

Finding the Best Fit

About SitOnIt Seating

SitOnIt Seating® offer high-quality seating solutions that combine award-winning design with intelligent ergonomics. From healthcare to higher education, the California-based company has been creating built-to-order seating since 1996.

Born and bred in California, all key collections at SitOnIt Seating is designed in-house and vigorously tested for quality control, strength and durability. The design team collaborates with engineers and uses customer feedback to develop seating to fit – and even anticipate – user need. This collaborative, forward-thinking attitude is what has put SitOnIt Seating at the top of the seating industry.

About E3 Ergonomics

David Brandenburg has been working in partnership with E3 Consulting Corporation as a Staff Ergonomist since 2015. David has been a Certified Professional Ergonomist (CPE) since 2009, and he has been an ergonomist since 2003 after completing a Master's in Industrial Engineering under Dr. Gary Mirka at NC State University. Prior to that he received a Bachelor's degree in the same field from the University of Illinois, Champaign-Urbana.

David's experience has primarily focused on the office environment since starting his career at UCLA under Cynthia Burt. He has extensive knowledge of office seating and has performed in-depth analyses of dozens of models of task seating, starting in 2002 when he worked as an ergo intern for Dr. Riley Splittstoesser at UNC-Chapel Hill. David, born in Macomb, IL to parents Lynne and Larry, currently resides in Davis, CA with his wife Susan Chen, and their two children Emmett and Minerva.

E3 Consulting Corporation and SitOnIt Seating co-authored this white paper, while David independently both performed the seating analysis and created the scoring system. He has always maintained his independence from endorsing any company's products. Please visit www.ergonomicconsultants.com to contact E3 consulting with questions.

Deciding on the best task chair is not just a matter of “how much does it adjust?”

SitOnIt Seating Torsa – When Design Meets Ergonomics

The world of office chairs is full of so many options, and it can be difficult for decision-makers to have full confidence in the task seating choices they are making for their organization. There are several variables to consider that can greatly affect the company for a decade or more. Among some of those questions:

- Does it look right for our aesthetic?
- Will it be comfortable for everyone?
- Are people going to adjust it?
- Do our employees need those extra adjustment features?
- Do we need to spend a lot to get a quality chair?
- What will the chair look like and how will it function in 10 years?
- Is it a sustainable product?

This white paper is an attempt to provide you, the reader, with more clarity into details that are important to ergonomists when we evaluate task seating. For E3 - as with most in our profession - deciding on the best task chair is not just a matter of “how much does it adjust?” Several of the considerations we make will overlap with some of the priorities you have as a designer, facilities manager, purchaser, or other key decision-maker.

SitOnIt Seating asked E3 to perform an independent review of their popular Torsa seating line to two competing models - the Hon Ignition and the Humanscale Liberty. The total Ergo Expert Ratings can be seen in the below chart.



The following review will give you an example of how an ergonomist evaluates a set of chairs pre-selected by the customer. Along the way, we will point out some key ergonomic advantages that the SitOnIt Torsa provides that add up to a big difference.

Ergonomists Can Help Bridge Gaps in Your Organization

The Ergonomist’s role in furniture selection is often limited to: “Hey, this employee is injured. Which chair should we get them? And don’t say the fifteen-hundred dollar one!”

Limiting your interactions with an ergonomist to requesting help for an injured colleague misses the opportunity for gaining confidence in all furniture choices.

We see a positive effect on the ‘long view’ of your furniture selection. Thoughtful decision-making will lead to smart choices that won’t need to be corrected in the future. Finding chairs that fit your employees means you’ll devote fewer resources to resolving “non-standard” needs, giving you solid justification for standardization.

Focusing on higher quality chairs in your price range means fewer malfunctioning chairs. Broken chairs aren't simply a strain on your facilities budget – they can pose a safety risk, and negatively impact fit, comfort and, ultimately, employee performance.

Thoughtful ergonomic considerations will have a positive impact on other related priorities like sustainability and employee health and wellness. Ergonomics efforts can help you accrue LEED accreditation points and have a positive impact on employee recruitment, performance, and retention.

Ergo Expert Rating

So, what does an ergonomist prioritize when recommending furniture, you ask? Let's discuss that now in detail while we take a look at the results of our chair assessment.

1. Standard Features

The key principle in ergonomics is *FIT*. In other words, how well do our work areas, work tools and work culture fit us as human beings? When it comes to chairs, if you are looking to fit many different people into one, the more adjustments and larger adjustment ranges for each feature of the chair will generally produce more fit. I said earlier not to minimize your view of an ergonomist's value to furniture selection because we like adjustments, but adjustability is still our top priority.

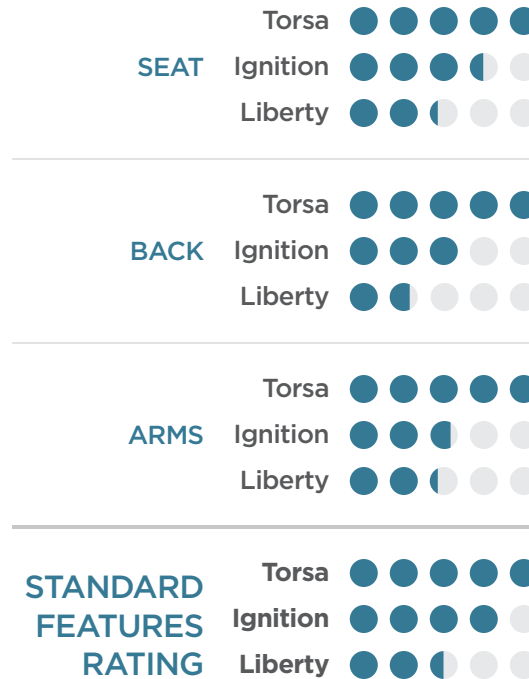
In standard seating, fewer adjustments often mean less adaptability, and, in turn, less fit across the organization. That means your company has to manage the consequences of incorrectly fitted chairs. Ergonomists are then tasked with finding solutions for the 'outliers'. Those triages may mean more costs, creating unnecessary friction between ergonomists and the business interests of an organization. Selecting your standard chair to have more adjustable features will pay off in the long run, as you will run into fewer friction points when it's discovered that someone needs something non-standard to get their best fit.

Adjustability can be a tricky issue. On the one hand, offering different adjustment features as options may seem like a great example of consumer choice – a positive. But more important than a simple measure like quantity of adjustments is the consideration of how many users will actually take advantage of them. Here, design is the differentiator. When a user can take advantage of the adjustments to get the best sit, thus enabling them to better perform – that is the true measure of success for seating. Here, the advantage of visible, easily reached controls impacts overall rating for adjustability. And the best of all is when ergonomic features come standard with seating.

More important than a simple measure like quantity of adjustments is the consideration of how many users will actually take advantage of them

Which chair has “extra” features as a standard? A standard Torsa chair has more adjustability than its competition, which will lead to greater fit without any upcharges, as you see in the Standard Features Rating chart below.

Which chair has “extra” features as a standard?



Important adjustments that ergonomists see as necessary are not always included as standards. Worse yet, they usually cannot be retrofitted onto the chair cost-effectively. Standard features that are typically seen as up-charges in some chairs - Ignition’s adjustable armrests, seat depth and multi-function controls are all upcharges - and not featured in others - Liberty does not offer backrest or lumbar height adjustments - are all included in the Torsa’s base model.

COMPONENT	ADJUSTMENT	TORSA
Seat	Height	Standard
	Tilt	Standard
	Depth	Standard
Back	Lumbar	Standard
	Tilt	Standard
Arms	Height	Standard
	Width	Standard



Changing demographics means that chairs today must not just fit, but support and maximize performance for an increasingly wide spectrum of users

2. Anthropometric Conformance

The consideration of anthropometric conformance is more complex than it seems. You may have heard the phrase “We are designing for the 5th to 95th.” This is the industry standard design goal and it is simple on its face: design a chair that fits 90% of our adult population.

There is more to consider, however. Changing demographics means that chairs today must not just fit, but support and maximize performance for an increasingly wide spectrum of users. The spectrum of height and weight in today’s workplace is broad and considerations of seating must address this. Design and engineering must reflect forethought. A failure to do this means not only not serving a growing part of the population, but also it means creating a competitive disadvantage to companies.

Making seating not just durable, but comfortable for workers of all sizes isn’t a competitive advantage, it’s essential for the changing American workforce. With obesity affecting more than a third of Americans (Centers for Disease Control and Prevention – <https://www.cdc.gov/obesity/data/adult.html>), seating with design that accommodates larger users is an imperative.

Metrics surrounding seat weight capacity, seat height and width fit tell the story of how supportive a chair is for this changing demographic. But whether those features are designed-in options or upgrades with a charge must be a part of the overall consideration of the product.

All three chairs scored high (4.5 out of 5) when it came to the back and arms fit. However, once you factor in the percent of population fit with the seat dimensions (height, depth and width), Torsa is at the top of its class in providing a better fit for users in the changing demographic.



3. Ease of Use

Ease of use is paramount when evaluating a chair for a customer. If the end user can’t access or easily understand the chair’s features, what’s the use in building those features? We must consider three questions:

1. Can users find adjustments easily?
2. Can they easily understand controls?
3. And can users make adjustments while seated?

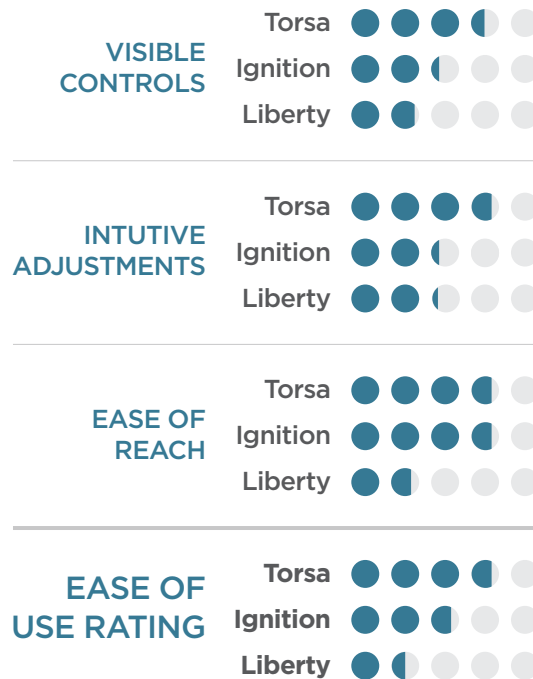
These are deceptively simple questions that get at the core of comfort and usability in a chair. Working with a user’s intuition – not against it – is harder than it seems. But it’s a challenge worth taking because only then can seating become an asset in boosting productivity, and creating a satisfying work environment.

Torsa's design answers these three challenges by making the placement and grouping of adjustments intuitive.

Torsa's design answers these three challenges by making the placement and grouping of adjustments intuitive. Not only are the adjustment paddles visible from the seated position, but they're easy to operate while seated as well. The seat height and depth controls are located next to each other – placement that really makes sense. And the Torsa's controls are labeled with understandable, easy-to-recognize icons.

These design and engineering choices beat the competition. When compared with Torsa, the Hon Ignition has counterintuitive controls. The mirror-image controls that aren't intelligently grouped together. And the Humanscale Liberty features controls that are unlabeled and hidden from view, including one – seat-depth adjustment – that is essentially hidden from a user deep in the base of the chair.

Torsa was designed with the user in mind, and engineered for easy, intuitive access and control and the below Ease of Use Rating bears that out.



Torsa was designed with the user in mind, and engineered for easy, intuitive access and control



Tilt lock/tension controls visible from above

Seat depth/height controls visible from above



No adjustment controls visible from above.

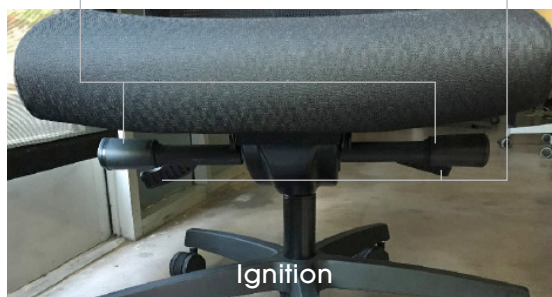


Seat dept hidden control underneath front of seat



Tilt adjustment control

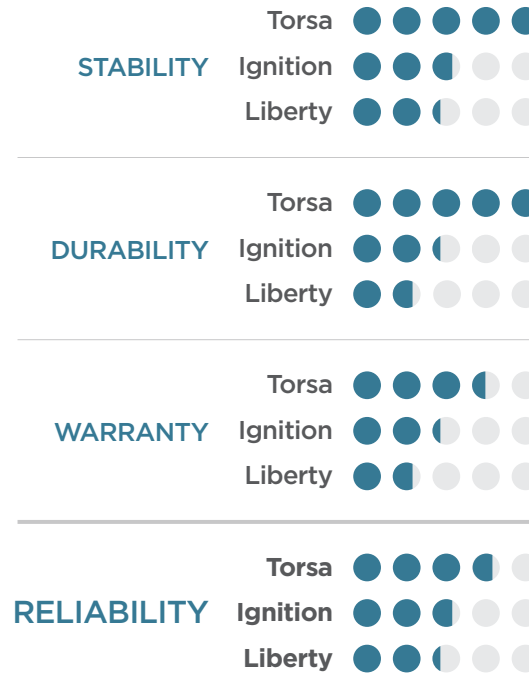
Seat adjustment control



The 'precision fit' of a luxury car's doors, a close that feels secure without collateral noise – this was the goal of engineers behind Torsa. They set to work building the chair for that confidence-building user experience.

4. Reliability

The metrics for measuring reliability include stability, durability and warranty - whether a customer feels supported over the course of time and wear. Reliability functions not only practically, in allowing for proper furniture planning and budgeting, but in creating confidence in a place of work.



SitOnIt Seating took inspiration from other industries like aviation and automotive in the design of the Torsa. The 'precision fit' of a luxury car's doors, a close that feels secure without collateral noise – this was the goal of engineers behind Torsa. They set to work building the chair for that confidence-building user experience.

Precision fit and reliable movement of parts were essential to this design. That meant precision design that eliminated extra space in notches that would result in 'wobbliness' of arms. A complex system of balance and counterbalances had to be put into place and carefully tested to ensure this customer experience.

Stability functions not only practically, to allow users to sit with little movement, allowing them to perform functions that require precision and surety of motion, but also to create a sense of confidence about the sit. All three tested chairs featured a solid sit in the seat. But in the back and arms, the field was differentiated. The Torsa was the only chair to provide a firm, motion-less or nearly motion-less sit on a standard setting. The Hon Ignition has noticeable movement when a user reclines – jarring for a new user. The Liberty chair offers no locking system for the backrest, offering no counter-balance for tall users. The result is a 'falling sensation' when a user reclines.

Creating comfort, stability and reliability means finding new ways to ensure that the spectrum of users feels supported.

Also key to considerations of fit and comfort was today’s customer. According to a 2016 CBS News report that citing the Centers for Disease Control and Prevention, “since the late 1980s and early 1990s, the average American has put on 15 or more additional pounds without getting any taller.” (<http://www.cbsnews.com/news/americans-weight-gain-since-1980s-startling/>)

This statistic cannot be ignored in the seating industry. Creating comfort, stability and reliability means finding new ways to ensure that the spectrum of users feels supported. Torsa’s design supports all users thanks to its stability, but also its deep seat.

Durability is an important metric for budgeting and planning in the long- and short-term. Again, SitOnIt Seating’s Torsa pulled away from competitors Ignition and Liberty. In arm durability, the Liberty did not perform well.

As for warranty, the Torsa stood out from the competition with all adjustment mechanisms coming under warranty. All chairs were similarly ranked for seat and back. But notably, the Torsa beat the Ignition and Liberty in warranty for arms.

The solid feel and lack of movement in the adjustable component when it’s locked in place.



The amount of movement in the adjustable component when it is locked in place.



Concluding Remarks

After an ergonomic assessment of three competitive task chairs, SitOnIt Seating’s Torsa comes out as the clear standout. While the Hon Ignition and the Humanscale Liberty can be upgraded in many ways to achieve better fit, those features are not standard with those chairs. Neither do these competitors’ chairs match Torsa’s thoughtful design and engineering with ergonomics and user experience as top priorities.

SitOnIt Seating prioritized fit in the development of this chair, from seat size to stability of arms, to give and comfort. This foresight makes the Torsa stand out in this comparison study as a smart investment for companies that prioritize the health and comfort of their workforce.

Torsa, a smart investment for companies that prioritize health and comfort of their workforce.