads to the tubing collapsing on and killing the worker?

What if the casters on your moving apparatus lock up and prevent critical parts from reaching your assembly line, resulting in the line being shut down?

Is the cost of saving a few cents or a few dollars worth the tens of thousands of dollars if an assembly line shuts down, or the loss of a worker's life?

When trying to determine the right caster for a particular job, Greg Burke, National Account Manager with the Colson Group, the world's most trusted manufacturer of casters and wheels says it's important to focus on the following key factors:

- Industry regulations – Is the caster or wheel designed to meet specific requirements or regulations of a particular industry, such as hospitals or food manufacturing?
- Safety – Does the caster need to meet any specific safety considerations? Does it need brakes for example?

- Noise – In many industries, including automotive manufacturing, noise reduction efforts may require specially designed casters to minimize or reduce noise.
- Environment – What will the caster undergo in the day-to-day environment that it is being used? In a food plant, for example, the caster will likely be exposed to stringent food cleaning and sanitizing. Other factors: Will the end product be going inside and outside? Will it be used in a location that experiences extreme cold or extreme heat?
- Capacity – How much weight is going to be pushed or pulled? When too much weight is placed on a caster, wheel bearings wear out, leading to caster failure. Do not underestimate the load limits when trying to determine how many casters will be needed and the build (light, medium, or heavy-duty).
- Height limitations – Does the end product, such as a cart, need to be under a certain height, or does it need to be at a certain height for easy loading and unloading?
- Consistency – Casters prove themselves over time. Day-to-day wear and tear is what separates one caster from another. Look to casters that consistently perform year after year, and which, are relied upon by the nation's largest and most respected companies.
- Aesthetics – Does the caster need to conform to a certain look? For example, in the hospitality industry, some hotels and restaurants may want the functionality of a modern, high performance caster but disguised to look like a caster from the 1920s.
- Quality – Consider whether the caster is manufactured under widely respected quality standards, such as ISO 9000.
- Warranty – Consider the warranty that comes with the caster or wheel being specified. For example, Colson has a warranty of three years on many of its casters.



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ENGINEERING FOR CASTERS AND WHEELS

After you take into account some of the factors that your end-product will face in its day-to-day use, at Allegis, we believe it's important to consider other componentry to ensure that the product's casters are aligned with handles, latches, hinges, gaskets, and gas springs.



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This is where involving one of our application engineers can help a manufacturer confirm that they're on the right track in their product design. An application engineer also can provide additional perspectives to help a manufacturer see how different components will work together with the intent of making the product perform better.

The key is to create a product that neither underperforms or fails or, is over engineered. This is where industry expertise combined with modern technology, such as 3D solid modeling, finite element analysis (FEA) and mold flow analysis can help manufacturers obtain a solution faster.

COMBINING GLOBAL EXPERTISE TO SERVE MANUFACTURERS BETTER

In partnering with Colson, Allegis Corporation adds a global leader in casters and wheels to its list of premier access component suppliers. Operating in 15 countries with 20 manufacturing and distribution locations, Colson offers global supply chain capabilities to manufacturers in Europe, Asia and North America.

When given a problem to solve by a manufacturer, Allegis engineers work with Colson application engineers to guide the manufacturer to a solution that enhances the end-product. User-friendly downloadable 3D solid models and 2D drawings for all standard products help design engineers quickly understand available options. Specialized engineering design and support helps customers meet stringent application needs.

HARNESSING THE POWER OF CASTERS AND WHEELS



Allegis, through Colson, can provide prototyping services for new products, and product qualification testing to meet both industry and customer specific standards. Together, Allegis and Colson can apply their expertise in helping manufacturers in the following industries:

- Aerospace
- Agriculture
- Automotive
- Construction
- Enclosures
- Electrical and Telecommunication Enclosures
- Food and hospitality
- HVAC
- Material handling
- Medical
- Power Generation
- Refrigeration
- Retail kiosks and carts
- Powersports (snowmobiles, boats, ATVs, motorcycles, etc.)
- Transportation (trucking, buses, RVs, trailers, EMS/ firetrucks, etc.)

CASTERS AND WHEELS FOR JUST ABOUT EVERY APPLICATION

Allegis is proud to offer Colson Group casters and wheels, which makes a wide range of casters and wheels for just about every imaginable application under a number of well-known brands. These include:

CASTER/ WHEEL BRAND	APPLICATION	LIGHT DUTY 450 lbs. or under	MEDIUM DUTY 500-1,250 lbs.	HEAVY-EXTRA HEAVY DUTY 1,500 – 20,000 lbs.
Colson	Institutional, Medical	•	•	
Shepherd	Institutional, light duty	•	•	
Jarvis	Food service, hospitality	•	•	
MedCaster	Medical	•	•	
Albion	Industrial, material handling	•	•	•
Pemco	Retail, industrial	•	•	
Revvo	Industrial, power towing	•	•	•
Rhombus	Medical	•	•	
Faultless	Industrial, institutional	•	•	
Imsa	Furniture	•	•	•
Flexello	Industrial	•	•	•
Bassick	Business machine	•	•	•



BOTTOM LINE: DON'T TAKE CASTERS AND WHEELS FOR GRANTED

Let's face it, it's easy to take casters and wheels for granted. But with the growing demands being placed on manufacturers of all sizes to continuously deliver higher levels of value, it's often the small things that can deliver higher levels of satisfaction. Like latches, hinges, gaskets, seals and gas springs, paying just a little more for higher quality components can deliver the reliability and confidence that customers come to expect.

As you work toward designing your next product, I invite you to ask yourself these key questions:

- Placing safety first, which caster offers the highest possible safety features for the intended application?
- What are the possible extremes under which the final product will be used and how will the caster system reduce the risk of product failure?
- Which caster delivers the best value – offering the best performance and reliability for the application at a reasonable cost?
- Which caster manufacturer offers the widest range of applications and is able to deliver products in a timely manner?
- In designing the product, how easy (or difficult) are we making it to service the unit?

Keeping these questions in mind during the design process will add value, comfort and peace of mind to the end user, while eliminating unnecessary warranty and service claims.

ABOUT THE AUTHOR

Mike Gnasdoskey is Executive Vice President of Sourcing & ARC for Allegis Corporation. With more than 35 years experience in the access hardware industry, Gnasdoskey has worked in nearly every function within Allegis' business. Gnasdoskey is an expert in working closely with the company's customers, from start-ups to Fortune 500 manufacturers, to identify and deliver access solutions that enhances end-user product performance while driving more value for the manufacturer.



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