



SGHK-4

Cargo Hook Load Test Bench

Instruction Manual



Contents

1.	About this documentation	2
1.1	Validity of the documentation	2
1.2	Required and supplementary documentation	2
1.3	Display of information	3
2	Safety instructions	4
2.1	About this chapter	4
2.2	Intended use	4
2.3	Improper use	4
2.4	Personnel qualifications	5
2.5	General safety instructions	5
2.6	Product-specific safety instructions	6
2.7	Personal protective equipment	8
3	General instructions on damage to properly and the product	9
4	About this product	10
4.1	Performance description	10
4.2	Product description	10
4.2.1	Layout of the unit	10
4.2.2	Function description	11
4.3	Dimensions	12
5	Transport and storage	13
5.1	Transporting by hand	13
5.2	Transporting with a lifting device	13
5.3	Storing the unit	14
6	Operation	15
7	Maintenance	15
7.1	Inspection	15

1 About this documentation

1.1 Validity of the documentation

This documentation is valid for the following products:

- **SGHK-4 Cargo Hook Load Test Bench**

This documentation is intended for maintenance and service engineers.

This documentation contains important information on the safe and appropriate installation, commissioning, operation, maintenance and simple troubleshooting of the unit.

- ▶ Read this documentation completely and in particular the chapter "Safety instructions" and "General instructions on damage the property and the product" before you start work with this unit.

1.2 Required and supplementary documentation

- ▶ Only commission this tool if the documentation marked with the book symbol  is available to you and you have understood and observed it.

Title		Document type
	Cargo hook OEM's operation instructions manual	Manual
	Pressure gauge calibration certificate	Certificate

1.3 Display of information

Standardized safety instruction, symbols, terms and abbreviations are used throughout this documentation so that you can work quickly and safely with your product. To give you a better understanding they are explained in the section below.

Safety instructions are set out as follows:

 SIGNAL WORD
<p>Type and source of danger!</p> <p>Consequences of noncompliance</p> <ul style="list-style-type: none"> ▶ Measures to prevent danger

- **Warning sign:** draws attention to the danger.
- **Signal word:** identifies the degree of the danger.
- **Type and source of danger:** indicates the type and source of the danger.
- **Consequences:** describes what occurs if the safety instructions are not complied with.
- **Precautions:** states how the danger can be avoided.

Hazard classes as defined in ANSI Z535.6

Warning sign, signal word	Meaning
 DANGER	Identifies a dangerous situation that will result in death or serious injuries if it is not avoided.
 WARNING	Identifies a dangerous situation that may result in death or serious injuries if it is not avoided.
 CAUTION	Identifies a dangerous situation that may result in minor to moderate injuries if it is not avoided.
NOTICE	Property damage: The product or the environment may become damaged.

The following symbol indicate information that is not safety-relevant but increases understanding of documentation.

Symbol	Meaning
	If this information is disregarded, the product cannot be used and/or operated to the optimum extent.

2 Safety instructions

2.1 About this chapter

This unit has been manufactured according to the generally accepted rules of current technology. There is, however, still a danger of personal injury or damage to equipment if this chapter and safety instructions in this documentation are not complied with.

- ▶ Read this documentation completely and thoroughly before working with this unit.
- ▶ Keep this documentation in a location where it is accessible to all users at all time.
- ▶ Always include the required documentation when you pass this unit on to third parties.

2.2 Intended use

Cargo hook load test bench is a hydraulic tool designed to safely perform the hook effort test for maintenance purposes.

2.3 Improper use

Any use other than described as intended use shall be considered as improper and is therefore impermissible.

Squirrel's Garage Special Tools is not liable for damages resulting from improper use. The user bears all risks from improper use.

The following forms of foreseeable use are also considered to be improper (this list does not claim to be exhaustive):

- Use outside the operating parameters approved in the data sheet or in the order confirmation (unless specifically approved by the customer).
- Use of non-approved fluids, e.g., water or polyurethane components.
- Change to factory settings by unauthorized persons.
- Use of add-ons (e.g., attachment filter, control unit, valves) not in combination with the specified Squirrel's Garage components.
- Use of this unit in a corrosive atmosphere.

2.4 Personnel qualifications

The activities described in this documentation require basic mechanical and hydraulics expertise, as well as knowledge of the associated technical terms. For transporting and handling the product, additional knowledge is necessary regarding working with lifting devices and their slings. In order to ensure safe use, these activities should only be performed by qualified personnel or an instructed person under the direction and supervision of qualified personnel.

Skilled persons are those who can recognize possible dangers and institute the appropriate safety measures due to their professional training, knowledge, and experience, as well as their understanding of the relevant regulation pertaining to the work to be done. Qualified personnel must follow the rules relevant to their field and have the necessary hydraulics expertise.

Hydraulics expertise includes:

- Reading and fully understanding hydraulic circuit diagrams.
- Specially, fully understanding the relationship regarding safety devices.
- Understanding how hydraulic components work and are put together.



Squirrel's Garage offers support and special instructions of how to operate the tools.

2.5 General safety instructions

- Observe the applicable accident prevention and environmental protection regulations.
- Observe the safety regulations and provisions of the country in which the product is used/operated.
- Use Squirrel's Garage products only when they are in good working order.
- Observe all notices on the product.
- Persons who install, operate, remove or maintain Squirrel's Garage products may not be under influence of alcohol, drugs or medication that may affect their reaction time.
- Only use genuine Squirrel's Garage accessories and spare parts to ensure there is no risk to personnel from unsuitable spare parts.
- Observe the technical data and ambient conditions specified in the product documentation.
- Use tools appropriate for the work being performed and wear appropriate protective clothing to prevent punctures and cuts.

2.6 Product-specific safety instructions



WARNING

Danger from excessively high pressure.

Risk of death or injury, or property damage.

Improperly changing the factory pressure settings can result in a pressure increase beyond the permissible maximum pressure.

Operating the unit above the permissible maximum pressure can cause components to burst and hydraulic fluid to escape under high pressure.

- ▶ Changes to the factory settings must only be made by Squirrel's Garage specialist.

Danger from suspended loads.

Risk of death or injury, or property damage.

Improper transportation may cause the unit to fall down and result in injury, e.g., crushing, fractures or damage to the product.

- ▶ Make sure that the load capacity of the lifting gear is sufficient to safely bear the weight of the unit.
- ▶ Never stand or put your hands under a suspended load.
- ▶ Make sure the unit remains stable during transport.
- ▶ Wear your personal protective equipment (eg., safety goggles, safety gloves, suitable working clothes, safety shoes).
- ▶ Use suitable lifting gear for transportation.
- ▶ Observe the prescribed position of the lifting strap.
- ▶ Observe the national laws and regulations on work and health protection and transportation.

System/machine under pressure.

Risk of death or serious injury when working on machines/systems not secured!

Risk of property damage.

- ▶ Make sure that all relevant components in the hydraulic system are depressurized.
- ▶ Note that the hydraulic system may be still under pressure even after the pressure supply itself has been disconnected.
- ▶ Do not disconnect any line connections, ports and components as long as the hydraulic system is under pressure.



WARNING

Escaping oil mist.

Risk of explosion and fire, health hazard, risk of environmental pollution!

- ▶ Depressurize the relevant machine/system part and repair the leak.
- ▶ Only perform welding work when the machine/system is depressurized.
- ▶ Keep open flames and ignition sources away from the unit.
- ▶ If the unit is located in the vicinity of ignition sources or powerful thermal radiators, a shield must be erected to ensure that any escaped hydraulic fluid cannot be ignited and to protect hose lines from premature aging.

Contact with hydraulic fluid.

Inhalation may result in health hazards or adverse health effect, including eye injuries, skin irritation and poisoning.

- ▶ Avoid contact with hydraulic fluids.
- ▶ When working with hydraulic fluids, strictly observe the safety instruction provided by the lubricant manufacturer.
- ▶ Wear your personal protective equipment (eg., safety goggles, safety gloves, suitable working clothes, safety shoes).
- ▶ Consult a doctor immediately if hydraulic fluid gets in your eyes or bloodstream, or is swallowed.

Escaping hydraulic fluid due to machine/system leakage.

Risk of burns and injury from escaping oil jet.

- ▶ Depressurize the relevant machine/system part and repair the leak.
- ▶ Never attempt to block or seal the leak or oil jet with a cloth.

Danger from improper handling.

Risk of slipping. Risk of slipping on wet surfaces when climbing on the unit.

- ▶ Never grab or climb onto the product.
- ▶ Check how to safely get on top of the machine.

2.7 Personal protective equipment

Personal protective equipment is responsibility of the user of the product. Observe the safety regulations and provisions in your country.

All pieces of personal protective equipment must be intact.

3 General instructions on damage to property and the product

NOTICE

Danger from improper handling.

Product can be damaged.

- ▶ Do not expose the product to excessive mechanical load.
- ▶ Never grab or climb onto the product.
- ▶ Do not place/lay any object on the product.
- ▶ Do not set/place the unit on assembled parts.
- ▶ Do not strike assembled parts (eg., sensors, gauges or valves).

Mixing of hydraulic fluids.

Product can be damaged.

- ▶ Before installation, remove all fluids from the unit to prevent mixing with the hydraulic fluid used in the machine/system.
- ▶ Any mixing of the hydraulic fluids from different manufacturers or different types from the same manufacturer is generally not permitted.

Improper cleaning.

Product can be damaged.

- ▶ Plug all openings with the appropriate protection equipment in order to prevent cleanings agents from entering the hydraulic system.
- ▶ Never use solvents or corrosive cleaning agents. Use only water and, if necessary, a mild cleaning agent to clean the unit.
- ▶ Do not point a high-pressure cleaner at sensitive components.
- ▶ Use lint-free cloths for cleaning.

The warranty only applies to the delivered configuration.

The entitlement to warranty cover will be rendered void if the product is incorrectly installed, commissioned, operated or it is used/handled improperly.

4 About this product

Technical data	
Flow	2,2 cm ² / Stroke
Oil capacity	240 cm ³
Max Load	4500 daN @144 Bar
Stroke	50 mm
Weight	32 Kg

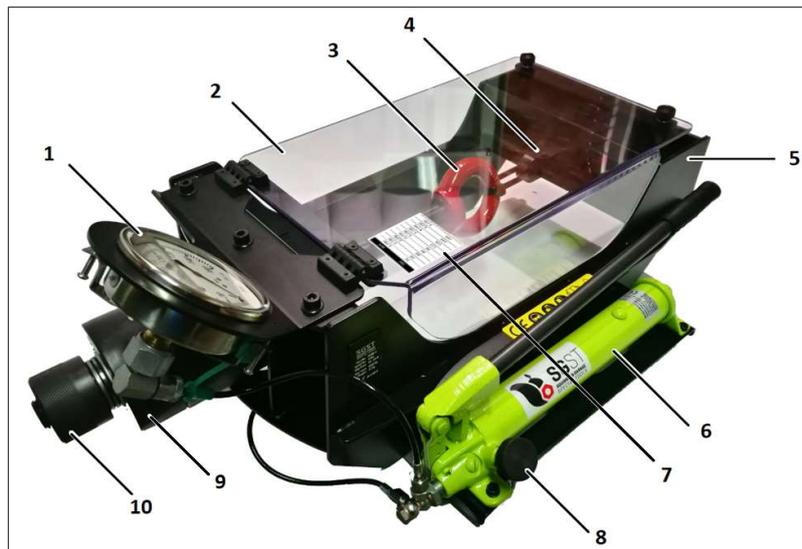
4.1 Performance description

The SGHK-4 Cargo hook load test bench has been designed to test special hooks with up to 5000 daN pulling force.

4.2 Product description

The SGHK-4 is a frame with a manual pump lever and cylinder to increase the test pulling force on the hook proportionally using the system pressure as force indicator.

4.2.1 Layout of the unit



1	Pressure gauge	6	Hydraulic manual pump lever
2	Protective shield	7	Conversion table
3	Eye bolt	8	Release valve
4	Hook bolt	9	Hydraulic cylinder
5	Bench	10	Adjustment knob

4.2.2 Function description

- Hook installation** Place the hook between hook bolt (4) and eye bolt (3), then adjust the hydraulic cylinder (9) stroke tightening with adjustment knob (10).

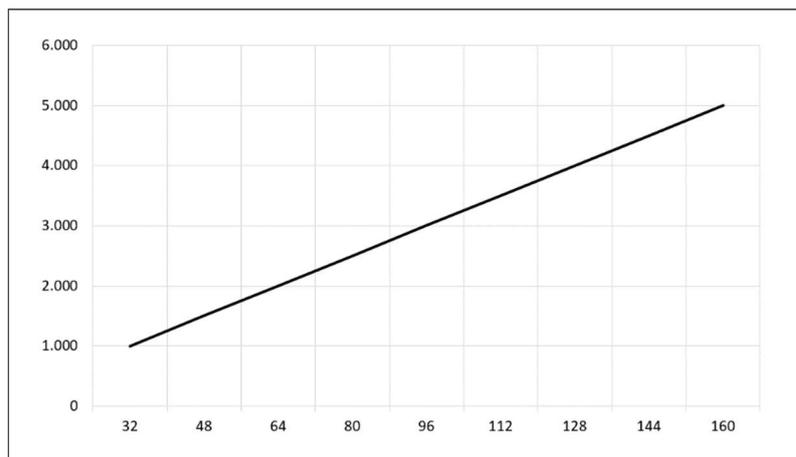
- Protective shield** Close protective shield (2) before operating the hydraulic pump (6).

- Pressure increase** Make sure that release valve (8) remains closed (clockwise) while operating the lever to get pressure according to conversion table (7) to reach desired force.

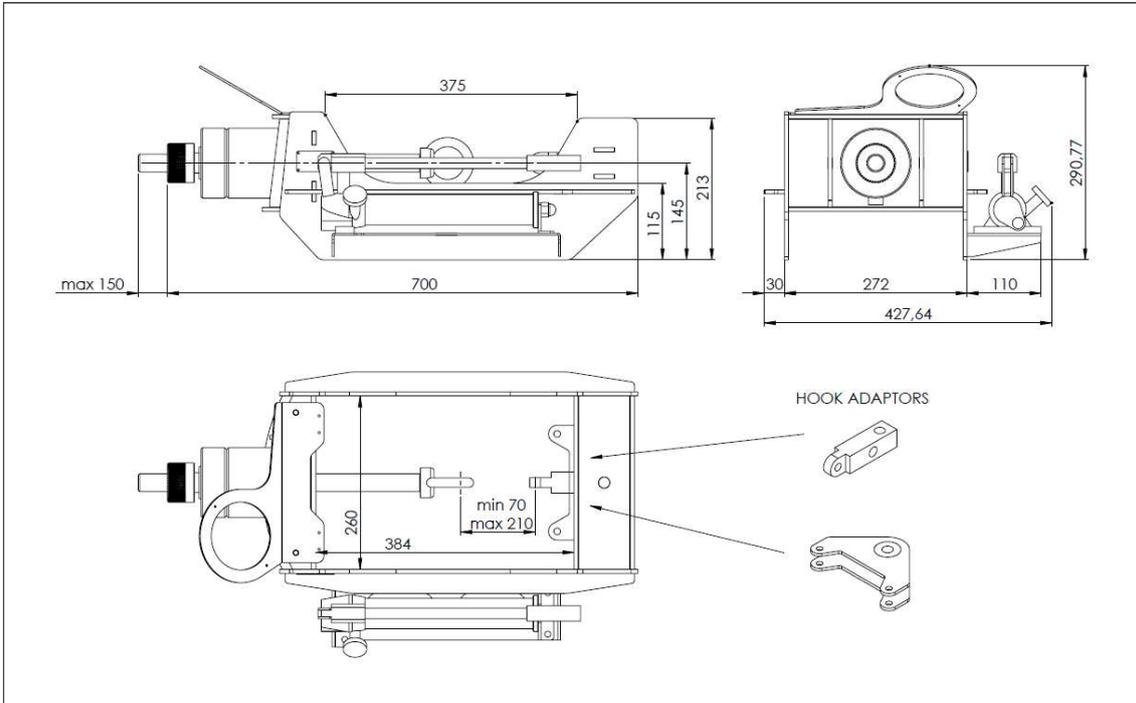
- Depressurize** Open release valve (8) to depressurize the remaining pressure in the circuit by turning the knob counter-clockwise and hydraulic cylinder will go back to initial position by internal spring.

Conversion Bar / daN

Bar	daN
32	1.000
48	1.500
64	2.000
80	2.500
96	3.000
112	3.500
128	4.000
144	4.500
160	5.000



4.3 Dimensions



5 Transport and storage

5.1 Transporting by hand

According to the nominal weight of this unit (aprox. 32 Kg), transport by hand is not permitted.

5.2 Transporting with a lifting device

The unit can be transported with a lifting strap.

WARNING Danger from suspended loads.

During transport with a lifting device, the unit can slip out of the lifting strap and result in injury.

- ▶ Use the widest possible lifting strap.
- ▶ Make sure that the unit is securely fixed with the lifting strap.
- ▶ Only guide the unit by hand for fine positioning and avoid oscillations.
- ▶ Never stand or put your hands under a suspended load.
- ▶ Place the lifting strap around the unit in such a way that it does not pass over attachments (eg., valves, piping, hoses) and that the unit is not suspended from attachments.



Transport with lifting strap

5.3 Storing the unit

Requirements

- The storage areas must be free of corrosive materials and gases.
- To prevent damage to the seals, ozone-forming equipment (e.g., mercury-vapor lamps, high voltage equipment, electric motors, sources of electrical sparks or electrical discharge) must not be operated in storage areas.
- The storage areas must be dry. Recommended relative humidity $\leq 60\%$.
- Ideal storage temperature: $+5^{\circ}\text{C}$ to $+20^{\circ}\text{C}$.
- Minimum storage temperature: -50°C .
- Maximum storage temperature: $+60^{\circ}\text{C}$.
- Keep out of direct sunlight.
- Do not stack the unit and store it in a shock-proof manner.
- Do not store the unit on attachments, valves or gauge.



Warranty is void if the requirements and storage conditions are not observed.

6 Operation

The product requires no settings or changes during operation. For this reason, this chapter of the manual does not contain any information on adjustment option. Use the product only within the performance range specified in the technical data. The operator is responsible for the proper use.

7 Maintenance

The unit is low-maintenance when used properly.
Use hydraulic fluid VG 46 if necessary to fill the tank.



It is highly recommended to calibrate the pressure gauge yearly.

7.1 Inspection

For the unit to be reliable and long-lasting, Squirrel's Garage recommends testing the hydraulic system of this unit in a regular basis, and documenting and archiving the following operating conditions:

Inspection schedule

Task to be performed	Interval
Machine	Every use
Hydraulics	

© Squirrel's Garage Special Tools SL. All rights reserved, also regarding any disposal, exploitation, reproduction, editing, distribution, as well as in the event of applications for industrial property rights.

The data specified within only serves to describe the product. No statements concerning a certain condition or suitability for certain application can be derived from our information. The information given does not release the user from the obligation of own judgement and verification. It must be remembered that our products are subject to a natural process of wear and aging.

The cover shows an example application. The product delivered may differ from the image on the cover.

Squirrel's Garage Special Tools SL

Calle Llobregat 11-13, 2º 1ª

08635 Sant Esteve Sesrovires

Barcelona, Spain

Tel. +34 657 93 53 91

info@sgst.es

www.sgst.es