SVERO

SVERO Smart Hoist 22
(Patent no SE 544 420 C2)
500-1000 kg

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Manual

CE

Read this manual carefully before using the Smart Hoist. Improper handling can be dangerous!

Use
The extremely low headroom, light and easy to mount Smart Hoist is intended to be mounted on a beam to lift and carry a load that can be displaced along the beam and hoisted up and down. It is especially well suited for cramped spaces.

Description
Svero's Smart Hoist 22 is mostly made of aluminum (side-plates, suspension bolt, holder, fixing plates and chain hoist casing) and hard impact resistant fiberglass reinforced plastic (wheels), and is therefore very lightweight.

The design where the lifting function is fully integrated with the horizontal movement, means that the minimum headroom is very low, and that the load-hook is the lowest point of the structure, without any other part of it obstructing the possibility to fully utilize the low headroom.

The Smart Hoist 22 can be used on beams with widths within 110-180 mm. The suspension bolt has a square cross section and round holes to fit the indexing plungers. Through this design, the suspension bolt is fixed to the side-plates (Fig. 3).

Furthermore, the tread of the wheels is both cylindrical and conical (the outer part), which make it suitable both for beams with even-thickness flanges (IPE, HEA, HEB) and for inclined flanges (INP). The load is distributed on the four points on the beam where the tread of the wheels meets the beam. The distance between these points is 130 mm on each side.

The Smart Hoist is manufactured with both a falling down protection, in case of wheel breakdown, and a climbing protection, so that the wheel flanges can't climb onto the beam's flange, in case of a lop-sided load. Both also have rubber-bumpers to lessen the impact power if the Smart Hoist hits another object.

Fig 1 Dimensions

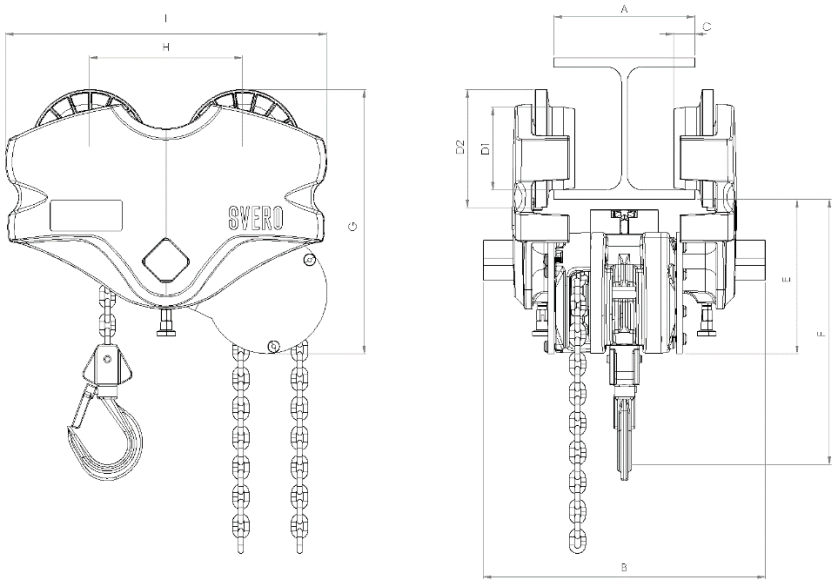

Table 1 Technical data (Fig 1)

Model	**2212**	**2214**
WLL kg	500	500
Min curve radius m	1,25	1,25
Weight kg (3m lift)	10,1	11,3
Dimension A mm	110-180	110-180
Dimension B mm	240	240
Dimension C mm	20	20
Dimension D_1 Ø mm	70	70
Dimension D_2 Ø mm	100	100
Dimension E mm	131	131
Dimension Fmin mm	150	150
Dimension G mm	224	224
Dimension H mm	130	130
Dimension I mm	273	273

Fig 2 Parts

The parts are two identical side-plates (Pos. 1) and a kit unit including a hoisting unit (Pos. 2), a holder (Pos. 3), a suspension bolt (Pos. 4) and a fixing plate (Pos. 5).

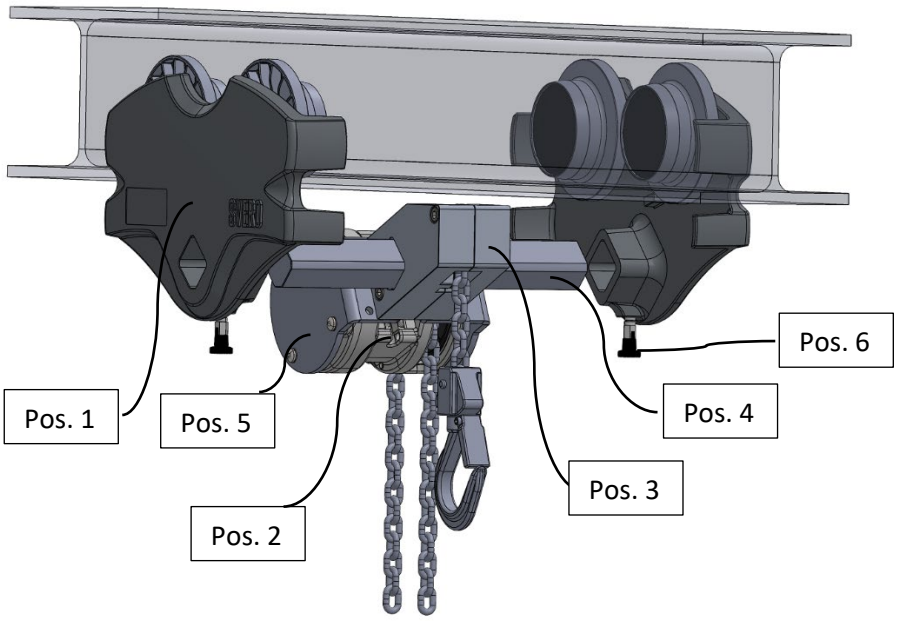

Table 2 Parts

Pos.	Description
1	Side plates
2	Hoisting unit
3	Holder
4	Suspention bolt 500 kgs
5	Fixing plates
6	Indexing plunger

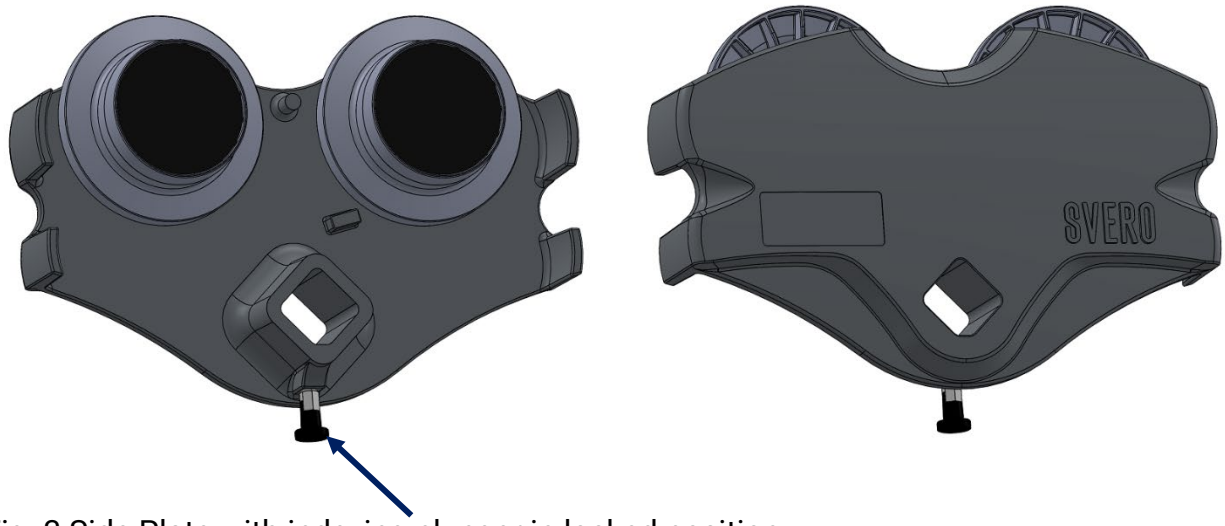

Fig. 3 Side Plate with indexing plunger in locked position.

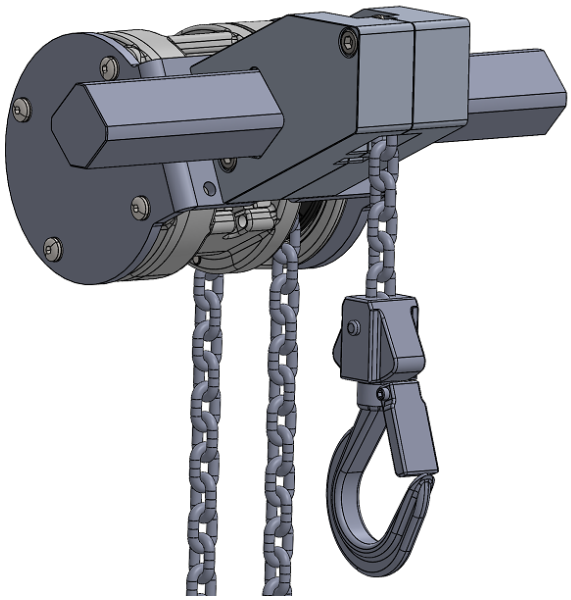

Fig. 4 Kit with hoisting unit, holder, suspension bolt and fixing plate

Mounting

It is a quick and simple operation to mount the Smart Hoist on a beam.

1. Take one of the side plates and put the indexing plunger in open position, by pulling out the black knob on the indexing plunger and twist it sideways a quarter of a turn if it is locked. You can now slide this side plate on to one end of the suspension bolt. Then lock the side plate to the suspension bolt by first putting the indexing plunger in the position to be locked, by twisting it back a quarter of a turn, and jerk the side plate along the suspension bolt a little until the indexing plunger engage into a hole on the suspension bolt. Make sure that the indexing plunger is now in the locked position.

2. Take the other side plate, with the indexing plunger in open position, and slide it on the other side of the suspension bolt.

3. Now position the wheels of the side plate where the indexing plunger is locked on the flange of the beam by tilting the Smart Hoist slightly (Pic. 1).

4. Slide, if needed, the side plate with the indexing plunger open further out on the suspension bolt, so that the wheels of the side plate go clear of the lower flange of the beam. Then raise the Smart Hoist to a horizontal position and slide this side plate against the lower flange of the beam, until the beam stops it (Pic. 2).

5. Put the open indexing plunger in locked position. If the indexing plunger doesn't engage directly, jerk the side plate along the suspension bolt a little until the indexing plunger engage.

6. Make sure that the Holder is centered under the beam. If not open both indexing plungers, slide the plates along the Suspension bolt until the Holder is centered and finally make sure the indexing plungers engage again. You probably again need to jerk the side plates a little along the suspension bolt, for them to engage. (Pic. 3)

Pic. 1 Tilt the Smart Hoist slightly to put on the beam.

Pic. 2 Raise the Smart Hoist and slide both side plates against the lower flange of the beam

Pic. 3 Center the Holder under the beam

7. Finally, check that the Smart Hoist rolls easily and freely on the beam.

Now the Smart Hoist is ready for use.

Safety instructions

- Check the function of the Smart Hoist before use. See Daily checks pages 12, 16.
- Check that the beam

  - has sufficient carrying capacity
  - is securely anchored
  - has end stops
  - doesn't have more than a 0,3 % slope
  - lower flange, on which the wheels rolls, is clean and free from obstacles
- Do not load more than the Working Load Limit (WLL).
- Make sure nobody is under a hanging load!

- The position of the load must not deviate more than 5 degrees from a vertical line from the Suspension point of the Smart Hoist to the floor.
- Handle the Smart Hoist carefully. Do not push the Smart Hoist at high speed along the beam.
- The Smart Hoist must not be used for lifting or transporting people.

- Do not leave a suspended load unattended.
- Do not use the chain hoist for welding work where it is exposed to welding spatter or current.
- Only hand power from a single person is permitted on the hand chain. If the chain feels too heavy, use a hoist with higher capacity or reduce the load.
- Do not step onto a hanging load.
- The Smart Hoist must not be used for pulling loads.
- The hoist must not be subjected to dynamic stresses, for example where a load connected to the Smart Hoist is launched from a height.
- The Smart Hoist is designed for use in the temperature range -20 to +60 °C.
- Check the installation regularly.

NB

No bending stresses may be applied to the Smart Hoist or it's hooks or load chain.

Raising/lowering

Check that the load is not anchored to the floor/ground or is otherwise fixed before making the lift. Ensure that the load chain hangs vertically and has no kinks. Only use approved straps and slings. The hand chain must also be in good condition and easily accessible. The load is raised or lowered by pulling the hand chain in either direction.

Attachment of loads

Check the equipment before use. Improper attachment of loads can be highly dangerous (see Figs. 3 a – 3 e).

Fig 3 a
The sling is applying load to the hook tip

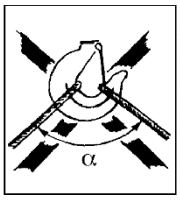

Fig 3 b
Excessive top angle on sling!
α max 60°

Fig 3 c
Hook latch obstructed

Fig 3 d
Hook tip subject to additional bending stress

Fig 3 e
Load chain must not be used as a sling

Combined lifts

Combined lifts present special risks. This is where two or more hoisting units are used simultaneously on the same load. Danger to persons and risk of material damage can arise through dynamic stresses and uneven load distribution causing overload on individual hoists. Combined lifts must therefore be supervised by a competent person with experience in this type of lift.

Daily checks

After every working day on which the Smart Hoist has been used, the following should be checked:

- Is the Smart Hoist deformed or otherwise damaged, visible or not? Are any parts missing?

- Are the hooks intact or have any hook openings opened up? Are the hook latches undamaged and functional?
- The load chain must be undamaged, i.e. no signs of wear and no deformed or otherwise damaged links
- The load chain must not be kinked or twisted.
- The hand chain must also be in good condition.
- The brake function must be intact.

In the event of faults or failures, the Smart Hoist must be repaired and carefully checked by a specialist before reuse.

Inspection and maintenance

Should always be performed by authorized personnel or Svero.

Periodic checks

Periodic checks are normally carried out yearly to detect and remedy any faults. If required (e.g. high frequency of use), more frequent checks may be carried out. See “Checklist for periodic checks” on page 16. Measure hooks and load chain to detect any changes in shape.

Checks of load-hook (see Fig. 5 and Table 3)

Opening dimension A on the hooks are important. A hook with an opening larger than the maximum dimension (A max) has been exposed to overloading or overheating. It therefore does not have the necessary load capacity. The hooks may also have been exposed to long-term wear (dimension B).

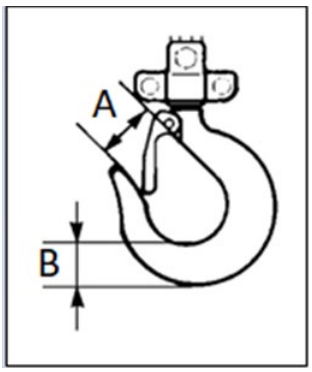

Fig 5 Load-hook

Hooks must be discarded and replaced if:

- The maximum A value is exceeded (according to Table 3)
- The minimum B value falls short (according to Table 3)

- The hook shows signs of cracking
- The hook is deformed or otherwise damaged

Defective hooks must be replaced before using the chain hoist again.

Table 3 Load-hook

Max. load ton	**0,5**
Dimension A nominal mm	**21,0**
Dimension A max mm	**23,1**
Dimension B nominal mm	**15,0**
Dimension B min mm	**14,3**

Checks of load chain (see Fig. 6 and Table 4)

Inspect the load chain over its whole length to detect any deformed or otherwise damaged links. Check measurements of suspect links. Measure the worn areas. Also, every 300 mm (normally), check measurements of the internal length of 5 links (pitch dimension 5xP – according to Table 4).

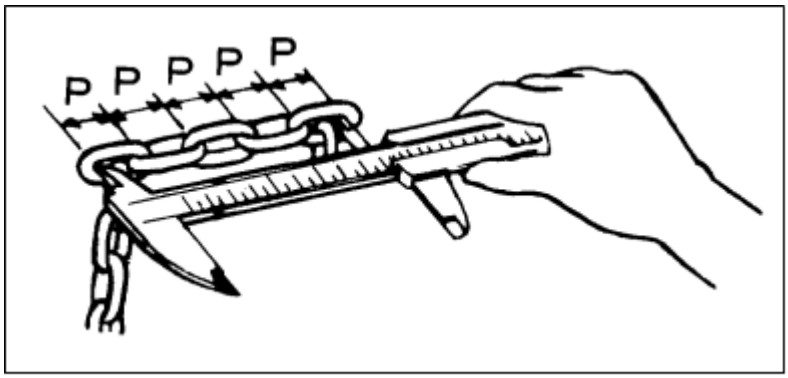

Fig 6 Checking chain dimensions

Table 4 Load chain

Max. load ton	**0.5**
Link diameter nominal mm	**4,3**
Link diameter min mm	**3,9**
Pitch dimension (5xP) nominal mm	**60,5**
Pitch dimension (5xP) max mm	**62,3**

The load chain must be discarded and replaced if:

- cracks are detected on any link

- any link is deformed or otherwise damaged
- The minimum value of any link's diameter falls short
- the maximum value of the pitch dimension is exceeded at any point
- the chain is damaged by overheating or has been affected by weld splatter

Furthermore

- Check that the wheels run smoothly, aren't skewed and that there is no damage on the treads and wheel flanges. If any of the wheels do not run smoothly, are skewed or damaged, they must be replaced.

- Check that the suspension bolt is fixed with the stop screws and that these are properly fastened. See sections 3, 6 and 7 under **Mounting**.

- Check that the distance between the Smart Hoist's wheels and the lower flange of the beam is 1 - 2 mm on each side. If this is not the case, adjustment must be made, see sections 5-7 under **Mounting**.

- Check that the suspension bolt is straight. If the suspension bolt is not straight, the entire Smart Hoist has been overloaded and must be replaced. A higher capacity Smart Hoist may then be required.

Repairs

Only replace damaged parts with **SVERO** original spare parts. See Fig. 2.

EU DECLARATION OF CONFORMITY

Manufacturer: Svero Lifting AB
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We declare that the Smart Hoist model/type 22 has been manufactured in conformity with the requirements of the EC Machinery Directive 2006/42/EG and amendments.

Anders Hallåker
Managing Director
Svero Lifting AB

Checklist for daily and periodic checks

Daily	*Periodic*	*Inspection items*	*Inspection method*	*Note*
Labels				
Yes ❑	Yes	Rating plate	Visual	If the plate is hard to read - replace it
Function				
Yes	Yes	Raising and lowering function	Test without load	A low snapping noise should be audible
–	Yes	Raising and lowering function	Test with rated weight for min 300 mm	Load chain sprocket and chain work well together. Brake works. Hand pulling on the hand chain feels even and not too heavy
Hooks				
Yes –	Yes	Hook opening	Visual Measurement	Looks normal See Fig. 4 and Table 3
Yes	Yes	Deformation	Visual	No visible deformation
–	Yes	Hook bearing	Visual	No abnormal play
Yes –	Yes	Wear, cracks, deformation and corrosion	Visual Measurement	No visible damage See Fig. 4 and Table 3
	Yes	Hook bearing	Visual	No abnormal play
Load chain				
Yes –	Yes	Pitch	Visual Measurement	Looks normal. Measure in case of doubt See Fig. 5 and Table 4
Yes –	Yes	Wear	Visual Measurement	Looks problem-free. Measure in case of doubt See Fig. 5 and Table 4
Yes	Yes	Deformation	Visual	No deformation. Measure in case of doubt
Yes	Yes	Cracks etc.	Visual	No cracks
Yes	Yes	Rust	Visual	No rust
Screws				
Yes	Yes	Screws, nuts, rivets, cotters etc.	Visual	Must not be missing. Tighten loose items. Replace as necessary