



### Key Factors when Specifying Casters : Testing Procedures

Please see ICWM ANSI standard sections as referenced below.

For more information, you can download the complete standard here: <https://online.fightm5.com/bwarp/ctm/>

IMPORTANT FACTORS TO CONSIDER:	WHY IT'S IMPORTANT:	Product Segment: ICWM Testing Procedure Method	Product Segment: ICWM Testing Procedure Standard	Product Segment: ICWM Testing Procedure Involvement
Load Capacity	Load ratings are one of the most important factors in selecting the right caster. It is a measure of how the caster will handle the weight that is being transported. Using the wrong caster could result in failure and cause injury. Consult an ICWM member company to verify your requirements.	Load ratings are determined by testing how a fully loaded castor functions after being subjected to normal use conditions over its projected life. In order to do this a caster load rating is established by testing a fully loaded castor under the most demanding conditions. See section 7.6 & 7.8 of the ANSI-ICWM Standard for details about static and dynamic load requirements.	Load ratings are determined by testing how a fully loaded castor functions after being subjected to normal use conditions over its projected life. Tests are performed to ensure casters under load will perform properly and in a manner designed to meet the most demanding conditions. See sections 6.2 & 6.3 of the ANSI-ICWM Standard for details about static and dynamic testing.	Load ratings are determined by testing how a fully loaded castor functions after being subjected to normal use conditions over its projected life. Tests are performed to ensure casters under load will perform properly and in a manner designed to meet the most demanding conditions. See sections 7.6 & 7.8 of the ANSI-ICWM Standard for details about static and dynamic testing.
Ergonomics / Usability	Ergonomics, the application of human factors in the workplace, play a significant role in moving carts. Excessive push or pull forces can result in shoulder, neck, and back pain. Casters should be designed to reduce the effort required to move carts. Casters should be designed to be easy to use and maintain. Bearing types in both wheels and casters also are factors.	Ergonomics for castor design offers a critical selling point for medical equipment. Ergonomic or usability characteristics including the force required to initiate rolling and the force required to travel across 90 degree are determined by established tests. Be sure to ask that a caster has been tested to determine ergonomics to ensure it is the right fit for your application. See section 7.2 of the ANSI-ICWM Standard to understand how reliability is measured by ICWM companies.	Ergonomic or usability characteristics including the force required to initiate rolling and the force required to travel across 90 degree are determined by established tests. See section 6.2 of the ANSI-ICWM Standard for details about usability.	Ergonomic or usability characteristics including the force required to initiate rolling and the force required to travel across 90 degree are determined by established tests. See section 7.2 of the ANSI-ICWM Standard to understand how reliability is measured by ICWM companies.
Braking Requirements	Understanding the intended function of castor brakes is the first step to avoid disappointment or worse. Most castor brakes are designed to meet a particular object or use. They are not designed to stop or slow a moving object. The test standard considers the effectiveness of the intended design.	One of the most important features of casters in the medical field are brakes. Medical equipment manufacturers can evaluate their performance requirements by test methods specified in section 7.4 of the ANSI-ICWM standard. For Medical beds, the typical brake holding requirement is minimum 20% of rated load capacity for the castor. The test can be done to compare brake performance of various castors. Also, it should be noted that the load capacity of casters is often limited by the brake performance. Brake performance can sometimes deteriorate over time. Customers want the peace of mind to know that the brake will function for the life of the product. Casters that conform to the ANSI-ICWM castor standard, section 7.4, have demonstrated that they will continue to function after normal use.	Depending on the type of braking system, the minimum requirement for brake holding force is from 7% to 20% of the rated load capacity of the castor. In some cases the rated load capacity of a castor is reduced by the brake performance requirement. See section 7.4 of the ANSI-ICWM standard for details about brake efficiency.	Depending on the type of braking system, the minimum requirement for brake holding force is from 7% to 20% of the rated load capacity of the castor. In some cases the rated load capacity of a castor is reduced by the brake performance requirement. See section 7.4 of the ANSI-ICWM standard for details about brake efficiency.
Vertical Impact (Casters and Wheels)	Vertical impact is a measure of how well the caster can resist a sharp blow during operation. It is common for casters to be subjected to impacts from forklifts, pallet jacks or carts. In Medical or institutional applications, impacts can be even more significant if elevators are used. Ensuring that the caster can withstand the impact increases the safety of workers and safety of the load being transported, which could be a human life.	Caster vertical impact testing for Medical casters is defined in section 7.10 of the ANSI-ICWM standard. There is also a procedure for impact testing wheels, which is defined in section 7.12 of the ANSI-ICWM castor standard.	Caster vertical impact is determined by testing the minimum impact strength of a castor when dropped from 2 inches (5 cm). Be sure to ask that a castor and wheel vertical impact are established using ICWM requirements. See sections 6.2 & 6.3 of the ANSI-ICWM Standard for details about vertical impact.	Caster vertical impact testing for institutional casters is defined in section 7.10 of the ANSI-ICWM standard. There is also a procedure for impact testing wheels, which is defined in section 7.12 of the ANSI-ICWM castor standard.
Swivel Play	Swivel play is important to ensure that the castor is not overly "loose" or "stuck" because the user bearing use. Excessive castor play can increase the risk of injury to the user and reduce the safety of the operator.	Swivel play for Medical casters is determined by measuring the initial swivel play and the final swivel play after dynamic tests. This is defined in section 7.3 of the ANSI-ICWM standard.	Caster swivel play is determined by measuring the initial swivel play and final swivel play at the end of a test sequence. For more details about swivel play, see section 6.2 of the ANSI-ICWM Standard.	Swivel play for institutional casters is determined by measuring the initial swivel play and the final swivel play after dynamic tests. This is defined in section 7.3 of the ANSI-ICWM standard.
Electric Conductivity	Electric conductivity measures the charge created through friction on non-conductive surfaces, such as plastic. When a product is charged and the electrical energy is unable to flow away, it will discharge through the most grounded contact (for example, your hand). This can cause serious damage to electronics, or cause fire or explosion when used in special environments.	Electrically conductive wheels and casters allow the charge that builds up to be dispersed to the ground. ICWM member companies evaluate conductive casters using section 7.9 of the ANSI-ICWM standard, which has clear requirements for conductivity.	Electrically conductive wheels and casters allow the charge that builds up to be dispersed to the ground. ICWM member companies evaluate conductive casters using section 6.4 of the ANSI-ICWM Standard, which has clear requirements for conductivity.	The electro-static conductive properties of casters and wheels are evaluated by standard testing procedures. Minimum resistance values have been established to identify conductive, static dissipative, and insulating products. See section 7.9 of the ANSI-ICWM Standard to understand how ICWM companies conduct these tests.
Swivel Lock (Keeps castor from rotating)	In some cases the need to lock both the wheel and the swivel is critical. This is commonly referred to as a "total locking castor". Engagement of the wheel, like the brake, is needed to ensure durability and performance over time. NOTE: For best performance, lock engagement with the wheel in the "braking" position is recommended.	Casters with swivel lock features protect against unwanted rotation. Check to see if casters with swivel lock conform to section 7.5 of the ANSI-ICWM standard.	NOT SET DEFINED	Casters with swivel lock features protect against unwanted rotation. Check to see if casters with swivel lock conform to section 7.5 of the ANSI-ICWM standard.

Partner with an ICWM member company - each is well-equipped to provide answers to the above questions and more!