



## TiLite **TWIST** Transit Tie-Down Option

TiLite has crash tested its TWIST with Transit Tie-Down Option in accordance with Section 5.2 and Annex A of ISO 7176-19 (ISO 7176-19). The TiLite TWIST with Transit Tie-Down Option has been found to meet or exceed the performance requirements of ISO 7176-19<sup>1</sup>. ISO 7176-19 requires that transit wheelchairs be frontal impact tested to 30 mph (48 km/h). In such testing, a wheelchair is loaded with a suitable crash test dummy, accelerated to 30 mph and brought to a controlled stop, simulating an impact generating 20g on the crash test dummy. Therefore, the TiLite TWIST with Transit Tie-Down Option was designed to be secured facing forward when used as a seat in a motor vehicle.

TiLite has crash tested its TWIST with Transit Tie-Down Option in one configuration. In this configuration, the chair tested was compliant with ISO 7176-19. The TWIST wheelchair was tested under ISO 7176-19 utilizing a 130-lb (59 kg) test dummy, which corresponds to a weight of 125 to 165 pounds (57 to 75 kg). It was tested using vehicle-anchored shoulder and pelvic belts. The chair tested was configured as follows: 15" Seat Width, 16" Seat Depth, 20" Front Seat Height, 18.5" Rear Seat Height, 90° Front Angle, Angle Adjustable Footrest set at 15.5", Tall Folding Aluminum Adjustable Height Backrest set at 20.5" and 101°, 2.5" center of gravity, 4° camber, 5" Performance Billet Aluminum Casters with Polyurethane Tires, 24" wire wheels with stainless axles and treaded tires, Tension Adjustable by Straps back upholstery, Tension Adjustable Bolt-On seat sling.

This option is labeled "Transit Tie-Down Option" on the TiLite TWIST order form. When this option is ordered, the product ships with four factory-installed transit tie-down brackets for securing the wheelchair within the vehicle and the reinforced frame. The four tie-down brackets are used to secure the wheelchair within the vehicle using a four-point, strap-type wheelchair tie-down system. The occupant is to be secured within the wheelchair using a three-point, vehicle-anchored combination pelvic belt and shoulder belt. Because the TWIST was crash tested with a vehicle-anchored pelvic belt, the chair is not equipped with pelvic belt mounting bolts and a wheelchair-anchored pelvic belt is not recommended. TiLite recommends that the chair be used with vehicle-anchored shoulder and pelvic belts.

While the Transit Tie-Down Option is compatible with, and can be purchased with, additional seat sizes, optional components and varied configuration, TiLite makes no claims that any other components or configurations have been tested beyond the above-described ISO 7176-19-conforming configuration. **Please refer to the TiLite TWIST Owner's Manual available at [www.tilite.com](http://www.tilite.com) for full information, including all warnings and restrictions, regarding the TiLite TWIST Transit Tie-Down Option.** TiLite does not claim that its Transit Tie-Down Option will prevent injury or death in the event of a motor vehicle accident.

Annex D of ISO 7176-19 provides a method of testing a wheelchair for its ability to accommodate vehicle-anchored pelvic and shoulder belts. The TiLite TWIST had an overall score of 14, for a rating of "C", when tested in accordance with Annex D of ISO 7176-19.

The ease of access to, and maneuverability in, motor vehicles can be significantly affected by wheelchair size and turning radius. Smaller wheelchairs and/or wheelchairs with a shorter turning radius will generally provide greater ease of vehicle access and maneuverability to a forward-facing position.



<sup>1</sup> Crash testing is a simulation of a frontal impact only. It does not simulate any other type of impact. Furthermore, TiLite wheelchairs are highly customized and can be ordered in millions of combinations and it is impossible to test every conceivable combination. Therefore, TiLite recommends that wheelchair users transfer to the vehicle seat when being transported in a vehicle. The vehicle seat offers the greatest degree of safety because it is secured to the chassis of the vehicle and is designed with the primary purposes of protecting the occupant in a crash. By contrast, the primary purpose of any wheelchair is to maximize mobility, which in turn requires that the product be as light as possible. As of this date, the U.S. Department of Transportation has not approved any tie-down system for transportation of a user while in a wheelchair in a moving vehicle of any type.