INVACARE®

Storm Series®

Power Wheelchairs
Including Invacare® Formula™CG Powered Seating

Including:

- **Invacare® Arrow®**
- **Invacare® Ranger X™**
- **Invacare® Torque™ SP**
- **Invacare® Torque™ 3**
- **Invacare® Formula™CG Powered Seating**
- **Invacare® MK6i™ Electronics**

INVACARE®

Yes, you can.®

INVACARE®

Storm Series®
Power Wheelchairs
Including Formula™CG Powered Seating

- **Arrow®**
- **Ranger X™**
- **Torque™ SP**
- **Torque™ 3**
- **Formula™CG Powered Seating**
- **MK6i™ Electronics**

Table of Contents

Key Design Features

H-Frame	Rugged Invacare® Storm Series® H-frame design provides a proven, durable construction.
TrueTrack	The benefits of TrueTrack to switch drivers and those with marginal control have been proven, making these consumers more successful and efficient drivers.
Invacare® MK6i™ Electronics	Built on the Invacare® MK5™ platform, MK6i™ electronics make programming intuitive and set-up a breeze.
Adjustable ASBA Rehab Seat	Seat frame is adjustable in width and depth within a range to accommodate changing consumer needs while maintaining the same seat pan. Standard on all Storm Series base models.

Suspension Options

Monroe® Spring Shock Suspension	The Monroe Spring Shock Suspension allows for up to 2" of movement to absorb impact and provide maximum dampening. Standard on the Invacare® Arrow® Wheelchair.
Rubber Element Suspension	The Rubber Element Suspension is designed to absorb significant jolts and impacts. Standard on the Invacare® Ranger™ X, Torque™ SP and Torque™ 3 Wheelchairs.
Shock Fork Suspension (optional)	Utilizes elastomer dampeners that may be changed to provide dampening for all weight capabilities. Designed for 8" casters.

Arrow®

Power Wheelchair

The Invacare® Storm Series® Arrow® Power Wheelchair with TrueTrack technology and Invacare® MK6i™ electronics has the flexibility and function to accommodate a variety of drivers with diverse needs.

- MK6 TT controller and Invacare® MPJ™+ joystick
- TrueTrack technology
- Invacare® Gearless Brushless GB™ motors for improved battery range
- Monroe® independent rear suspension
- Adjustable ASBA rehab seat

Optional Features

- Transport Tie-Down options*
- Shock forks
- Van Seating

*Please refer to page 15 for important details

3GAR	**(Group 4 Rehab Seat)**	**K0868**
3GAR HD	**(Group 4 Rehab Seat Heavy-Duty)**	**K0870**
3GAR-CG	**(Group 4 Multiple Power)**	**K0884**
3GAR-CG HD	**(Group 4 Multiple Power Heavy-Duty)**	**K0886**

Ranger X™

Power Wheelchair

The Invacare® Storm Series® Ranger X™ Power Wheelchair with Heavy-Duty 4-pole motors and Invacare® MK6i™ electronics has the flexibility to maximize function through a series of "a la carte" options and accessories, such as TrueTrack technology, to accommodate a wide range of clinical needs.

Standard Features

- MK690 controller and Invacare® MPJ™+ joystick
- Heavy-Duty 4-pole motors accommodating up to a 400 lb. weight capacity
- Rubber element rear wheel suspension
- Adjustable ASBA rehab seat

Optional Features

- TrueTrack technology
- Invacare® Gearless Brushless GB™ motors for improved battery range
- Monroe® independent rear suspension
- Transport Tie-Down options*
- Shock forks
- Van Seating

*Please refer to page 15 for important details

3GRX	**(Group 3 Rehab Seat Heavy-Duty)**	**K0850**
3GRX-CG	**(Group 3 Multiple-Power Heavy-Duty)**	**K0862**

Torque™ SP
Power Wheelchair

The Invacare® Storm Series® Torque™ SP Power Wheelchair with performance 4-pole motors and Invacare® MK6i™ electronics offers many of the features and options found on the other Storm Series models while maintaining a truly affordable price.

Standard Features

- MK690 controller and Invacare® SPJ™+ joystick
- Performance 4-pole motors provide true gear reduction and higher torque for many rehab needs
- Rubber element rear wheel suspension
- Adjustable ASBA rehab seat

Optional Features

- TrueTrack technology
- Invacare® Gearless Brushless GB™ motors for improved battery range
- Monroe® independent rear suspension
- Transport Tie-Down options*
- Shock forks
- Van Seating

*Please refer to page 15 for important details

3GTQSP	**(Group 4 Rehab Seat)**	**K0868**
3GTQ-CG	**(Group 4 Single Power)**	**K0877**
3GTQ-MCG	**(Group 4 Multiple Power)**	**K0884**

Torque 3 Wheelchair with Adjustable Rehab Seat

Torque 3 Wheelchair with Captain's Seat

Torque™ 3
Power Wheelchair

The Invacare® Storm Series® Torque™ 3 Power Wheelchair is a well-appointed entry model of the Storm Series appropriately positioned in Group 3. With a maximum weight capacity of 300 lbs., the Torque 3 Wheelchair meets the needs of many rehab consumers and features rehab or captain's seating. The Torque 3 Wheelchair also features single and multiple powered seating functions such as tilt, recline, elevating seat and tilt/recline combination.

Standard Features

- Rugged Storm Series H-frame design provides a proven, durable construction
- Maximum speed of 5.8 mph and accepts 22NF or Group 24 batteries
- MK690 controller and Invacare® SPJ™ joystick standard with the ability to upgrade to expandable electronics
- 4 pole motors
- Adjustable rehab seat accommodates a changing consumer's needs efficiently. Width and depth adjustments can be made in 1" increments within a range while maintaining the same seat pan
- Captain's seat
- Rubber element suspension

Optional Features

- TrueTrack technology
- Invacare® Gearless Brushless GB™ motors for improved battery range
- Monroe® independent rear suspension
- Transport Tie-Down options*
- Shock forks

*Please refer to page 15 for important details

3GTQ3	**(Group 3 Rehab Seat)**	**K0848**
3GTQ3-GT	**(Group 3 Rehab Seat)**	**K0848**
3GTQ3V	**(Group 3 Captain's Seat)**	**K0844**
3GTQ3-CG	**(Group 3 Single Power)**	**K0856**
3GTQ3-CG-GT	**(Group 3 Single Power)**	**K0836**
3GTQ3-MCG	**(Group 3 Multiple Power)**	**K0861**
3GTQ3-MCG-GT	**(Group 3 Multiple Power)**	**K0861**

Formula™ CG
Power Seating

The Invacare® Formula™CG Powered Seating System is available on all Storm Series® power wheelchairs. The powered seating options available on this system include: Tilt, Recline, Elevate and Tilt/Recline. In addition, multiple seating styles are offered including Curv, Contoura™ and Conventional Seating.

Formula$_{CG}$ Power Tilt with Curv Seating

Invacare® Formula™$_{CG}$ Power Tilt

The Formula$_{CG}$ Power Tilt enhances comfort through positional and pressure relief. Drive lock-out is achieved at 20° of tilt for safety.

Features

- 55° of tilt with 300 lb. weight capacity
- 45° of tilt with 400 lb. weight capacity
- 17.75" starting seat-to-floor height at 0°
- Curv or Invacare® Contoura™ seating
- Standard with round canes

Formula$_{CG}$ Power Tilt with Curv

Interchangeability of Back Styles

Formula$_{CG}$ allows the flexibility of interchanging different back styles on a Tilt only or Elevate only system. The round back canes are universal and fit any of the following back styles: the Curv, Contoura™, Back Post Only option and sling back (Elevate seating). This interchangeability results in more options for the user as conditions progress and also ease for the provider.

Formula$_{CG}$ Power Recline

The Formula$_{CG}$ Power Recline system has mechanical shear reduction of 3".

Features

- Recline range of 170°
- 17.75" starting seat-to-floor height at 0°
- Conventional or Contoura seating
- 300 lb. or 400 lb. weight capacity (base dependent)
- 3" mechanical shear reduction based on a t-slot channel design for interfacing aftermarket custom backs

Formula$_{CG}$ Power Recline with Conventional Seating

Invacare® Formula™CG Power Tilt and Recline

The FormulaCG Power Tilt and Recline system combines the pressure relief and positioning benefits of both tilt and recline.

Features

- Tilt range of 55˚ with 300 lb. weight capacity and 45˚ with 400 lb. weight capacity
- Recline range of 170˚
- 17.75" starting seat-to-floor height at 0˚
- 3" mechanical shear reduction based on a t-slot channel design for interfacing aftermarket custom backs

FormulaCG Power Tilt and Recline with Conventional Back

Storm Series® With Formula™CG Powered Seating Specifications

	Tilt	Recline	Tilt/Recline	Elevate
Weight capacity				
	300 lb. or 400 lb.	300 lb. or 400 lb.	300 lb. or 400 lb.	300 lb.
Seat-to-floor height				
Low	17.75"	17.75"	17.75"	17.75"
Med	18.75"	18.75"	18.75"	N/A
Tall	19.75"	19.75"	19.75"	N/A
Range of motion				
	55˚ at 300 lb.	170˚	55˚ of tilt at 300 lb.	7"
	45˚ at 400 lb.		45˚ of tilt at 400 lb.	
			170˚ of recline	
Seat sizes				
Conventional	12" – 16"	16" – 24"	16" – 24"	N/A
Contoura	16" – 24"	16" – 24"	16"– 24"	16" – 22"
Curv	16" – 24"	N/A	N/A	16" – 22"
Sling back	N/A	N/A	N/A	16" – 22"
Back height				
*Conventional	N/A	20" – 26"	20" – 26"	N/A
Contoura	22", 25" and 28"	25" and 28"	25" and 28"	22", 25" and 28"
Curv	16" – 24"	N/A	N/A	16" – 24"
Sling back	N/A	N/A	N/A	16" – 24"
Limited warranty				
Electronics actuator	12 months	12 months	12 months	12 months
Seat frame	36 months	36 months	36 months	36 months

* Conventional back heights of 16"-20" only available in seat widths of 12"-15".

Product weight: FormulaCG system with Tilt/Recline, Group 24 batteries, and no front riggings = 350 lb.

Formula_{CG} Power Elevate with Sling Back

Invacare® Formula™_{CG} Power Elevating Seat

The Formula_{CG} Power Elevating Seat is designed to provide consumers with improved independence and assistance to perform daily living activities, such as transfer assistance or access to items that otherwise would be out of reach.

Features

- 7" elevate range
- 300 lb. max weight capacity
- 17.75" starting seat-to-floor height
- Sling back standard; Curv or Invacare® Contoura™ seating optional

The adjustable seat frame is the foundation for the Formula_{CG} seating system. In order to accommodate changing consumer needs efficiently, the Formula_{CG} system offers both width and depth adjustment while maintaining the same seat pan for each range. There are numerous seating options available on the Formula_{CG} seating system: Curv, Contoura, Conventional and Sling Back (Elevating Seat).

Curv

- Available on Tilt and Elevate
- Curved Back design
- Width ranges from: 12"-16", 16"-20" and 20"-24"
- Depth ranges from: 16"-19" and 19"-22"
- Fixed back heights from: 16"-24"

Contoura Seating

- Available on Tilt, Recline, Tilt/Recline and Elevate
- Leatherette Seating or Breathable Mesh Upholstery
- Width ranges from: 16"-20" and 20"-24"
- Depth ranges from: 16"-19" and 19"-22"
- Three fixed back heights: 22", 25" and 28" for Tilt and Elevate 25" and 28" for Recline and Tilt/Recline

Conventional Seating

- Available on Recline and Tilt/Recline
- Three-panel back design
- Width ranges from: 16"-20" and 20"-24"
- Depth ranges from: 12"-18", 16"-19" and 19"-22"
- Fixed back heights from: 16"-20" for seat widths of 12"-15" and 20"-26" for adult seat widths of 16"-24"

MK6i™
Electronics

MK Series electronics are the benchmark in power wheelchair electronics. This is the result of Invacare's many years of experience in the design and manufacture of these electronics specifically for the needs of wheelchair users.

MK6i electronics take the MK Series to the next level by offering features that are easier to use than any other MK Series electronics system. Advantages of MK6i electronics include:

- Based on the Invacare® MK$_5$™ programming logic, so users don't need to learn a new system
- Reduced set up and programming time with the memory card feature
- Improved simplicity with universal connectors
- Better information for programmers and technicians

Invacare® SPJ™+ Basic Joystick	**Invacare® MPJ™+ Rehab Joystick**	**Personal Switch Rehab Joystick**

Standard Features

- Single Drive
- Push button on/off
- Push button up/down
- Push button horn
- LED battery & speed indicators
- Charger port
- Quick disconnect cord

Optional Features for Powered Seating Applications

- 2 mono ports for operation of a single actuator control outside joystick (left for tilt or right for elevate)
- Mode button for operation of single actuator control through the joystick (shown)

Standard Features

- Color Display with Intuitive Icons
- Four Programmable Drives
- Real Time Clock
- Programmable Background Colors
- SD Card Reader
- Built in Mode Button
- 2 switch ports

Standard Features for Powered Seating Applications

- Programmable switch port for single actuator systems
- Mode button to access powered seating through the joystick when enabled
- Programmable powered seating control choices

Standard Features

- Four programmable drives
- Customized switch type and placement
- Customized front or rear placement of joystick inductive
- LCD backlit graphics display
- Memory card reader
- Charger port

Standard Features for Powered Seating Applications

- 2 standard programmable mono ports: remote on/off and emergency stop/mode or emergency stop/drive select
- Mode button for operation of powered seating functions through the joystick when multiple actuator control is installed

MK6i™ Controllers

MK6i electronics take a different approach to expandability. Under previous electronic systems, the brain of the system was located in the controller so the "expandability" of the system was dependent upon the controller. In MK6i electronics, the controller drives the motors and the system memory is located in options such as the driver controls.

Invacare® MK6i™ Memory Card

Invacare® MK6i™ Universal Connectors

Egg Switch with 611 Mount

Invacare® MK6i™ Display

D1 D2 D3 D4
4☑ 4☑ 4☑
READY TO DRIVE

Invacare® MK6i™ Handheld Programmer

Standard Features

- Four programmable drives
- Attendant toggle on/off
- Large LCD backlit graphics display
- Memory card reader
- Charger port

Standard Features for Powered Seating Applications

- 2 standard programmable mono ports: remote on/off and emergency stop/mode or emergency stop/driver select/single actuator control outside driver controller

Standard Features

- Large LCD backlit graphics display allows you to see all drives at once
- Compatible with MK6i or MK5 electronics
- Memory card reader
- "Info" key for programming definitions
- Programmer remains on until turned off or unplugged

Standard Features for Powered Seating Applications

- All-powered seating programming is through the handheld programmer with MK6i system

**4-Way Toggle Switch
4-Way Switch Box
4-push Button Switch**

TrueTrack
Technology

Gearless-Brushless GB™ Motors

Invacare® GB™ motors are not only a key component of the TrueTrack technology, the design is 75% efficient resulting in 17% more battery range than Invacare's 4-pole motors. Battery range is an important feature for active users and users requiring powered seating systems.

TrueTrack Technology

The patented TrueTrack technology features GB motors and motor controller. This feature helps keep the power wheelchair on a true forward path – even on many slopes, thresholds and uneven terrains. TrueTrack minimizes the need for veer correction, diminishing fatigue for joystick and switch drivers.

TrueTrack Technology is beneficial for the client for the following reasons:

- As the power wheelchair holds a truer course, the driver needs to make fewer course corrections. This makes driving more efficient by reducing the necessary amount of movement. Reducing the required movement can increase overall speed (i.e. the client may be able to move down a hallway faster, as less compensatory movements are required), decrease fatigue and promote safety/independence while driving, because the chair is not pulled off course. This is true for drivers using a proportional control as well as a digital or non-proportional system.

  - This feature is critical for clients who fatigue easily, as less compensatory movements are required.

  - This feature also is critical for clients who use a non-proportional or digital access method (i.e. a head array with proximity switches or pneumatic sip-n-puff controls). Driving with switches can be very tedious and inefficient. Making frequent course corrections significantly increases the effort, time and energy required. Fewer course corrections translates to a more efficient, safer driver.

Transport Tie-Down Options

The Invacare transport tie-down options TRRO and TRBKTS go beyond the traditional "securement" brackets on other wheelchair designs. The transport tie-down options include four tie-down locations that are clearly marked for the caregiver to see. The options also include a battery securement system that prevents batteries from becoming dislodged in the case of an accident.

Invacare order forms will include two transport tie-down selections, TRRO* and TRBKTS. All Invacare® wheelchairs with TRRO have been tested and passed the ANSI/RESNA WC Vol. 1 Section 19 standard using a specific seating system and configuration. TRBKTS includes four factory-installed wheelchair transport brackets. TRBKTS has not been crash-tested in accordance with WC 19. Use these transport brackets only to secure an unoccupied wheelchair during transport. See order forms and the owners manual for more information.

* TRRO includes four factory-installed transport brackets and a wheelchair anchored pelvic belt. TRRO has been crash-tested in accordance with ANSI/RESNA WC Vol 1. Section 19 Frontal Impact Test requirements for wheelchairs with a 168 lb. crash dummy, which corresponds to a person with a weight of 114 to 209 lb.

  As of this date, the U.S. Department of Transportation has not approved any tie-down systems for transportation of a user while in a wheelchair, in a moving vehicle of any type. It is Invacare's position that users of wheelchairs should be transferred into appropriate seating in vehicles for transportation and use be made of the restraints made available by the auto industry. Invacare cannot and does notrecommend any wheelchair transportation systems.

ANSI/RESNA WC Vol.1 Section 19.6.2 Presale Literature Notification – Storm Series

A. Minimum turning radius 31.9"
    Minimum turn-around width 63.8"
B. Arrow®, Ranger X™, Torque™ SP and Torque™ 3 wheelchairs have a maximum length of 41.5" or 1054 mm, meeting the ADA definition of a common wheelchair and the maximum length requirements of lifts on public transportation.
C. Total wheelchair mass = 322 lb. (146 kg) Arrow
                            296 lb. (134 kg) Ranger X
                            296 lb. (134 kg) Torque SP and Torque 3
    including front riggings, wheel locks, TRO brackets, wheelchair-anchored pelvic belt and seating.
D. Average lateral dummy displacement = approximately .48" (121.3 mm)
E. Overall Score = 20   Overall Rating = A

F. i. The Arrow, Ranger X, Torque SP and Torque 3 wheelchairs were sized to accommodate a 168 lb. test dummy (17" x 17" x 18" high and 14" Rear-Wheel-Drive tires).
    ii. The Arrow, Ranger X, Torque SP and Torque 3 wheelchairs were tied down using four tie-down brackets – 2 brackets located on the front of the base frame and 2 brackets located on the rear of the base frame.
    iii.The Arrow, Ranger X, Torque SP and Torque 3 wheelchairs were tested with a 168 lb. test dummy.
    iv. The Arrow, Ranger X, Torque SP and Torque 3 wheelchairs tested used a wheelchair-anchored pelvic belt and vehicle-anchored shoulder belt.
    v. The Arrow, Ranger X, Torque SP and Torque 3 wheelchairs tested comply with the performance requirements of ANSI/RESNA WC 19 sec. 5.3.
G. For all types of vehicles, the Arrow, Ranger X, Torque SP and Torque 3 require four SAE J2249-compliant tie-down strap assemblies for effective securement.
H. The Arrow, Ranger X, Torque SP and Torque 3 provide a location for anchoring of an Invacare-provided pelvic belt. This belt has been tested in accordance with ANSI/RESNA WC 19.
I. The wheelchair-anchored pelvic belt is supplied by Invacare.

Invacare® Storm Series® Specifications

	Group 4 Arrow® Wheelchair	Group 3 Ranger X™ Wheelchair	Group 4 Torque™ SP Wheelchair	Group 3 Torque™ 3 Wheelchair
Motor package				
Standard Motor Package	True Track GB™ motors	HD 4-pole motor	Performance 4-pole motor	4-pole motor
Optional Motor Package	N/A	True Track GB motors	True Track GB motors	True Track GB motors
Maximum speed				
4-pole motor	N/A	N/A	N/A	5.8 mph
Performance 4-pole motor	N/A	N/A	6 mph	N/A
HD 4-pole motor (400 lb.)	N/A	5 mph	N/A	N/A
TrueTrack GB motor	7 mph	7 mph	7 mph	7 mph
Maximum weight capacity				
4-pole motor	N/A	400 lb.	300 lb.	300 lb.
TrueTrack GB motor	400 lb.	400 lb.	300 lb.	300 lb.
Overall base width (with 14"x3" wheels)				
4-pole motor	N/A	25"	25"	25"
TrueTrack GB motor	24.75"	24.75"	24.75"	24.75"
Seat-to-floor height (at 0˚ tilt)				
Low	17.5"	17.5"	17.5"	17.5"
Medium	19.5"	19.5"	19.5"	19.5"
Tall	21"	21"	21"	21"
Overall base length*				
Short Base	28.5"	28.5"	28.5"	28.5"
Long Base	31.5"	31.5"	31.5"	31.5"
Seat adjustability				
Width (1" increments)	12" to 24"	12" to 24"	12" to 22"	12" to 22"
Depth (1" increments)	12" to 22"	12" to 22"	12" to 22"	12" to 22"
Back Angle (5˚ increments)	85˚ to 105˚	85˚ to 105˚	85˚ to 105˚	85˚ to 105˚
Seat Tilt (continuous adjustment)	0˚ to 10˚	0˚ to 10˚	0˚ to 10˚	0˚ to 10˚
Arm height				
Fixed	10"	10"	10"	10"
Adjustable	9.5" to 13.5"	9.5" to 13.5"	9.5" to 13.5"	9.5" to 13.5"
Drive wheels				
Pneumatic (standard)	14" x 3"	14" x 3"	14" x 3"	14" x 3"
Foam-Filled (optional)	14" x 3"	14" x 3"	14" x 3"	14" x 3"
Pneumatic and foam-filled (optional)**	N/A	14" x 4"	14" x 4"	14" x 4"
Free-wheel hub (optional)	N/A	Optional	Optional	Optional
Casters				
Semi-pneumatic (standard)	8" x 2.25"	8" x 2.25"	8" x 2.25"	8" x 2.25"
Pneumatic (optional)	8" x 2.25"	8" x 2.25"	8" x 2.25"	8" x 2.25"
Pneumatic and foam-filled (optional)	9" x 3"	9" x 3"	9" x 3"	9" x 3"
Caster Suspension (optional)				
Pneumatic and semi-pneumatic	8"	8"	8"	8"
Electronics				
MK6i	MK6 TT with MPJ™+	MK690 with MPJ+	MK690 with SPJ+ (standard)	MK690 with SPJ+ (standard)
MK6i			MK690 with MPJ+ (optional)	MK690 with MPJ+ (optional)
Batteries*				
22NF	N/A	N/A	Standard	Standard
Group 24	Standard	Standard	Optional	Optional
Weight				
18" x 18" seat size with Group 24 batteries and no front riggings	292 lb.	266 lb.	266 lb.	266 lb.

* Measured from head tube to standard anti-tip wheel.   ** 14"x14" adds 2" to overall width. Not available with TrueTrack GB motors.   *** Sealed gel cell recommended.

INVACARE

Yes, you can.