

ARJO

## TENOR

A SAFE MOBILE PATIENT  
HANDLING SYSTEM







# MEETING THE CHALLENGES OF BARIATRIC CARE

The number of people classified as obese and bariatric is rising rapidly around the world. This trend is creating new challenges for healthcare environments. The bariatric patient has the right to be treated with the same comfort and dignity as other patients. Caregivers and nurses should be able to work safely and in good ergonomic positions using mechanical aids and working methods that are optimized for bariatric care.

Good quality bariatric care requires not only special handling equipment with appropriate weight ratings, but also solutions that take into account the associated care problems of different body shapes. Bariatric weight distribution can be defined into one of three categories:

- Proportional (body weight distributed evenly)
- Pear shape (weight distributed unevenly with heavier lower body)
- Apple shape (weight distributed around the center or torso of the body)

Clearly, there is a growing need for products designed with bariatric patients in mind. When ARJO began to design a mobile sling lifter for bariatric care, we listened to the people who would be involved in its daily use – the client and caregivers.

## Feedback fine-tuned the Tenor design

One of the patients most involved in the development of the *Tenor* is Barry, the UK's heaviest man. Barry worked with ARJO for over two years on the *Tenor* project, helping us to design a mobile lifter and sling system that is truly in tune with bariatric patients' needs.

Barry's experiences during frequent stays in the hospital made us fully aware of the pain and discomfort many bariatric patients feel when being lifted in a sling. The problem, particularly affecting the shoulders and legs, stems from ill-fitting slings and unsuitable spreader bars.

Nurses and caregivers also provided us with valuable insight on problems encountered when handling bariatric patients. Many issues concerned slings, including difficulties with application and removal, and problems finding the right sling size to safely handle a specific patient.

An important concern expressed both by patients and nursing staff was confidence in the lifting equipment – worries center on whether the lifter will be able to securely lift the bariatric patient's weight.

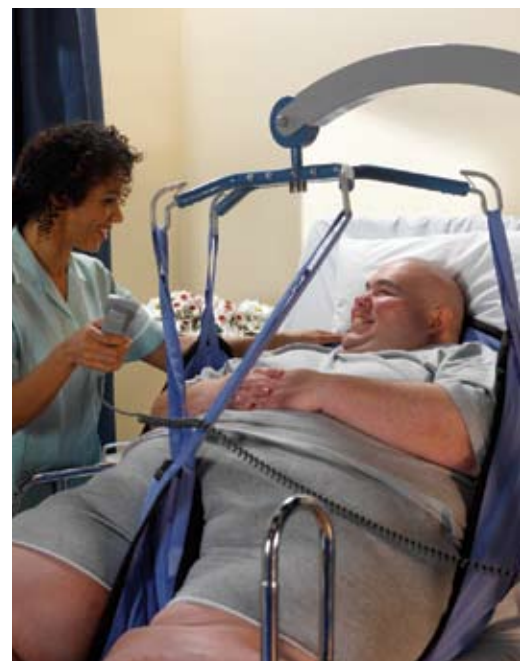
The combined feedback from patients, nurses and caregivers has enabled us to identify and address equipment confidence and sling-related issues and provide improved solutions in the design of the *Tenor* and the new bariatric sling range.

Weights	BMI for 5 ft., 4" (1.60 m)	BMI for 5 ft., 10" (1.75 m)
150 lbs (68 kg)	27	22
200 lbs (91 kg)	36	30
250 lbs (114 kg)	43	36
300 lbs (136 kg)	52	43
400 lbs (182 kg)	69	58
500 lbs (227 kg)	86	72
600 lbs (273 kg)	103	86
800 lbs (363 kg)	142	119
1000 lbs (454 kg)	177	148

Normal weight
  Overweight
  Obese
  Bariatric

Table 1. Body mass index ratings

Body Mass Index (BMI), based on the relation between a person's weight and height, is the most common internationally accepted standard used for assessing weight condition. People with a BMI greater than 25 are considered overweight, over 30, obese, and more than 40, bariatric. The BMI table above gives examples of bariatric patients based on average population heights.



# LIFTING WITH CONFIDENCE



The combination of the four-point spreader bar's widely spaced shoulder attachment points and the extended boom length ensures that patients can be transferred in comfort and repositioned, if required, through 360° for access to bed, chair or wheelchair.

A key issue both for bariatric patients and their caregivers is being confident that a mobile lifter can cope safely with the weights involved. The *Tenor* will inspire system confidence among patients and staff for a number of reasons:

**Designed specifically for bariatric care:** Creating the best bariatric mobile lifter available is not a question of adding lifting capacity to an existing design. The *Tenor* has been designed from scratch, in cooperation from patients and caregivers, to meet the specific safety and comfort needs of bariatric care.

**Lifting capacity you can trust:** The lightweight aluminum structure provides a safe working load of 704 lbs / 320 kg. Every *Tenor* is tested before shipment to safely lift weights well over and above its safe working load.

**Familiarity:** Caregivers will recognize many aspects of the *Tenor* from working with other ARJO mobile lifters – easy to apply slings, simple handset control and ergonomically sound procedures.

**Assured sling comfort:** The new bariatric sling range provides optimum support for specific body shapes. Color coding of slings makes selecting the right sling size an easier process.

**An integrated solution:** With an optimum sling solution, the *Tenor* mobile lifter creates an integrated lifting system for safer, gentler, more dignified handling, matched to a specific bariatric patient's needs.

**Strength-enhancing design features:** The design of the *Tenor* incorporates special features that ensure exceptional strength and stability.









- Tenor -

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# DESIGNED WITH BARIATRIC PEOPLE IN MIND

- 1 Shaped for strength**

This curved jib design is the optimum shape for maximum strength, ensuring reliable performance during the use of this 704 lbs. / 320 kg-capacity lifter. Curved boom design maximizes head clearance; important for 360 degree rotation of patient for lifting in tight areas or with certain chairs.
- 2 Lightweight material, heavyweight performance**

The aluminum construction is light and maneuverable, but extremely strong. Bolted sections are used instead of welded joints to further improve strength.
- 3 Better positioning**

The extended jib allows better reach over beds to allow the patient to be centered in the bed. This minimizes manual repositioning and thus reduces stress on the caregiver.
- 4 Spreading the weight**

Using the new 4-point bariatric spreader bar provides a wider gap between the shoulder and leg hooks. This enhances patient comfort by distributing weight more evenly and reducing squeezing forces from the sling.
- 5 Ergonomic curved handle bar**

The ergonomically designed curved handle bar minimizes strain on the caregiver and allows easy turning and maneuvering in tight situations.
- 6 Dual controls**

In addition to the handset, the powered features of the *Tenor* can also be operated from the control panel on the mast.
- 7 Charged and ready**

The battery pack includes two heavy-duty rechargeable batteries and one charger, so the *Tenor* is always ready for use. The Battery Display Indicator (BDI) shows the status of the battery, while the minute meter monitors and measures the activity of the *Tenor*.
- 8 Room to maneuver**

The design provides space for the nurse or caregiver to position their feet correctly for ergonomic working routines – a vital health & safety consideration when maneuvering bariatric equipment and patients. For this reason, the chassis actuator is placed out of the way under the chassis.
- 9 Double-wheel low chassis design**

Twin front castors give the stability required to support as well as providing a maximum 4" (100 mm) clearance for chassis access under very low beds.



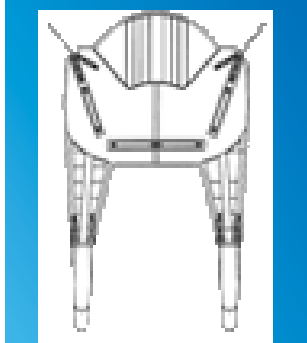
Operation of the *Tenor* from the handset gives the caregiver effortless control.



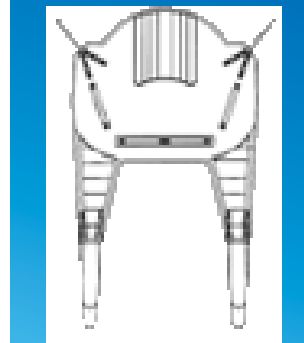
### The new bariatric four-point spreader bar:

This spreader bar has been designed specifically to enhance comfort for bariatric patients. The larger space between the shoulder and leg attachments enables the patient's weight to be more evenly distributed over the sling surface.

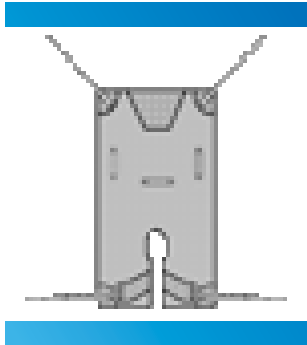
# BARIATRIC SLING SOLUTIONS



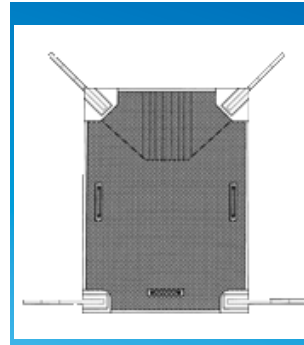
**THE DELUXE RANGE**, provides reinforced material and stitching in the most stressed areas of the sling including the shoulder, legs and spine. The extra padding provides more comfort and less pressure on delicate skin, and reinforcement in leg pieces prevents leg roping, enhancing comfort for the patient.



**THE BASIC RANGE**, provides the same shape and design at less cost. It has standard padding in the legs with no reinforced stitching or material. Comfort and safety are still top priority.



**THE DELUXE RANGE OF DIVIDED LEG HAMMOCK**, is sometimes preferred for pear shaped patients. Their stomachs are more prominent and require more support. The whole sling is padded with Spacer fabric, which is softer and disperses heat. This prevents a build up of body heat and sweat, for increased comfort and protection of the skin.



**THE BASIC HAMMOCK RANGE**, has the same design as the Deluxe range but without the divided leg facility. Lower cost material gives a more economical solution.

There are two equally important elements in the *Tenor* system – the mobile lifter and the sling. The different body shapes of bariatric patients require different sling solutions, and ARJO has therefore developed a range with sling types to suit these various needs.

Every bariatric sling is tested to the strictest ARJO quality standards and all types are available in bariatric sizes: Medium, Large, X Large and XX Large. All types of bariatric slings are color coded to make size selection as easy as possible.

It is important to carry out an individual patient assessment that covers weight, body shape and individual needs in order to select an optimized sling solution that ensures safety and maximized comfort.

## **Deluxe**

ARJO has listened to bariatric clients and incorporated suggested sling features to improve comfort during lifting. The result is the Deluxe sling with comfort-enhancing reinforcement added in key pressure areas such as the legs and shoulders.

Deluxe slings are applicable for the apple, pear and proportional bariatric body shapes. The wider body of the sling allows more room for the larger abdomen and broader shoulders, and the space between the legs is a

typical requirement for both proportional and apple shape patients.

Special fabric – a strong, high quality padding with good breathability – has been used to disperse heat and sweat to increase comfort.

## **Basic**

The Basic is also designed with quality in mind and has passed all the ARJO set standards. Tested to 1.5 times the SWL of 900 lbs / 409 kg, this sling type provides quality at a low cost.

## **Divided leg hammock**

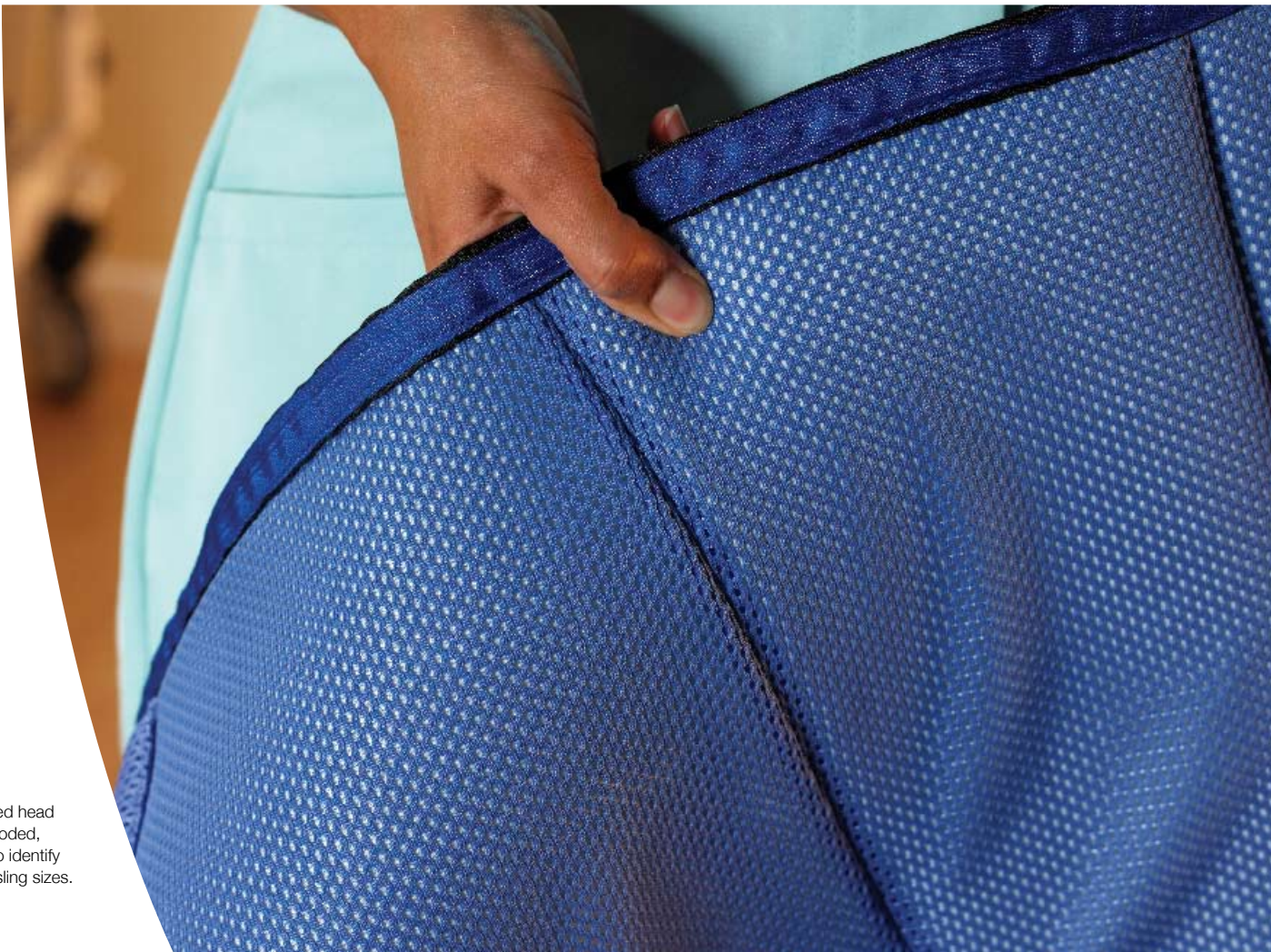
This sling can support most bariatric body shapes, but was designed specifically to increase support around the leg area – each leg is supported individually to prevent leg abduction or adduction – and to provide more space around the abdomen area.

## **Hammock**

The Hammock sling has been designed to lift pear shape patients who require more room around the abdomen. This sling design ensures patient's legs are together during lifting, which is a more comfortable solution for this type of individual.



The Deluxe bariatric sling is designed to provide extra comfort in key areas. Reinforced leg straps and wider bindings help to eliminate the roping effect on legs often caused by sling lifting.



The built-in padded head support is color coded, making it easier to identify the four bariatric sling sizes.





Together with the extended length jib special spreader bar and long stroke length, the *Tenor* is capable of doing floor pick ups.



# INCREASED OPTIONS FOR BARIATRIC CARE

The *Tenor* system, comprising of a bariatric mobile lift and optimized sling solution, can cover a wide range of tasks, transfers, repositioning and emergency floor lifts – in the handling of bariatric patients.

However, the needs of healthcare facilities differ and ARJO offers a range of bariatric patient handling solutions to cover all requirements. Safe assisted transfers can be accomplished with a bariatric mechanical aid, i.e. a sling lift or a ceiling lift, and in some lateral transfer situations by repositioning aids.

## **Bariatric Maxi Slides**

*Maxi Slide* repositioning aids are made in a special parachute-like material that minimizes friction. This solution has been extensively used in acute, long-term and elderly care and the same proven procedures can now be applied in bariatric care. *Maxi Slides* are available in X Large and XX Large sizes with handles to assist in the positioning of bariatric patients.

## **Bariatric ceiling lift**

The ceiling lift is another well-established patient handling solution that can now be successfully and safely applied in bariatric healthcare environments.

*Maxi Sky<sup>1000</sup>* has been specifically developed for use in transfer routines with bariatric patients. With a lifting capacity of 1000 lbs / 455 kg, *Maxi Sky<sup>1000</sup>* allows safe, comfortable and dignified transfers. Caregivers can perform transfers under handset control without stress or strain and with no manual lifting.

*Maxi Sky<sup>1000</sup>* is simple to operate. Regulation of lifting speed and spreader bar height is programmable from the handset. A full range of bariatric loop slings can be attached to the four-point spreader bar.

The *Tenor* system is mobile – it can provide good coverage for a healthcare facility, as it can be easily moved to wherever it is needed. *Maxi Sky<sup>1000</sup>* offers good solutions for recurring transfers at a single location, as the lift cassette can be installed either on a gantry or a ceiling-mounted straight track. A semi-permanent gantry offers a greater degree of flexibility, as the system can be moved when required and set up easily in another room when required. A permanently mounted fixed track system is simple to install and is the ideal set up for dedicated bariatric units.



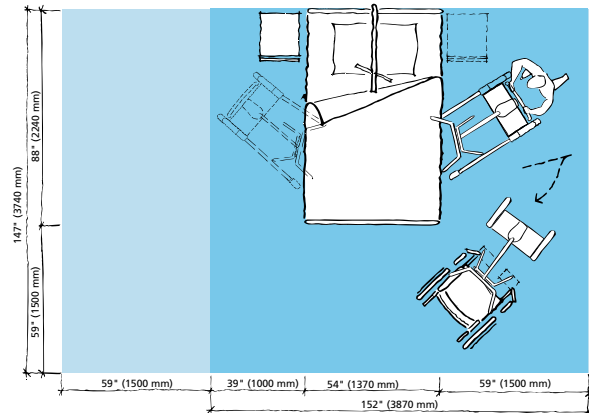
Applying bariatric slings are aided by the use of ARJO *Maxi Slide* repositioning sheets and tubes.



The *Maxi Sky<sup>1000</sup>*, shown in the free standing gantry installation, provides a good solution for recurring routines, such as bed-to-chair transfers.

# PRODUCT SPECIFICATIONS

## Space requirement



## Mobility Gallery for bariatric people

Suitable for Diana and Ella



**D Diana**, who has no capacity to support herself

**E Ella**, who is almost completely bedridden and totally dependant

For further information on bariatric design see ARJO's Guidebook for Architects™.

## Product Information

Safe working load	704 lbs (320 kg)
Weight of Tenor incl. battery	138 lbs (62.8 kg)
Max. height	79 1/8" (2010 mm)
Min. height	28 3/8" (720 mm)
Length	56 3/4" (1440 mm)
Max. width	44 1/8" (1120 mm)
Min. width	24 3/8" (620 mm)
Turning radius	65" (1650 mm)
Battery type	Rechargeable-sealed lead acid
Battery capacity	4 Ah

The Battery Display Indicator (BDI) shows the status of the battery, while the minute meter monitors and measures the activity of the Tenor.

Lifter – Protection class	IPX4
Handset – Protection class	IP67
Lifter nominal voltage	24V DC
Overload fuse	15 AMPS

## Scale

Power supply	9V DC
Battery life	approx. 3000 readings

Dual operating controls on handset and mast

Anti-crush mechanism

Use only ARJO Designed Parts, i.e. parts specifically designed for the purpose, on equipment and products supplied by ARJO. Our Conditions of Sale specify that ARJO is not liable for injuries attributable to the use of inadequate parts. Continuous development is part of our policy, and we therefore reserve the right to change specifications without notice.

# ARJO

...with people in mind.

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