



Clinical guide

Star vertical air cell cushions including smart seating technology from Kalogon



Testimonial – StarLock

“[I felt] The difference almost straight away, compared to previous cushions, more comfortable, it even allowed part of the cushion to deflate to help my problem area. Easy to deflate in any area of the cushion. Best of all my ulcers have gone.

Anyone with a similar situation to mine, I fully recommend the StarLock cushion.”

Mr Ian Lamb, C5/6 incomplete SCI

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Introduction

Etac has a proud history of producing wheelchairs and wheelchair seating designed to meet the user's clinical and functional needs. Etac's Star cushions are no different, offering incredibly versatile, individualised seating.



Intended use of the guide

This clinical guide is to help prescribers select the right Star cushion and make an optimal setup to meet an individual user's needs.

Clinical background

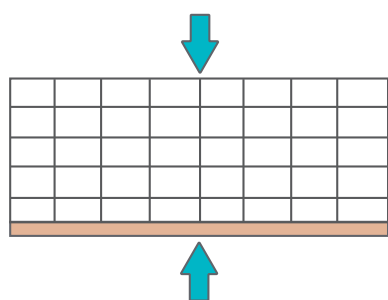
Pressure injuries

A pressure injury is defined as “a localized damage to the skin and/or underlying tissue which occurs as a result of direct pressure, or a combination of pressure and shear forces” (EPUAP/ NPIAP 2019⁽¹⁾). Pressure and shear cause localized deformation to the cells in the tissue, which results in tissue breakdown (Gefen 2021⁽²⁾).

The mechanical forces that can contribute to pressure injuries are pressure and shear, which typically occur together. Their damaging effects can be compounded by heat and moisture.

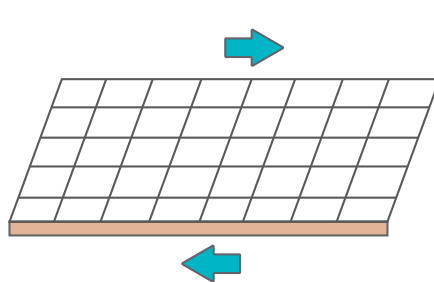
Wheelchair users are at particular risk of developing pressure injuries due to several factors, including:

- Immobility
- Reduced sensation
- Reduced tissue tolerance secondary to their medical condition



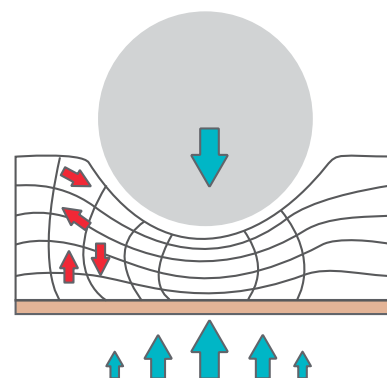
Pressure

Pressure is a perpendicular force applied over a given area.



Shear

Shear is a force that occurs parallel to the surface.



Pressure in combination with shear

⁽¹⁾ European Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline. The International Guideline. Emily Haesler (Ed.). EPUAP/NPIAP/PPPIA. 2019

⁽²⁾ Gefen, A., Brienza, D., Cuddigan, J., Haesler, E. and Kottner, J. (2021). Our Contemporary Understanding of the Aetiology of Pressure Ulcers/Pressure Injuries. International Wound Journal. Vol 10. Issue 3. March 2022.

Pressure redistribution

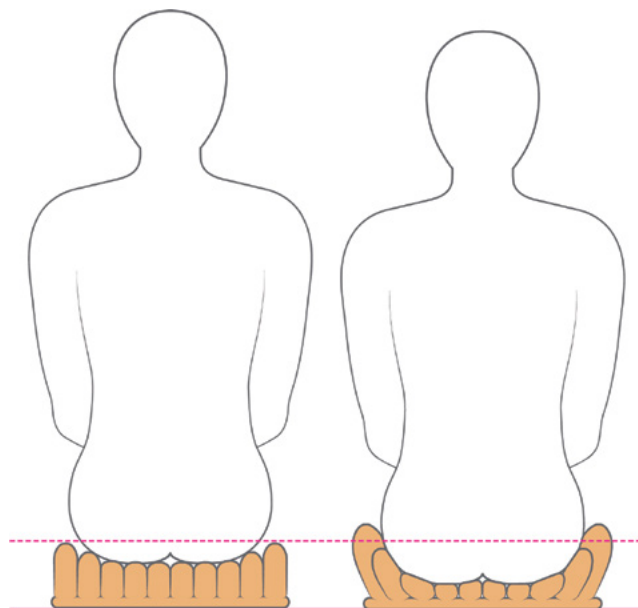
Many wheelchair cushions work through pressure redistribution. Pressure redistribution is the process of reducing peak pressures by increasing the surface contact area. Immersion and envelopment are fundamental mechanisms that enable effective pressure redistribution. When an individual is immersed and enveloped in a cushion, the contact surface area increases, reducing peak pressures.

Immersion:

The amount the individual will sink into the cushion's surface.

Envelopment:

How closely the cushion surface will follow the body shape.



Reducing peak pressure points is thought to minimise damaging skin/tissue distortions. And reducing the pressure points that can cause tissue distortions is vital in preventing pressure injuries because cell deformation is now considered the primary mechanism for causing pressure injuries (EPUAP/NPIAP 2019⁽¹⁾, Gefen et al. 2021⁽²⁾).

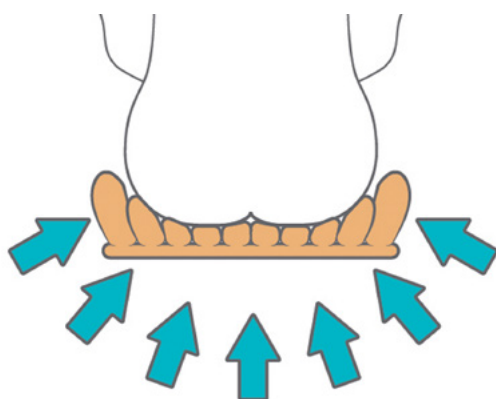


⁽¹⁾ European Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline. The International Guideline. Emily Haesler (Ed.). EPUAP/NPIAP/PPPIA. 2019

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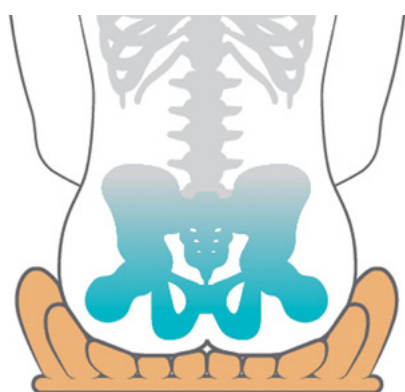
Vertical air cell technology

Star cushions feature vertical air cell technology designed specifically for individuals at high risk of pressure injuries. Star cushions are fully adjustable to suit the individual's weight, body shape and pressure redistribution needs*.



Interconnecting air cells

Star's interconnected vertical air cell design ensures internal cell pressures equalise as the user sits in the cushion. This equalisation of cell pressures automatically moves air away from high-pressure points and continues as the user moves in their seat. Star's vertical air cell construction also effectively reduces surface tension and enables excellent envelopment.



Adjustment to the individual

The continuous adjustment possibilities of Star, coupled with cell height options up to 13 cm, enables optimal immersion for every body shape and size. That is, where the user is immersed as much as possible with minimized risk of bottoming due to normal movement, e.g., weight shifting. The adjustable nature of the cushions makes Star cushions suitable for users of any body size, shape, or weight.

*When fitted correctly to an appropriately sized cushion.

Smart seating technology

Smart seating technology with Star Sentinel, powered by Kalogon, removes the need for hand pumping and hand checks. In combination with a single-chamber vertical air cell cushion you have a smart function cushion solution, enabling everyday peace of mind.



Air management system

Once the clinical pressure level is set, Sentinel continuously monitors the cushion with its air management system, manages the pressure and automatically adjusts the level of air to environmental changes accordingly.



Alerts

Sentinel continuously monitors and adjusts the vertical air cell cushion throughout the day and will alert you to any issues detected.

Types of Star cushions



Standard Air

Standard Air is a simple single-air chamber cushion. Air is held throughout the cushion, which moves with the user, enabling continuous pressure redistribution.

The Standard Air cushion is designed for individuals at high risk of pressure injuries but with no other postural or stability needs.



StabilAir

StabilAir operates similarly to the Standard Air cushion, with an additional matrix of soft foam cylinders within the air cells. The user is supported by air, while the foam cylinders act as baffles. The foam baffles slow down air movement in the cushion as the user moves, increasing stability while allowing some air movement for continuous pressure redistribution.

This is the ideal solution for users who are used to the feel of a foam cushion but need the protection of a vertical air cell cushion.



Consider using StabilAir for individuals who prefer the feel of a foam cushion but need additional skin protection. Or individuals who require additional stability.



StarLock

StarLock can work as a single air chamber cushion allowing individual setup for optimal pressure redistribution.

In addition, it is possible to lock air in each vertical air cell. The individual cell locking technology aids stability and allows individualised postural support. The StarLock cushion is suited for individuals who require air cell cushion but need maximum stability and/or postural support, e.g., pelvic obliquity, foot propulsion, amputation.



Consider using StarLock for individuals with offloading or additional postural needs.



StarLock set up for someone who foot propels, to aid their ability to reach the floor with their foot.



StarLock set up for an Amputee to provide stability and support the residual limb.

Smart technology



Introducing Star Sentinel, powered by Kalogon

Sentinel's smart, innovative and easy-to-use technology takes your experience to another level. Vertical air cell cushions can be set up directly from the Sentinel device or using an optional app, removing the need to use a hand pump. Sentinel will then automatically detect when the user is on the cushion and effortlessly maintain the clinically set level of air, giving peace of mind throughout the day, every day.



Sentinel and StabilAir – The perfect combination

Sentinel and StabilAir make the perfect combination for a 'go anywhere' wheelchair seating cushion.

Together, they create a stable cushion solution that automatically adjusts to changes in environment or altitude.



Sentinel's light weight is similar to a mobile phone and is compact enough to fit neatly into the front pocket of Star cushions.



For those who want control throughout the day, Sentinel comes with an optional app in which you can select settings that work for you.

Assessing for a Star cushion

Star cushions are designed for individuals needing optimal immersion and envelopment.

1 Assess stability and postural needs

Assess the individual's needs for stable base, offloading, and/or individualised shape for postural support.

2 Select the right cushion model

Select the most appropriate cushion model based on the required features.



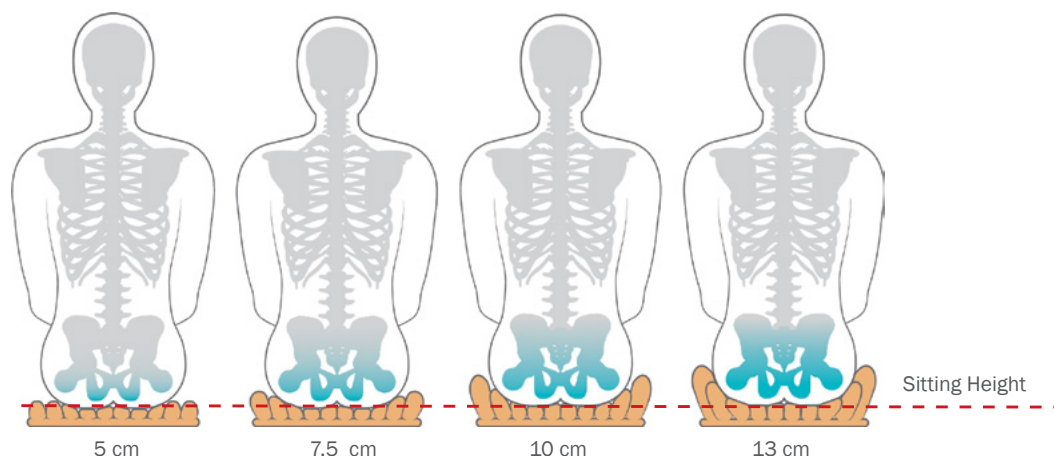
Feature	Standard Air	StabilAir	StarLock
<p>Pressure Redistribution</p>	✓	✓	✓
<p>Stability</p>		✓	
	<p>Slowed Airflow</p> <hr/> <p>Full Lock</p>		
<p>Offloading</p>			✓
<p>Postural Support</p>			✓

3 Assess the risk

Assess the risk of the individual developing a pressure injury. A risk assessment scale can be a helpful aid in determining risk, e.g., Waterlow, Norton or Braden, however do not replace the need for clinical reasoning.

4 Select cushion height

Star cushions are available in four heights:



Cushion Height	Pressure Redistribution*	Offloading (Starlock only)	Posture (Starlock only)
5 cm	Low to medium-risk active users.		
7.5 cm	Medium to high-risk active users.		7.5 cm StarLock can accommodate mild asymmetry.
10 cm	High to very high risk users.	Reduce load to vulnerable bony prominences.	10 cm StarLock can accommodate moderate asymmetry.
13 cm	High immersion for excellent pressure redistribution. And may also envelop the greater trochanters.	Reduce load to vulnerable bony prominences and vulnerable tissue.	13 cm StarLock can accommodate large asymmetry.

*This guide is based on the level of immersion and is not intended to supersede clinical judgment.

With StarLock, higher air cells enable greater stability and positioning abilities. Be aware, however, that lower heights may still be preferred by some, e.g., for easier transfers.

Use pressure redistribution cushions in conjunction with a wider program of care. Weight-shifting and pressure-relieving manoeuvres remain important pressure injury prevention methods, irrespective of the support surface type.

Setting up Star cushions

Setting the air Level

The air level of the Star cushions can be set easily following the user manual and animated video. Sentinel can be used to set up Standard Air or StabilAir cushions as an alternative to the hand pump.

StarLock

Once the air level is set for StarLock, the air can then be locked into the individuals' cells. This can easily be done by following the user manual and animated video.

Quick guide Standard Air and StabilAir

Click or Scan the QR code to watch the quick guide for setting the air level for Standard Air and StabilAir.

Quick guide StarLock

Click or Scan the QR code to watch the quick guide for setting the air level for StarLock.



Star cushions – Size guide

Standard Air size guide

Standard Air Product Page

Click or Scan the QR code to find more information about Standard Air on Standard Air product page, on etac.com



Standard Air	5 cm	10 cm	Seat width*
26 x 26 cm	ESSCS0909-1	ESSC0909-1	22 - 25 cm
26 x 30 cm	ESSCS0911-1	ESSC0911-1	22 - 25 cm
26 x 34 cm	ESSCS0913-1	ESSC0913-1	22 - 25 cm
30 x 26 cm	ESSCS1109-1	ESSC1109-1	26 - 30 cm
30 x 30 cm	ESSCS1111-1	ESSC1111-1	26 - 30 cm
30 x 34 cm	ESSCS1113-1	ESSC1113-1	26 - 30 cm
30 x 39 cm	ESSCS1115-1	ESSC1115-1	26 - 30 cm
34 x 26 cm	ESSCS1309-1	ESSC1309-1	31 - 35 cm
34 x 30 cm	ESSCS1311-1	ESSC1311-1	31 - 35 cm
34 x 34 cm	ESSCS1313-1	ESSC1313-1	31 - 35 cm
34 x 39 cm	ESSCS1315-1	ESSC1315-1	31 - 35 cm
34 x 44 cm	ESSCS1317-1	ESSC1317-1	31 - 35 cm
39 x 30 cm	ESSCS1511-1	ESSC1511-1	36 - 40 cm
39 x 34 cm	ESSCS1513-1	ESSC1513-1	36 - 40 cm
39 x 39 cm	ESSCS1515-1	ESSC1515-1	36 - 40 cm
39 x 44 cm	ESSCS1517-1	ESSC1517-1	36 - 40 cm
39 x 49 cm	ESSCS1519-1	ESSC1519-1	36 - 40 cm
39 x 53 cm	ESSCS1521-1	ESSC1521-1	36 - 40 cm
44 x 34 cm	ESSCS1713-1	ESSC1713-1	40 - 44 cm
44 x 39 cm	ESSCS1715-1	ESSC1715-1	40 - 44 cm
44 x 44 cm	ESSCS1717-1	ESSC1717-1	40 - 44 cm
44 x 49 cm	ESSCS1719-1	ESSC1719-1	40 - 44 cm
44 x 53 cm	ESSCS1721-1	ESSC1721-1	40 - 44 cm
49 x 39 cm	ESSCS1915-1	ESSC1915-1	44 - 49 cm
49 x 44 cm	ESSCS1917-1	ESSC1917-1	44 - 49 cm
49 x 49 cm	ESSCS1919-1	ESSC1919-1	44 - 49 cm
49 x 53 cm	ESSCS1921-1	ESSC1921-1	44 - 49 cm
53 x 39 cm	ESSCS2115-1	ESSC2115-1	49 - 54 cm
53 x 44 cm	ESSCS2117-1	ESSC2117-1	49 - 54 cm
53 x 49 cm	ESSCS2119-1	ESSC2119-1	49 - 54 cm
53 x 53 cm	ESSCS2121-1	ESSC2121-1	49 - 54 cm

* If placed on a wheelchair, the cushion base edges may fold upwards. Hence the difference between the base measurements and recommended seat width.

StabilAir size guide

StabilAir product page

Click or Scan the QR code to find more information about StabilAir on StabilAir product page, on etac.com



StabilAir	7.5 cm	10 cm	Seat width*
26 x 26 cm	ESSA30909-1	ESSA40909-1	22 - 25 cm
26 x 30 cm	ESSA30911-1	ESSA40911-1	22 - 25 cm
26 x 34 cm	ESSA30913-1	ESSA40913-1	22 - 25 cm
30 x 26 cm	ESSA31109-1	ESSA41109-1	26 - 30 cm
30 x 30 cm	ESSA31111-1	ESSA41111-1	26 - 30 cm
30 x 34 cm	ESSA31113-1	ESSA41113-1	26 - 30 cm
30 x 39 cm	ESSA31115-1	ESSA41115-1	26 - 30 cm
34 x 26 cm	ESSA31309-1	ESSA41309-1	31 - 35 cm
34 x 30 cm	ESSA31311-1	ESSA41311-1	31 - 35 cm
34 x 34 cm	ESSA31313-1	ESSA41313-1	31 - 35 cm
34 x 39 cm	ESSA31315-1	ESSA41315-1	31 - 35 cm
34 x 44 cm	ESSA31317-1	ESSA41317-1	31 - 35 cm
39 x 30 cm	ESSA31511-1	ESSA41511-1	36 - 40 cm
39 x 34 cm	ESSA31513-1	ESSA41513-1	36 - 40 cm
39 x 39 cm	ESSA31515-1	ESSA41515-1	36 - 40 cm
39 x 44 cm	ESSA31517-1	ESSA41517-1	36 - 40 cm
39 x 49 cm	ESSA31519-1	ESSA41519-1	36 - 40 cm
39 x 53 cm	ESSA31521-1	ESSA41521-1	36 - 40 cm
44 x 34 cm	ESSA31713-1	ESSA41713-1	40 - 44 cm
44 x 39 cm	ESSA31715-1	ESSA41715-1	40 - 44 cm
44 x 44 cm	ESSA31717-1	ESSA41717-1	40 - 44 cm
44 x 49 cm	ESSA31719-1	ESSA41719-1	40 - 44 cm
44 x 53 cm	ESSA31721-1	ESSA41721-1	40 - 44 cm
49 x 39 cm	ESSA31915-1	ESSA41915-1	44 - 49 cm
49 x 44 cm	ESSA31917-1	ESSA41917-1	44 - 49 cm
49 x 49 cm	ESSA31919-1	ESSA41919-1	44 - 49 cm
49 x 53 cm	ESSA31921-1	ESSA41921-1	44 - 49 cm
53 x 39 cm	ESSA32115-1	ESSA42115-1	49 - 54 cm
53 x 44 cm	ESSA32117-1	ESSA42117-1	49 - 54 cm
53 x 49 cm	ESSA32119-1	ESSA42119-1	49 - 54 cm
53 x 53 cm	ESSA32121-1	ESSA42121-1	49 - 54 cm

* If placed on a wheelchair, the cushion base edges may fold upwards. Hence the difference between the base measurements and recommended seat width.

StarLock size guide

StarLock product page

Click or Scan the QR code to find more information about StarLock on StarLock product page, on etac.com



StarLock	5 cm	7.5 cm	10 cm	Seat width*	StarLock	13 cm	Seat width*
26 x 26 cm	ESSL20909-1	ESSL30909-1	ESSL40909-1	22 - 25 cm	26 x 26 cm	ESSL51010-1	22 - 26 cm
26 x 30 cm	ESSL20911-1	ESSL30911-1	ESSL40911-1	22 - 25 cm	26 x 30 cm	ESSL51012-1	22 - 26 cm
26 x 34 cm	ESSL20913-1	ESSL30913-1	ESSL40913-1	22 - 25 cm	26 x 36 cm	ESSL51014-1	22 - 26 cm
30 x 26 cm	ESSL21109-1	ESSL31109-1	ESSL41109-1	26 - 30 cm	30 x 26 cm	ESSL51210-1	27 - 32 cm
30 x 30 cm	ESSL21111-1	ESSL31111-1	ESSL41111-1	26 - 30 cm	30 x 30 cm	ESSL51212-1	27 - 32 cm
30 x 34 cm	ESSL21113-1	ESSL31113-1	ESSL41113-1	26 - 30 cm	30 x 36 cm	ESSL51214-1	27 - 32 cm
30 x 39 cm	ESSL21115-1	ESSL31115-1	ESSL41115-1	26 - 30 cm	30 x 41 cm	ESSL51216-1	27 - 32 cm
34 x 26 cm	ESSL21309-1	ESSL31309-1	ESSL41309-1	31 - 35 cm	36 x 26 cm	ESSL51410-1	33 - 37 cm
34 x 30 cm	ESSL21311-1	ESSL31311-1	ESSL41311-1	31 - 35 cm	36 x 30 cm	ESSL51412-1	33 - 37 cm
34 x 34 cm	ESSL21313-1	ESSL31313-1	ESSL41313-1	31 - 35 cm	36 x 36 cm	ESSL51414-1	33 - 37 cm
34 x 39 cm	ESSL21315-1	ESSL31315-1	ESSL41315-1	31 - 35 cm	36 x 41 cm	ESSL51416-1	33 - 37 cm
34 x 44 cm	ESSL21317-1	ESSL31317-1	ESSL41317-1	31 - 35 cm	36 x 46 cm	ESSL51418-1	33 - 37 cm
39 x 30 cm	ESSL21511-1	ESSL31511-1	ESSL41511-1	36 - 40 cm	41 x 30 cm	ESSL51612-1	38 - 43 cm
39 x 34 cm	ESSL21513-1	ESSL31513-1	ESSL41513-1	36 - 40 cm	41 x 36 cm	ESSL51614-1	38 - 43 cm
39 x 39 cm	ESSL21515-1	ESSL31515-1	ESSL41515-1	36 - 40 cm	41 x 41 cm	ESSL51616-1	38 - 43 cm
39 x 44 cm	ESSL21517-1	ESSL31517-1	ESSL41517-1	36 - 40 cm	41 x 46 cm	ESSL51618-1	38 - 43 cm
39 x 49 cm	ESSL21519-1	ESSL31519-1	ESSL41519-1	36 - 40 cm	41 x 51 cm	ESSL51620-1	38 - 43 cm
39 x 53 cm	ESSL21521-1	ESSL31521-1	ESSL41521-1	36 - 40 cm	41 x 56 cm	ESSL51622-1	38 - 43 cm
44 x 34 cm	ESSL21713-1	ESSL31713-1	ESSL41713-1	40 - 44 cm	46 x 36 cm	ESSL51814-1	43 - 49 cm
44 x 39 cm	ESSL21715-1	ESSL31715-1	ESSL41715-1	40 - 44 cm	46 x 41 cm	ESSL51816-1	43 - 49 cm
44 x 44 cm	ESSL21717-1	ESSL31717-1	ESSL41717-1	40 - 44 cm	46 x 46 cm	ESSL51818-1	43 - 49 cm
44 x 49 cm	ESSL21719-1	ESSL31719-1	ESSL41719-1	40 - 44 cm	46 x 51 cm	ESSL51820-1	43 - 49 cm
44 x 53 cm	ESSL21721-1	ESSL31721-1	ESSL41721-1	40 - 44 cm	46 x 56 cm	ESSL51822-1	43 - 49 cm
49 x 39 cm	ESSL21915-1	ESSL31915-1	ESSL41915-1	44 - 49 cm	51 x 41 cm	ESSL52016-1	48 - 53 cm
49 x 44 cm	ESSL21917-1	ESSL31917-1	ESSL41917-1	44 - 49 cm	51 x 46 cm	ESSL52018-1	48 - 53 cm
49 x 49 cm	ESSL21919-1	ESSL31919-1	ESSL41919-1	44 - 49 cm	51 x 51 cm	ESSL52020-1	48 - 53 cm
49 x 53 cm	ESSL21921-1	ESSL31921-1	ESSL41921-1	44 - 49 cm	51 x 56 cm	ESSL52022-1	48 - 53 cm
53 x 39 cm	ESSL22115-1	ESSL32115-1	ESSL42115-1	49 - 54 cm	56 x 41 cm	ESSL52216-1	53 - 59 cm
53 x 44 cm	ESSL22117-1	ESSL32117-1	ESSL42117-1	49 - 54 cm	56 x 46 cm	ESSL52218-1	53 - 59 cm
53 x 49 cm	ESSL22119-1	ESSL32119-1	ESSL42119-1	49 - 54 cm	56 x 51 cm	ESSL52220-1	53 - 59 cm
53 x 53 cm	ESSL22121-1	ESSL32121-1	ESSL42121-1	49 - 54 cm	56 x 56 cm	ESSL52222-1	53 - 59 cm

* If placed on a wheelchair, the cushion base edges may fold upwards. Hence the difference between the base measurements and recommended seat width.

Star Sentinel, powered by Kalogon



Sentinel product page

Click or Scan the QR code to find more information about Sentinel on Sentinel product page, on etac.com



Product name	Item no.	Dimensions LxBxD	Weight
Sentinel, powered by Kalogon - EU unit	KA0501-ST-EU	114x55x37 mm	0,2 kg
Clip	KA0011		



Etac is a world-leading developer of innovative assistive devices and patient handling equipment. Since 1973, we have been committed to improving quality of life for the individual, family members and caregivers.

For the products' intended purpose and latest information, please visit www.etac.com

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