

Technical Specification: Office Chair Five-Star Base

1. Product Overview

The Five-Star Base is a critical structural component designed for ergonomic office chairs, providing essential stability, load-bearing support, and mobility. Engineered to meet rigorous safety and performance standards, this base features a symmetrical five-leg configuration that distributes weight evenly, minimizing the risk of tipping during dynamic use. It serves as the foundational platform for pneumatic gas lifts and caster wheels, ensuring smooth 360° swivel action and height adjustment capabilities.

2. Material Specifications

The five-star base is available in two primary material grades to suit different application requirements:

2.1 Aluminum Alloy Base

- **Material:** High-quality die-cast aluminum alloy.
- **Surface Finish:** Polished, mirror-finish, or powder-coated options.
- **Characteristics:** Superior strength-to-weight ratio, excellent corrosion resistance, and premium aesthetic appeal. Ideal for high-end executive and ergonomic chairs.
- **Durability:** Resistant to deformation and abrasion under continuous heavy load.

2.2 Nylon (Polyamide) Base

- **Material:** Reinforced engineering-grade Nylon (PA66 + Glass Fiber).
- **Surface Finish:** Matte or textured black finish.
- **Characteristics:** Lightweight, cost-effective, and highly impact-resistant.
- **Durability:** Designed to withstand significant static and dynamic loads without cracking or structural failure.

3. Load-Bearing Capacity

The structural integrity of the five-star base is rigorously tested to ensure safety under maximum operational loads:

- **Standard Static Load:** Rated for a minimum static load of **1,136 kg (2,500 lbs)**.
- **Dynamic Working Load:** Certified to support a dynamic user weight of up to **300 kg (660 lbs)** when combined with a compatible Class 4 gas lift.
- **Safety Factor:** Designed with a safety margin exceeding standard BIFMA X5.1 and EN 1335 requirements to prevent fatigue failure over the product's lifecycle.

4. Structural Design

- **Geometry:** Symmetrical five-point star design with an outer diameter typically ranging from **680 mm to 700 mm**.
- **Leg Profile:** Ergonomically contoured leg cross-sections to provide optimal resistance against bending moments.
- **Stem Interface:** Standard **50 mm (2-inch)** diameter center hole, compatible with universal gas lift stems.

- **Caster Interface:** Standard **11 mm (7/16-inch)** stem holes for friction-fit or ring-lock casters.
- **Reinforcement:** Internal ribbing or gusset reinforcements in high-stress areas (center hub and leg junctions) to enhance torsional rigidity.

5. Installation Instructions

1. **Preparation:** Ensure the work area is clean and free of debris. Verify that the gas lift and casters are compatible with the base specifications.
2. **Caster Assembly:** Firmly press the caster stems into the holes at the end of each of the five legs. Ensure they are fully seated and do not wobble.
3. **Gas Lift Insertion:** Align the gas lift stem with the center hole of the five-star base. Insert the stem vertically and tap gently with a rubber mallet if necessary to ensure a secure friction fit. **Do not use excessive force or metal hammers directly on the base.**
4. **Final Check:** Place the base on a flat surface. Apply downward pressure on the center hub to confirm the gas lift is fully engaged. Rotate the base to verify smooth movement and stability.

6. Maintenance Guidelines

- **Cleaning:** Wipe the base regularly with a soft, damp cloth. For aluminum bases, use a mild non-abrasive cleaner to maintain the finish. Avoid harsh chemicals or solvents that may degrade nylon surfaces.
- **Inspection:** Periodically inspect the center hole for wear or elongation. Check leg junctions for any signs of stress cracks or deformation.
- **Caster Care:** Remove hair, dust, and debris from caster stems and base holes to prevent jamming and ensure smooth rotation.
- **Environment:** Avoid prolonged exposure to direct sunlight or extreme temperatures, which may affect the mechanical properties of nylon bases or the finish of aluminum bases.

7. Safety Warnings

⚠ CRITICAL SAFETY NOTICE

- **Weight Limit:** **NEVER** exceed the rated dynamic load capacity of 300 kg. Overloading may result in catastrophic structural failure.
- **Compatibility:** Use **ONLY** with compatible Class 3 or Class 4 pneumatic gas lifts. Mismatched components can lead to instability or separation.
- **Inspection:** Do not use the base if any cracks, bends, or deformations are visible. Immediate replacement is required upon detection of damage.
- **Installation:** Ensure casters are fully inserted before use. Loose casters can cause tipping or sudden collapse.
- **Modification:** **DO NOT** drill, weld, grind, or otherwise modify the base. Any unauthorized modification voids all safety certifications and warranties.
- **Surface:** Use only on level, hard flooring. Uneven surfaces significantly increase the risk of tipping.