

Ergonomics Guidelines for Office Chair Selection

Chair design contributes to the health, comfort, and productivity of the workers. The chair can be a critical factor in preventing back fatigue as well as improving employee performance, efficiency, and safety. People who sit for long periods run a high risk of low-back injury, second only to those who lift heavy weights¹. Management, professional, and office workers account for 17% of injuries and illness involving days away from work with the back being the body part most frequently affected². To reduce this risk, the user must be able to sit and maintain the spine in a neutral posture. However, even the best posture should be changed throughout the day to prevent static loading. A properly designed and adjusted chair is essential to maintaining a neutral posture. Support is available from the local Safety and Occupational Health Office and the website: Navy Ergonomics Subject Matter Expert www.navfac.navy.mil/safety; select *Ergonomics*.

Some manufacturers are eager to label furniture and accessories "ergonomically correct" or "ergonomically designed," much like food products are liberally labeled "all natural" or "new and improved." In reality, a chair that meets the body type of one person might not fit the next. Therefore, what is "ergonomically correct" for one individual may cause injuries to another.

Chair selection should be based upon personal testing. People vary widely in their shapes and sizes, and manufacturers offer a range of sizes to meet these needs. The following chart contains key criteria to consider in chair selection. All adjustments should easily be made from the seated position.

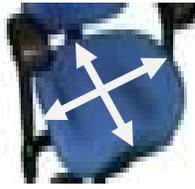
Workers should use the chair in accordance with manufacturer's instructions and can contact their local Safety and Occupational Health office for proper alignment and additional information. Some vendors may provide a trial chair prior to purchase however; you are cautioned to work closely with your supply department to avoid any inappropriate obligation of funds.

NOTE: Alternative seating such as exercise balls, ball chairs, and kneel chairs do not meet the minimum requirements below and therefore; are not considered acceptable office seating. The dimensions³ below are intended to fit 90% of the population, special accommodations may be required for individuals based on special factors such as medical conditions, height, weight, or other physical attributes that may place them outside of the 90 percentile range.

¹ Gunnar Andersson (1981), *Epidemiological Aspects of Low Back Pain in Industry*, Spine, 6:1

² Injury Facts 2010 Edition, National Safety Council (2010), pgs.61-71

³ ANSI/HFES 100-2007 Human Factors Engineering of Computer Workstations by Human Factors Society ©2007

COMPONENT	FEATURES	
Backrest	<p>Either the backrest or lumbar support should be height adjustable. The mid-lumbar portion of the backrest should adjust in height from 5.9" to 9.8" above the compressed seat pan.</p> <p>The top of the backrest should be at least 17.7" above the compressed seat pan.</p> <p>The width of the backrest should be at least 14.2".</p> <p>Adjustment shall range 15° or more within the range of 90° and 120°. If the backrest exceeds 120° from the horizontal, the backrest should have a user adjustable headrest.</p>	<p>Range 5.9" to 9.8"</p> <p>17.7"</p> <p>Minimum height 17.7"</p> <p>Minimum width 14.2"</p> 
Backrest (optional)	<p>Locking or stopping tilt feature; the user can select while seated. With a means of adjusting the tension.</p>	
Seat Height	<p>Pneumatic seat height adjustable by the user over a minimum range of 4.5" within the recommended range of 15" to 22" from the floor measured at the center of the seat pan.</p>	<p>Minimum range of height adjustability 4.5"</p> <p>Optimal range includes 15" to 22"</p> 
Seat Pan	<p>Fixed/nonadjustable: Maximum depth 16.9".</p> <p>Adjustable seat pan depth shall include 16.9" within the range of adjustment.</p> <p>Minimum seat pan width of 17.7".</p> <p>Minimum user adjustable tilt range of 4°, which includes a reclined position of 3°. The front edge of the seat pan should be rounded.</p>	 <p>Depth 16.9" Maximum for fixed seat pan</p> <p>Minimum width 17.7"</p>
Seat Pan (optional)	<p>Locking or stopping tilt feature; the user can select while seated.</p>	
Base:	<p>Minimum of 5 star base with 360° of swivel.</p> <p>Casters should be appropriate for the flooring type. Soft-wheeled (i.e. rubber) casters for linoleum and tile; hard-wheeled (i.e. nylon) casters for carpet.</p>	
Armrests (optional)	<p>Adjustable in height 6.7" to 10.6" above the seat pan height. Clearance between armrests at least 18.1". Do not create excessive pressure points, which irritate the skin. Be able to pivot or be detached from the chair if necessary to fit the workplace.</p>	 <p>Minimum clearance 18.1"</p>