

HAWORTH

The Importance of Good Sitting

Ergonomic Seating Guide



IN A FAST-PACED WORLD WHERE
SITTING IS CONSTANT,
WE HAVE DEDICATED
OURSELVES TO PERFECTING THIS SEEMINGLY SIMPLE ACT.
OUR MISSION IS TO ENHANCE THE CONNECTION BETWEEN THE
HUMAN BODY
AND THE CHAIR.
WITH THE HUMAN PERFORMANCE INSTITUTE AT
WESTERN MICHIGAN UNIVERSITY, WE CREATED A
COMPREHENSIVE MAP OF SITTING CONSISTING OF
5.5 BILLION DATA POINTS
THIS BLUEPRINT OF
COMFORT
INFORMS OUR **ERGONOMIC DESIGNS**,
SOLVING COMPLEX SEATING CHALLENGES TO
MINIMISE DISCOMFORT AND ENHANCE
WELL-BEING
OUR **75-YEAR LEGACY** IN DESIGN, ENGINEERING, AND
ERGONOMICS
DRIVES OUR COMMITMENT TO THE **SCIENCE OF SITTING.**
WE ENGINEER SOLUTIONS THAT
ELEVATE YOUR QUALITY OF LIFE.
WE WILL CONTINUE PUSHING THE BOUNDARIES OF ERGONOMIC DESIGN,
MAKING CHAIRS THAT TRANSFORM SITTING INTO AN ART FORM.
JOIN US IN THIS JOURNEY TOWARD A MORE COMFORTABLE,
HEALTHIER,
AND HAPPIER LIFE.

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The art and science of sitting well

‘Any culture that decides to sit on chairs must come to terms with a challenging reality: human posture,’ writes the architect Witold Rybczynski, author of *Now I Sit Me Down*¹.

Sitting well is an art and a science. Humans have been sitting for thousands of years; the earliest records of chairs come to us from ancient Egypt and Greece². But even with thousands of years of sitting experience, the challenge of the human posture remains!

Sitting can lull our bodies into unhealthy positions – and screens can hypnotise us so that we don’t move for hours. This immobile seated posture is sedentary sitting, which can lead to pain, discomfort, and serious conditions like low back pain (LBP)³.

LBP is the leading cause of disability worldwide⁴. While sitting in office chairs is not the only cause, there is widespread consensus that office workers are disproportionately affected by LBP⁵. The intensity and prevalence of LBP have only increased in the past few years – and for all the benefits hybrid and remote working bring, they inevitably lead to an increase in sitting, which can further exacerbate the problem.

Even for those who do not develop LBP, discomfort from unhealthy sitting practices can affect productivity, engagement and well-being.

Against this backdrop, the art and science of sitting well becomes crucial.

Why good sitting matters to Haworth

When we sit properly in ergonomic chairs, we feel better. The right chair aligns us with our workspaces and our technology. It can improve the way we feel – and the way we work.

Part of good sitting is using a chair that encourages us to move. Our bodies weren't made to sit still – we were made for motion.

When we're sitting comfortably – not stiff, hot or sore – it's easier to focus on our work. And when our chairs let our blood circulate freely, more oxygen can get to our brains.

With every ergonomic chair Haworth designs, our goal is to make you more comfortable and productive. Our chairs align your body in a healthy seated posture. They support your macro and micro movements – because staying in motion is key. And our chairs support you as you move from sitting to standing to perching.

We want you to sit well, so you can do more.

Studies show that work-related injuries can be reduced and productivity increased using an ergonomic chair and proper ergonomic training:

Proper office ergonomics training resulted in a higher quantity and quality of work produced.⁶

Use of an ergonomic chair during prolonged seated work decreases the risk of suffering musculoskeletal disorders in the neck, shoulders, arms, back, and legs.⁷

1 Rybczynski, 2016

2 Blair, 2016

3 Le & Marras, 2016

4 The Lancet Rheumatology, 2023

5 Papalia, G.F. et al, 2022

6 Karakolis and Callaghan, 2014.

7 Zemp et al, 2016.



The art of sitting – support while in motion

Sometimes, the art of sitting well involves not sitting! We can avoid sedentary sitting by actively changing work positions. Options for work positions include sitting and standing – and something in between. With the introduction of our dual posture seating, a third position emerges: perching.

When we perch, our spine is in a healthy position (similar to when we are standing) even as we rest in a bit more comfort (similar to when we sit). The presence of this third option encourages people to spontaneously change their posture throughout the workday – making sitting the dynamic experience it should be.

The right furniture provides the opportunity to sit well; healthy behaviour realises that opportunity. While you're sitting, we'll make sure you're supported. But none of us should be sitting still all day – and whether you are sitting, standing, or perching, your work setup ought to support you with science-based ergonomic design.

The science of sitting – partnerships with leading experts

We have exhaustively studied the relationship between the human body and the chair. This study of the science of sitting has paid dividends: Zody is the most researched chair on the market and the first and only chair endorsed by the American Physical Therapy Association.

Our work with leading experts in the field – such as the Human Performance Institute at Western Michigan University – ensures that our designs are based on the most recent ergonomics research. In our two-decade relationship with the Human Performance Institute, we've mapped the sitting position with over 5.5 billion high resolution pressure data points. This extensive data allows us to understand the complex relationship between the human body and seating surfaces, informing our ergonomic design and allowing us to understand complex seating challenges.

Our ergonomic task chairs minimise discomfort and promote well-being. Our commitment to the science of sitting is grounded in our seventy-five-year history of strong design, engineering, manufacturing, and ergonomic expertise.



Dual posture: an evolution in the art of sitting

This is the art of sitting well: SIT, PERCH, STAND, REPEAT!

The art of sitting well depends on active, dynamic movement. Sitting is not bad; it is sitting for too long, and remaining in one position, that may cause us some issues⁸. To overcome ‘office inertia’ – sedentary sitters tend to remain sedentary sitters! – we need an environment that encourages us to move.

In an artful sitting setup, ergonomic task chairs remain the most important element. Even in a dynamic arrangement, most our time at work is spent sitting – we need a chair that supports us. Even with the best ergonomic chairs, however, we shouldn’t remain seated and sedentary all day. The first step toward encouraging motion is a sit-to-stand desk. After all, we probably won’t change our sitting position if we can’t adjust our work surface accordingly.

With dual posture functionality, a third working posture is possible: perching.

Perching is the happy, healthy middle ground between sitting and standing, providing a good balance of the pros and cons of both⁸. When we perch, we get the best of both worlds. Perching maintains the healthy spinal curvature of a standing position but puts less pressure on our bodies, thanks to the support of an ergonomic chair.

And the possibility of a third posture acts as a catalyst for motion – when you give people the option to move, they take it! Our studies found that having a dual posture option caused participants to adjust their posture more often and reduced how long they remained seated. 43% of participants reported that perching was the best posture for their work (compared with 40% for ‘seated’ and 17% for ‘standing’). And 36% of users found perching to be their ‘favourite’ posture.

When combined thoughtfully with ergonomic seating and sit-to-stand work surfaces, dual posture seating takes the art of sitting well to the next level.

When our dual posture seating was tested in a recent study, participants:

1. Spontaneously adjusted their position 11% more frequently (from 2.7 changes to 3)
2. Reduced the average length of their sitting sessions by 12% (101 minutes to 89 minutes)
3. Reduced the average length of their standing sessions by 8% (48min to 44min)
4. Reported decreased body discomfort in both frequency and intensity



Charting the evolution of office chairs: from traditional designs to contemporary ergonomic comfort:

⁸ Le & Marras, 2016

The prominence of active seating in the hybrid working era

Active seating is more important than ever in the hybrid working era. When hybrid workers come into the office – most frequently on Wednesdays, followed by Tuesdays and Thursdays⁹ – social activities take precedence. The office is now an active hub of interaction.

Leesman research has found that hybrid workers prefer the home environment for focused individual work and planned meetings and prefer the office for informal social interaction, learning from others, and hosting clients or visitors (though Leesman notes that hybrid workers have become less enthusiastic even for those stalwart office activities over the past few years)¹⁰.

Hybrid work demands flexible, adaptable work styles. Time spent on each task in the office is often shorter; on the days when hybrid workers come into the office, they often spend an hour or less on each activity and take part in various meetings throughout the day. Often they do not stay in a ‘home’ zone for long, moving from setting to setting as required.

In this situation, active seating allows hybrid workers to jump right into collaborative tasks. Active seating provides necessary ergonomic support whilst minimising time spent on complicated adjustments, allowing the many people sharing the chairs to quickly find suitable support before launching into their meetings. Active seating encourages people to move, flexing with them. And because work happens everywhere on the floorplate, active seating has a streamlined aesthetic that fits in anywhere.

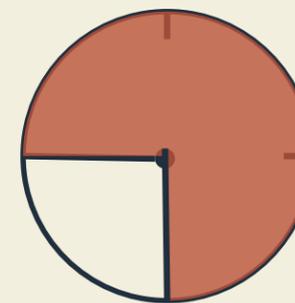
It is not only movement at our desks that is important. As offices become more interactive in the hybrid working era, we move constantly throughout the workspace – and as we go from setting to setting, we need seating that supports our active workstyles.

Simplicity, Style, Support

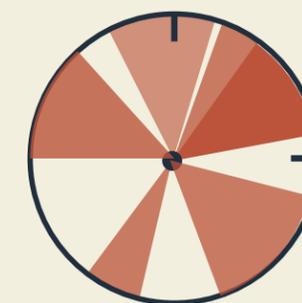


Active seating is defined by three words: Simplicity, Style, and Support.

- 1. Simplicity.** There are no complicated adjustments with Active Seating. Simple mechanisms provide ergonomic support but need no setup time.
- 2. Support.** Active seating encourages a person to move while seated – and supports them as they change posture. Perhaps the backrest moves and flexes with you; maybe the recline mechanism is weight-activated.
- 3. Style.** Active seating generally features a streamlined look and feel that accommodates a wide range of work styles and aesthetic preferences.



9 h Focus work
at assigned
workplace



2h meeting
1,5 h conference call
20 min conversation
over coffee
1,5 h silent focus work
2h workshop

9 Barnes & Ferris, 2023

10 <https://www.leesmanindex.com/the-inevitability-of-change/>

The three layers of movement

Posture

Posture involves training your body to sit, stand, walk, and lie in positions where the least strain is placed on supporting muscles and ligaments.

Good posture helps to apply the appropriate amounts of pressure on our joints and ligaments by maintaining correct amounts of muscle tension.

Note: Posture is not limited to the muscles in your back. Everything, from your neck to your abdominal muscles to your hamstrings, plays a key role in maintaining correct postural alignment of the body.

For example, the ideal position of your head is always upright. In this neutral, upright position, it weighs between 10-12 lbs. As the head tilts forward even 15 degrees, the forces on the neck change, as if the head now weighs 30 lbs. At 45 degrees, it's as if the head weighs 50 lbs.

Position

Position change involves moving from seated to standing or vice versa. It's a significant shift in the body's weight distribution. Position change helps improve blood circulation, reduces swelling, and enhances musculoskeletal comfort.

Location

Location involves walking (or skipping or jogging or whatever suits you) to a different place. Changing location stimulates cognition, creates opportunity for connection with others, and reduces the potential for musculoskeletal disorders associated with long-term static postures.

DID YOU KNOW:

Research¹¹ has found that when we sit in slouched postures, our brains have to work harder to evoke positive thoughts or perform cognitive tasks, as compared to when we are upright.



11 Peper, 2019

Remaining in motion throughout the workday

The key to each layer of movement is to change. Many of us are familiar with challenges of long-term sitting. However, long periods of standing also place stress on the body¹². There is increasing recognition that even low-intensity physical activity plays an important role in well-being. The solution is simple: we need to move! Every movement matters.

Here's what a day in motion looks like:

7.5 h
workday

05 hours of sitting in neutral posture, changing postures/ fidgeting

02 hours of standing

16 sit-to-stand position changes

1/2 hour of moving, changing location

30 min
recommendations

20 minutes of sitting

08 minutes of standing

02 minutes of movement or location change

DID YOU KNOW?

Some people refer to posture change in your chair as fidgeting. But fidgeting is actually good for us! It expends 35% more energy than simply sitting and 28% more energy than simply standing alone.

Dual posture seating adds another movement option to this list – perching!

12 Le & Marras, 2016

A Chair is a Personal Choice

Ergonomic Seating Standards

Few things in the workplace evoke a stronger physical and emotional attachment than our chairs. Our chairs are the centre of our work – and perhaps the single most important component of a healthy working environment. Good ergonomic seating helps us concentrate, minimising the distractions that stem from being uncomfortable.

The purpose of this guide is to highlight seating features that will improve your comfort and well-being. We share our insight with the hope that it will help you perform better and stay more engaged. The human body comes in many different sizes and shapes; a design that's comfortable for one person may be inappropriate for another. When we physically interact with our chairs for hours at a time, it is imperative that our chairs are suited to our needs.

To improve chair designers' abilities to meet the needs of users, several organisations have compiled standards with the help of Human Factors and Ergonomics experts. These standards represent the combined cumulative knowledge and expertise aimed at improving the accommodation of people and reducing the risks of injury in the office environment.



Haworth always considers global ergonomic requirements in our chair development process, in addition to the following standards:

- Business and Institutional Furniture Manufacturer's Association: BIFMA G1-2013 and BSR/BIFMA 10.1-202x
- German Institute of Standardisation DIN 1335-1:2020 and DIN 1335-2:2019
- Australasian Furnishing Research & Development Institute (AFRDI): AS/NZS 4438:1987 (R2016) for most task seating (and other relevant AFRDI standards depending on the product)

These chair standards are intended as a reference and starting point for design. They are updated periodically to reflect accepted research and best practices. The standards provide design guidance to meet minimum requirements in addition to adjustability ranges to increase the percentage of the population accommodated.



Are you sitting comfortably?

Haworth is a global manufacturer with seventy-five years of experience designing and producing premium office furniture and chairs. Our products are designed with a stringent commitment to elite safety and performance.

- We comply with international quality standards and certifications such as BIFMA and EN.
- We comply with ergonomic requirements as defined by European norms and standards (GS & Quality office) and international norms like BIFMA G1
- Our design and development efforts are certified according to the German GS Sign, validating product safety and compliance along with ergonomic and environmental safety standards
- Throughout the creation process Haworth works in a cross-cultural, interdisciplinary teams to understand the diverse needs of our customers and to arrive at the best results in terms of design, quality, performance, and ergonomics

It is our aim to design and provide product solutions for inspiring work environments that are supportive and affirming to all users.



Design of Chair Controls

By design, ergonomic seating incorporates a range of adjustability. We need to be able to get into comfortable postures easily and make adjustments over time.

To achieve this, accessible, responsive design and consistency in control placement and function are essential. In Haworth's chair development process, our research focuses on the user, resulting in intuitive controls that require minimal force to operate – if they're not easy to use, people won't use them.



Desirable control features include:

- Low hand and finger forces to operate
- Majority of adjustments achievable while seated
- Control motion intuitive and indicated by feel
- Control location consistent

The importance of control design and consistency increases as chairs are shared between people – and shared chairs across many workplace settings have become increasingly common in the hybrid working era.







Let's talk about lounge

The seat height of lounge furniture is generally lower than the seat height of task chairs. This makes sense – lounge seating is more casual!

However, lounge seating is still a place where work gets done – and as offices become places of interaction, work done on lounge furniture will grow.

If you work on lounge seating with a laptop, you may find your back aching pretty quickly. This is because lounge seating is sometimes paired with the wrong type of working surface.

A coffee table is perfect for coffee cups – not for laptops. Reaching down to a very low table will leave you aching. Likewise, if the seat height is too low and the table is too high, you'll be reaching up at an awkward angle.

The right work surface can also help you legibly communicate the intention of a setting.

If you don't want people on their laptops in a certain setting, you can make that intention legible by adding only small coffee tables with flowers or decorative objects. Such a setting will legibly invite people to rest, talk face-to-face, or catchup on emails on their phones.

If you want a lounge area to support individuals on their laptops, make sure to provide them a working height table! You can select the correct height using the options on the right. Individual laptop tables will legibly indicate that such areas are for individual, semi-private focus work.

Same goes for lounge areas that will support groups – provide them with a working surface that can accommodate several laptops.

Pairing recommendations

If your lounge chair's seat height is...

...pair with this table height.

Low:



less than 400mm



<400mm seating is best paired with a coffee table.

Medium:



430mm



660mm

High:



450mm and up



730mm and up

Adjustability Features

Are you sitting comfortably?

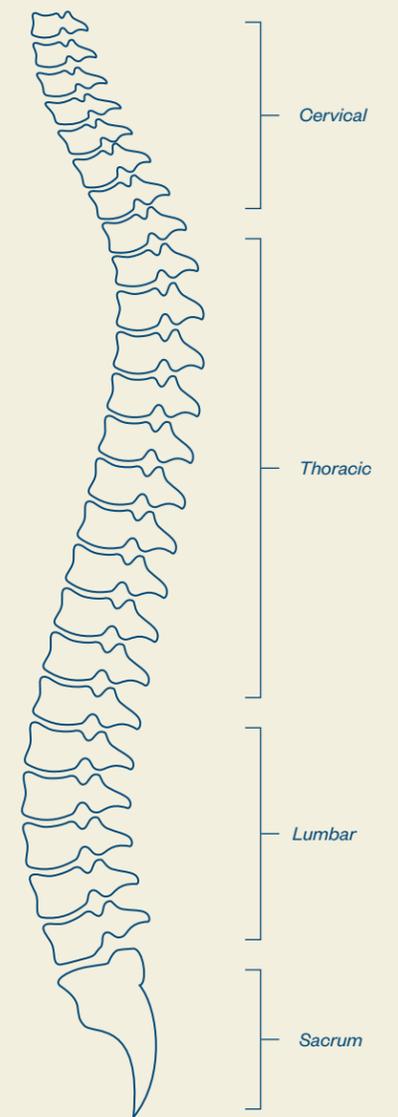
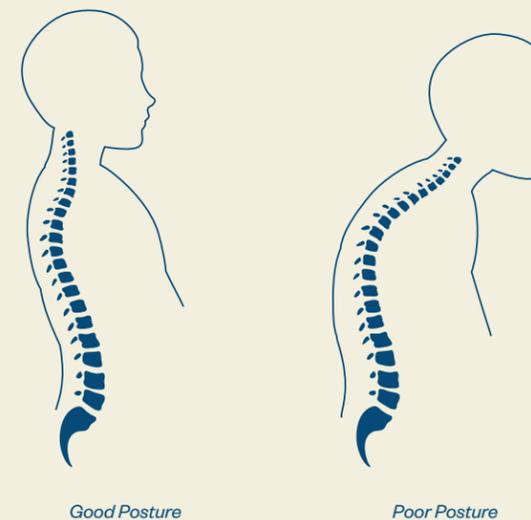
If you think about what you do over the course of a day, you will discover that you spend a surprising amount of time in some kind of seated position. An alarming number of people spend $\frac{3}{4}$ of their day seated – often for longer than they sleep.

Just like you wouldn't sleep in an uncomfortable bed, you shouldn't work in an uncomfortable chair – it impacts focus and productivity.

Back Support

Made up of 24 vertebrae, the human spine forms an S-shape when viewed from the side. The spine's four curves – cervical (neck), thoracic (upper back/rib cage), lumbar (lower back), and sacrum (pelvis) – are designed for shock absorption, balance, and movement. It's been said that the shape of the spinal column is as unique as a fingerprint, including variations in curvature and length. True height can vary throughout the day by up to two percent.¹³

On top of that, the level of back support required when a person is seated varies. The thoracic spine is different from the lumbar spine, so it's important to consider these needs in seating design – especially in the backrest to accommodate postural differences among people.

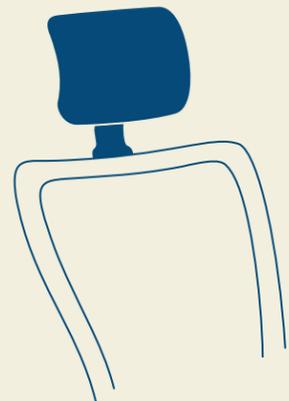
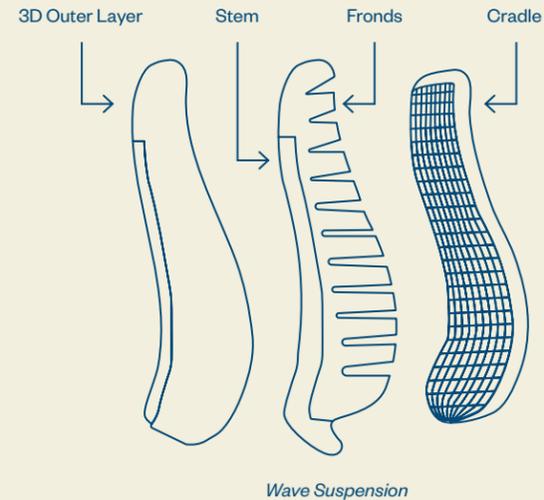


Total Back Support

Total back support enhances the sitting experience for people by giving them the ability to move with natural freedom, comfort, and support – from the neck and thoracic spine all the way down to the pelvis.

Wave Suspension™

Wave Suspension is a new paradigm derived from research advising the need for total back support. Available only on Haworth's Fern® task seating, Wave Suspension allows the spine to serve as the pivot point of movement, providing highly customised support for each region of the back, independently undulating with the body's movements without the need for adjustment by the user. Much like the human body's spinal anatomy, Wave Suspension includes a centralized Stem™ that supports a series of Fronds™. Overlaying the Fronds and Stem, the Cradle™ works in concert with them for effortless support, cradling and suspending the user's body.



Headrest

Cervical/Thoracic

The cervical vertebrae in the neck allow the most motion in the spine.

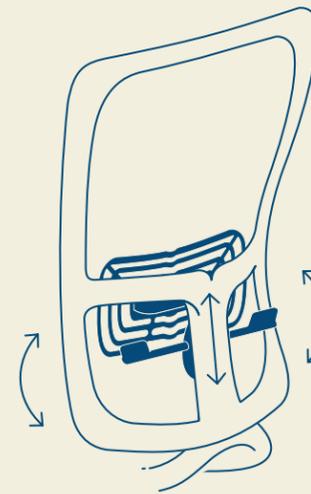
The thoracic vertebrae are designed for minimal movement and help stabilize the upper back and rib cage while protecting internal organs.

Headrests

Some people prefer the optional headrests on task seating to enhance total body support. The headrest fits the curvature of the neck while still supporting the head, flexing in response to the body's natural movements.

Lumbar

The lumbar vertebrae provide some motion but are designed to support the weight of the upper body. Since every back is different, it's important to provide lumbar support with different levels of performance.



Asymmetric Adjustable Support

Asymmetric Lumbar Support

Independent university research has indicated that over 74 percent of individuals tend to prefer more support on one side of their lower back than the other.¹⁴

Performance of Lumbar Support

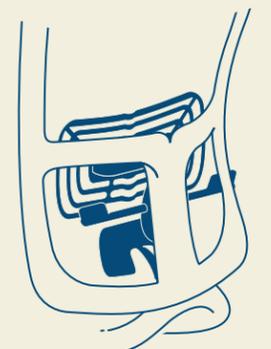
- Minimum Fixed Support** — Based on seating standards, a curvature is designed into the lower seat back to support the lumbar spine. Unfortunately, one size does not fit all.
- Good Height-Adjustable Lumbar Support** — The lower back seat curvature is adjustable in at least one direction.
- Better Dual-Axis Adjustable Support** — The lower back seat curvature is adjustable in two directions. This would include height adjustment as well as support of the lumbar curve.
- Best Asymmetric Adjustable Support** — This offers the highest available performance. Comfort is greatly enhanced by allowing users to adjust the height as well as independently adjust support on either side of the spine.

Pelvic

The sacrum is attached to the pelvis, allowing for little to no motion, which helps strengthen and stabilize the pelvis. However, there is a tendency for the pelvis to rotate backwards into an unhealthy posture when a person is sitting. Pelvic support helps stop the progression of this backward rotation, keeping the spine in alignment.

Pelvic and Asymmetrical Lumbar (PAL) Back System

A Pelvic and Asymmetrical Lumbar (PAL) back system allows people to set their own comfort throughout the day. The pelvic support helps to maintain the spine's natural curvature while the lumbar pad is designed to fit the curve of the lower back for added spinal support.

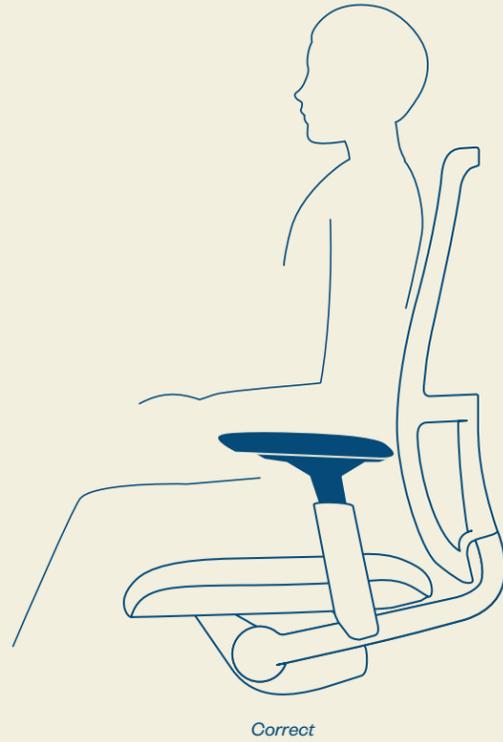


Pelvic and Asymmetrical Lumbar (PAL) Back System

¹⁴ Fredericks and Butt, 2005

Armrests

The arms represent approximately 10.2 percent of our total body weight, which can result in considerable exertion in the muscles of the upper back, shoulders, and neck.¹⁵ Static exertions (exertion maintained for extended durations in a fixed posture) dramatically increase the risk of muscle fatigue and are often considered the first threshold to injury. Most people experience fatigue as soreness or discomfort in their muscles.



Supporting arm weight reduces the stress on the spine. However, in order to work, armrests must fit. It is also preferable that they are adequately padded.

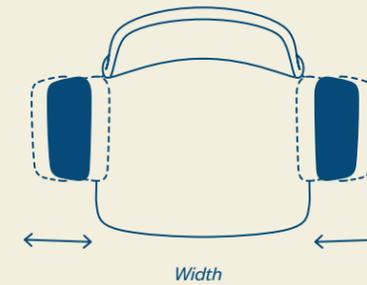
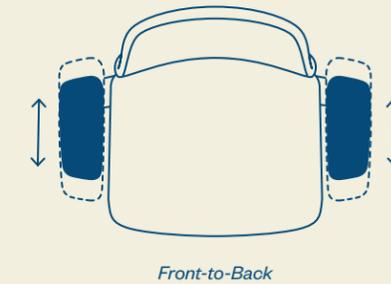
Armrests that do not adjust can produce contact stress in the vulnerable areas of the elbow and forearm, increasing the risks of injuries to these areas. To meet the size range of users, armrests need a considerable range of adjustment so users can adjust arms differently.



Height
There is considerable variation in the resting seated elbow height. The EN 1335 standard specifies a height adjustment of 20-25 cm above the seat.

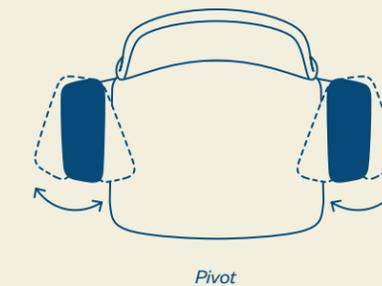
Front-to-Back Adjustability

To fit the variations in body size, task requirements, and workstation layout, front-to-back armrest adjustability is essential. This can be accomplished through front-to-back movement.



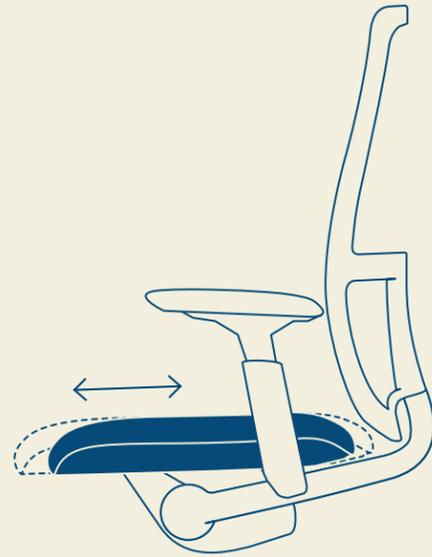
Width and Pivot

To accommodate variations in girth, width and pivot adjustments ensure a proper fit.



Seat Depth

Good ergonomic seating incorporates several inches of adjustable seat pan depth to accommodate a wide variety of body types. Typically, a taller person will require more seat pan length to reduce contact pressure under the thighs; a shorter person will require less seat pan length to avoid pressure behind the knees or prevent sitting on the edge without the proper back support. A mismatch in the dimensions of a chair impairs the ability of the postural muscles to support the body and can lead to strain on the neuromuscular system. Chairs with adjustable seat pans will help to mitigate and prevent this.¹⁶ A minimum of 5cm of adjustability is recommended, and 7.5cm is preferred.



Seat Depth

Dual Posture

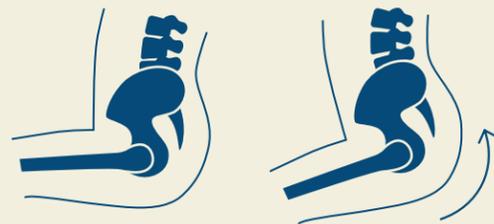
Designed for use with a height-adjustable table or a taller fixed-height table, this feature combines an advanced forward tilt and an additional 9cm elevated seat height adjustment to provide support for the in-between 'perch' posture of sit-to-stand. Chairs equipped with dual posture allow for a greater degree of forward tilt to keep the spine aligned when the seat is raised to complement an increased worksurface height.



Forward Tilt

Forward Tilt

Some people tend to sit on the front edge of the chair. Typically, this is associated with certain task requirements and/or an individual's adopted sitting habit. This posture may increase ergonomic risks due to reduced support from the seat back and seat pan. However, postural ergonomics can be enhanced through proper seat pan adjustment. A forward tilt of the seat pan can support this sitting style by maintaining healthy spinal alignment and relieving lower back pressure.



Forward tilt rotates the pelvis forward



Step 1:
Advanced Forward Tilt



Step 2:
Elevated Seat Height



Dual Posture

¹⁶ van Niekerk, Louw, and Hillier, 2012.

Seat Recline

Movement is healthy. Reclining in a chair with proper support can stimulate blood flow and relieve pressure on the spine. By reclining just 20 degrees (from 90 to 110 degrees), it can reduce stress on the spinal discs by approximately 40 percent.¹⁷

There are different types of seat recline mechanisms, and some provide advantages over others. The preferred designs incorporate multiple pivot points, integrate movement of the seat pan and seat back, and provide adjustable recline effort as well as stoppable/lockable settings.

Tension control is also important, as it allows users of different body types to adjust the ease of recline for individual comfort, and a variety of workstyles.

Back Adjustment Options

- **No lock**
- **Back stop** – Multi-position; allows adjustment of the recline to the preferred angle
- **Upright back lock** – Helps maintain an upright position for people who prefer not to recline

Seat Recline Mechanism Types and Performance

Single-Point Pivot – There are two different types of single-point pivot mechanisms. In one type, the seat and the back recline together, which tilts the front edge of the seat upward to the same degree. This can cause the feet to lift off the floor and create unwanted pressure under the thighs. In another type, only the back reclines, and the seat stays in place. However, this will naturally pull the seat back away from the body, decreasing lumbar support. For these reasons, the single-point mechanism can make it difficult to offer universal support and comfort for all sizes and shapes of people.

Weight-Activated Mechanism – This mechanism uses the weight of the person to recline and doesn't always have an adjustment, meaning it may not support a wide range of sizes and shapes. As with the single-point pivot, the weight-activated mechanism causes the feet to rise from the floor when the front edge of the seat rises, creating unwanted pressure under the thighs. The weight-activated mechanism, however, tends to be more intuitive for the user, as less adjustment is required.

Weight-Sensing Mechanism – This mechanism automatically senses the person's weight, automatically adjusting the chair accordingly. This allows individuals of all shapes and sizes to experience the appropriate recline support for their body type without requiring manual adjustment. However, some weight-sensing mechanisms have an additional adjustment feature that allows users the ability to fine-tune the recline support to their individual preferences.

Synchronous Tilt – With this mechanism, the motion of the seat back is linked with partial motion of the seat pan to maintain proper lower body and lumbar support throughout the recline motion. For every two degrees of back recline, the rear edge of the seat pan lowers one degree. For example, if the back reclines 15 degrees, the rear of the seat lowers 7.5 degrees. This minimises the front-edge seat rise and helps maintain a more open angle between the back and legs, for greater comfort and easier breathing. Minimising the front edge seat rise allows the user to keep their feet flat on the floor, for a relaxed sit with less pressure on the underside of the thighs.

3-Point Pivot – This mechanism (shown right) has all the benefits of synchronous tilt but refines the location of the mechanism's pivot points so they are aligned with the pivot points of the body – at the hip, knee, and ankle. Once the tension is adjusted correctly for an individual, little effort is needed to recline, allowing the user to stop the recline at any point while keeping the feet flat on the floor. This provides a balanced recline experience for people of all sizes and shapes. Additionally, as the user reclines, their back will not lose contact with the chair's backrest, which is important in helping maintain the natural lumbar curvature. This is achieved, as the mechanism lowers the rear of the seat pan by one degree for every 2.5–3.0 degrees of recline. For example, if the user reclines 15 degrees, the seat pan only drops 5–6 degrees. This feature, combined with the location of the pivot points, also reduces or eliminates the occurrence of 'shirt-pull,' so that the user's shirt is not pulled up in the back when they recline.

The importance of seat recline

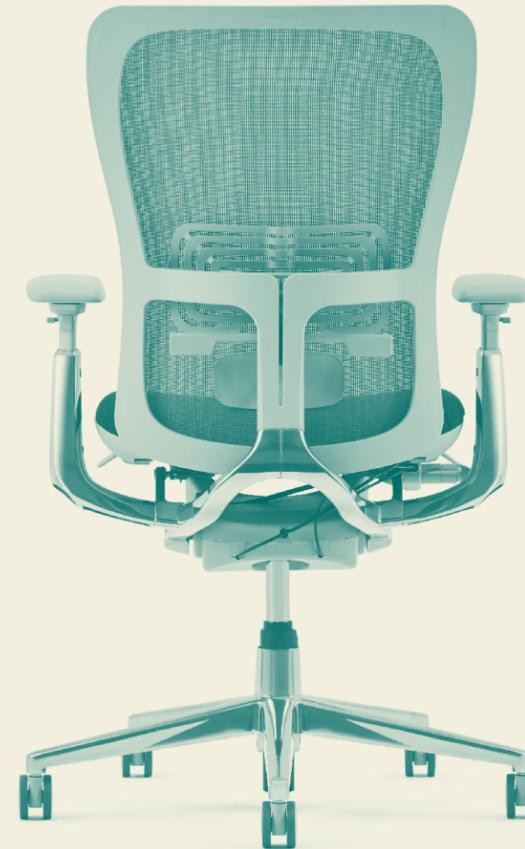
Movement is healthy. Reclining in a chair with proper support can stimulate blood flow and relieve pressure on the spine.



¹⁷ van Niekerk, Louw, and Hillier, 2012.

Critical Chair Requirements

Here is a summary of the recommended features considered critical to achieve acceptable levels of ergonomic performance across a broad range of users.



Minimum Recommendation

- Seat recline mechanism suited to user requirements (synchro for individually assigned task seating; weight activated mechanism for unassigned seating)
- Height-adjustable lumbar (lower back) support
- Height-adjustable armrests
- Height-adjustable seat
- Breathable active upholstery

Desirable Features

- 3-point synchro mechanism: synchro adjustment of seat and backrest or automatic weight adjustment of the synchro mechanism (based on user requirements)
- Full adjustable lumbar support (based on user requirements; examples include the asymmetrical support offered by Zody or the Wave Suspension System of Fern)
- Fully-adjustable 4D armrests (height, pivot, width, and front-to-back) with soft-touch armcaps
- Seat height adjustment from 40cm to 52cm
- Seat depth adjustment
- Forward tilt
- Dual posture functionality to enable perching
- Headrest

Special Accommodation

Most chairs will accommodate approximately 90 percent of the population. Individuals outside this range may need special accommodation for the right ergonomic fit. Additionally, there may be certain environments that don't need task chairs. Variations on existing chair models may include:

- Low-height bases starting at 36cm
- Load-bearing chairs certified up to 150kg, 24/7 usage
- Task stools for various applications

User Support and Education

The principles of ergonomic chair adjustments are very simple. However, to get them just right, some basic educational support is recommended. This may be in the form of a hang tag on the chair or, preferably, electronic documentation available online. Digital support tools enable easy distribution throughout the organisation.

Seating Comparison Quick Guide - AP market

How They Compare

A chair is a personal choice, and our portfolio offers a variety of options. All Haworth high-performing ergonomic office chairs are supported by our standard warranty, and they share a focus on environmental responsibility.



| Family Options | Fern | Zody LX | Zody II | Zody Classic | Very | Nia | Soji | Aloha Active | Aloha Active Upholstered Back | Aloha Easy | Aloha Easy Upholstered Back | Aloha Pro Mesh | Aloha Pro Upholstered* |
|--------------------------------------|--|---|---|--|---------------------------|--|---|--|--|---------------------------|-----------------------------|--|--|
| Office Chair | • | • | • | • | • | • | • | • | • | • | • | • | • |
| Stool | • | • | • | • | | | • | | | • | | | |
| Dual posture | | • | • | | | | | | | | | | |
| Counter Chair | | | | | | | • | | | | | | |
| Visitor Chair | | | | | | | | | | • | | | |
| Headrest (adjustable) | • | | (phase 2) | • | • | | Available soon | • | | • | | | |
| Seat Ergonomics | | | | | | | | | | | | | |
| Weight Capacity | <146 kg | <181 kg | <181 kg | <146 kg | <146 kg | <146 kg | <146 kg | <124kg | <124kg | <124kg | <124kg | <124kg | <124kg |
| Pneumatic Height | 419 - 546mm | Office chair 406-533mm Dual posture: Chair/Stool 445 - 615/533 - 719mm | Office chair 406-533mm Dual posture: Chair/Stool 445 - 615/533 - 719mm | Aluminium base 406-533mm Plastic base 426 - 553mm | 406 - 533mm | 440 - 560mm | Aluminium base: 426mm-546mm Plastic base 440mm-556mm | 425 - 552mm | 425 - 552mm | 425 - 552mm | 425 - 552mm | 403 - 531mm | 403 - 531mm |
| Seat Forward Tilt | • | • | • | • | • | | • | | | | | | |
| Seat Depth Adjustment | 76mm | 76mm | 76mm | 76mm | 76mm | - | 64mm | 50mm | 50mm | 50mm | 50mm | 70mm | 70mm |
| Armrest | 4D, 1D, Fixed | 4D, 1D, Fixed | 4D, 1D, Fixed | 4D, 1D, Fixed | 4D, 1D, Fixed | 1D, Fixed | 4D, 1D, Fixed | 4D, 1D | 4D, 1D | 4D, 1D | 4D, 1D | 4D, 1D | 4D, 1D |
| Back Ergonomics | | | | | | | | | | | | | |
| Recline Mechanism | 3 point synchro | 3 point synchro | 3 point synchro | 3 point synchro | 3 point synchro | Weight activated synchronous mechanism | Synchronous mechanism | Weight activated synchronous mechanism | Weight activated synchronous mechanism | Synchronous mechanism | Synchronous mechanism | Weight activated synchronous mechanism | Weight activated synchronous mechanism |
| Tension Control | Standard | Standard | Standard | Standard | Standard | | Standard | | | Standard | Standard | | |
| Back Stop/ Lock | Back stop, 5 stopping positions | Back stop, 6 stopping position | Back stop, 6 stopping position | Back stop, 6 stopping positions | Single position back lock | 5 position back lock | Single position back lock | 3 position back lock | 3 position back lock | Single position back lock | Single position back lock | 3 position back lock | 3 position back lock |
| Height-adjustable Lumbar | • | • | • | • | • | | • | • | | • | | • | |
| Asymmetric Lumbar Adjustment | | | PAL™ | PAL™ | • | | | | | | | | |
| Back Height Adjustment | | | | | | | | | • | | • | | • |
| Sustainability / Certificates | | | | | | | | | | | | | |
| Recycled Content | 29% | 24% | 44% | 44% | 46.7% | 22% | 31% | 35% | 21% | 13% | 10% | 22% | 22% |
| Recyclability | 88% | 92% | 70% | 97% | 79% | 92% | 81% | 95% | 85% | 92% | 70% | 88% | 88% |
| Indoor Advantage Gold Certificate | • | • | • | • | • | • | • | • | • | • | • | • | • |
| EPD International verified | • | | • | • | • | | • | • | • | | | | |
| BIFMA level® Certification | Level 2 | Level 2 | Level 2 | Level 2 | Level 2 | Level 2 | Level 2 | Level 2 | Level 2 | Level 2 | Level 2 | Level 2 | Level 2 |
| Awards | | | | | | | | | | | | | |
| | Red Dot Award 2017, German Design Award 2018, LGA Ergonomics | | | LGA Ergonomics | Red Dot Award 2010 | iF Design Award 202, LGA Ergonomics | LGA Ergonomics | | | | | | |

Seating Comparison Quick Guide - EMEA market

How They Compare

A chair is a personal choice, and our portfolio offers a variety of options. All Haworth high-performing ergonomic office chairs are supported by our 10-year warranty, and they share a focus on environmental responsibility.



| Family Options | Fern | Zody LX | Zody II | Zody Classic | Very | Comforto 59 | Nia | Soji | Lively | Aloha Active Mesh | Aloha Active Upholstered | Aloha AX | Aloha Pro Mesh ^{New!} | Aloha Pro Upholstered* ^{New!} |
|--------------------------------------|--|--|--|---|--|---|---|--|--|--|--|--|---|---|
| Office Chair | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Counter Chair/Stool | | (phase 2) | (phase 2) | ● | | | ● | | | | | | | |
| Visitor Chair | | | | ● | ● | | | | ● | | | | | |
| Headrest (adjustable) | ● | | (phase 2) | ● | ● | ● | | (phase 2) | | ● | | | (phase 2) | |
| Seat Ergonomics | | | | | | | | | | | | | | |
| Weight Capacity | < 150 kg | < 150 kg | < 150 kg | < 150 kg | < 120 kg | < 150 kg | < 120 kg | < 120 kg | < 120 kg | < 120 kg | < 120 kg | < 120 kg | < 120 kg | < 120 kg |
| Pneumatic Height | 40 - 53 cm (Type A) 42 - 54 cm (Type B) | 40 - 53 cm 43 - 59 cm (Dual posture) | 40 - 53 cm 43 - 59 cm (Dual posture) | 41 - 53 cm | 40 - 52 cm | 40 - 55 cm | 41 - 53 cm | 40 - 52 cm | 40 - 52 cm | 40 - 52 cm | 40 - 52 cm | 39 - 55 cm | 40 - 53 cm | 40 - 53 cm |
| Seat Forward Tilt | ● | ● | ● | ● | ● | ● | | ● | ● | | | | | |
| Seat Depth Adjustment | +88 mm | +74 mm | +74 mm | +55 mm | +66 mm | +75 mm | | +55mm | +58 mm | +60 mm | +60 mm | +71 mm | +50mm | +70 mm |
| Seat Pad | Standard / Fire Resistant | Standard / Fire Resistant | Standard / Fire Resistant | Standard / Fire Resistant | Standard / Fire Resistant | Standard / Fire Resistant | Standard / Fire Resistant | Standard / Fire Resistant | Standard / Fire Resistant Ergonomic | Standard | Standard | Fire Resistant | Biomass Balance Foam in Standard/Fire Resistant | Biomass Balance Foam in Standard/Fire Resistant |
| Armrest | 4D | 4D | 4D | 4D, 1D, Ø | 4D, 3D, NPR, Fixed, Ø | 4D, NPR, Ø | 1D, Fixed, Ø | 4D, NPR, 1D, Fixed, Ø | 3D, NPR, Ø | 4D, Ø | 4D, Ø | 4D | 4D, Ø | 4D, Ø |
| Back Ergonomics | | | | | | | | | | | | | | |
| Recline Mechanism | 3 point synchro mechanism | 3 point synchro mechanism | 3 point synchro mechanism | 3 point synchro mechanism | 3 point synchro mechanism | Weight-activated synchronous mechanism | Weight-activated synchronous mechanism | Synchronous mechanism | Weight-activated synchronous mechanism | Weight-activated synchronous mechanism | Weight-activated synchronous mechanism | Weight-activated synchronous mechanism | Weight-activated synchronous mechanism | Weight-activated synchronous mechanism |
| Tension Control | Standard | Standard | Standard | Standard | Standard | Fine tune (15%) | | | Fine tune | | | | | |
| Back Stop/ Lock | Lock in front and 4 back stop positions | Lock in front and 5 back stop positions | Lock in front and 5 back stop positions | Lock in front and 4 back stop positions | Lock in front position and movement backward | Lock in front and 3 back lock positions | Lock in front and 4 back lock positions | Lock in front position and movement backward | 4 back lock positions | 3 back lock positions | 3 back lock positions | 4 back lock positions | 3 back lock positions | 3 back lock positions |
| Lumbar (Height-adjustable) | ● | ● | | | | | | ● | ● | ● | | ● | ● | |
| Lumbar (Asymmetrical Adjustment) | | | PAL™ | PAL™ | PAL™ | PAL™ | | | | | | | | |
| Back Height Adjustment | | | | | | | | | | | ● | | | ● |
| Sustainability / Certificates | | | | | | | | | | | | | | |
| Recycled Content | 43% | 28% | 30% | 39% | 29% | 48% | 28% | 43% | 29% | 26% | 24% | 31% | 23% | |
| Recyclability | 99% | 99% | 99% | 99% | > 99% | > 99% | > 99% | > 99% | > 99% | 89% | 99% | > 76% | > 87% | |
| Indoor Advantage Gold | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| GreenGuard Gold Certificate | ● | | | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| European Level® Certification | level 3 | level 3 | level 3 | level 3 | level 3 | | | | level 3 | | | | | |
| EPD International verified | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| GS Sign / Type | Type A / Type B according to EN 1335-1:2020 | Type A / Type B according to EN 1335-1:2023 ** | Type A / Type B according to EN 1335-1:2023 ** | Type B according to EN 1335-1:2002 | Type B according to EN 1335-1:2020 | Type B according to EN 1335-1:2020 | Type B according to EN 1335-1:2020 | Type A according to EN 1335-1:2002 | Type B according to EN 1335-1:2023 | | | Type AX according to EN 1335-1:2020 | Type B according to EN 1335-1:2023 ** | Type B according to EN 1335-1:2023 ** |
| Awards | | | | | | | | | | | | | | |
| | Red Dot Award 2017; German Design Award 2018, LGA Ergonomics | | | LGA Ergonomics | Red Dot Award 2010 | LGA Ergonomics | iF Design Award 2021, LGA Ergonomics | LGA Ergonomics | Red Dot Award 2013 | | | | | |

PAL™ - Pelvis and Asymmetrical Lumbar back system

EPD - Environmental Product Declaration

* Available soon in 2025

** Certification ongoing



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