ANTARES
User Manual

Photo: Jonas Andersson, Lysekil

ANTARES OVAL DRY GLOVE SYSTEM BY SI TECH

www.sitech.se

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INNOVATIVE SAFETY SOLUTIONS – MADE IN SWEDEN

ANTARES - User manual

We want to congratulate you on your purchase of the ANTARES, a Dry Glove System developed and manufactured by SI TECH in Sweden. The oval design and quick lock system will provide you with unique diving experiences in regards to simplicity and comfort. The ANTARES is an extension of the QCS Oval system (launched in 2010). The ANTARES Oval Dry Glove System does not have any external details for a connection and locking procedure. This is a major reason for our success in reducing the outer bulk volume of the system.

Double O-rings keeps the Oval Glove Ring in place and ensures that the system is not leaking. A latch arm on either side of the Oval Glove Ring engages in a locking groove on each side of the Oval Stiff Ring.

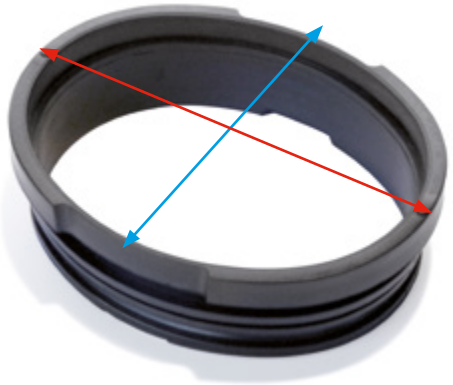
The guide grooves in the Oval Stiff Ring are also designed to facilitate removal of the Oval Glove Ring.

Components

The system itself consists of seven components per arm:

- PU-Rings
- Oval Stiff Rings (ANTARES version)
- Glove Rings
- O-rings
- Blue and green Spanner Rings
- Support Ring
- Wrist Seals (silicone or latex)

This manual does not address the topic of gluing/attaching the PU-Ring of the QCS Oval to your drysuit. Please visit: www.sitech.se for further information.



Benefits

- One of the great benefits with using the Oval rings are the comfort generated by the narrow design.
- The largest outer measure of the Oval Stiff Ring is 110 mm (red) and at its narrow section the same measure is only 86 mm (blue).

Important information

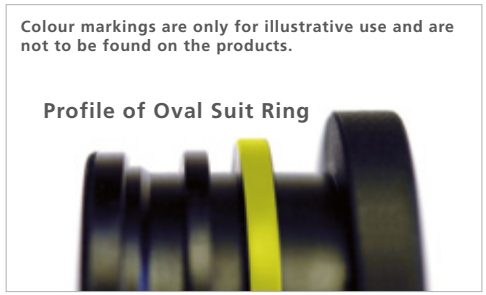
- If you are using the old QCS Oval system, you will need to change the Oval Stiff Ring to the one included with the ANTARES system.
- The different Spanner Rings included in the package allows a variety of gloves to be fitted onto the ANTARES System. The different Spanner Rings are color coded which indicates various thickness. You simply choose the thickness best fitted for your the glove of your choice.
- Always dive the ANTARES System with seals installed.

Profile of the new Oval Stiff Ring

Profile of the old Oval Stiff Ring

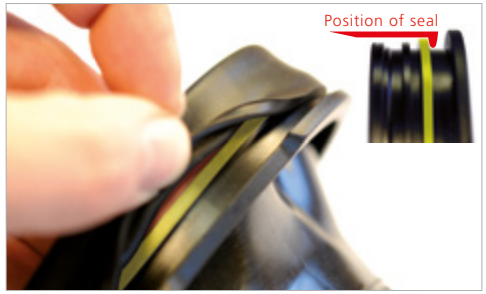
1. Mounting seals

1.1 Assemble the seal by inserting it through the Oval Stiff Ring, and bringing it back 1,5 cm over the ring.



1.2 Different drysuits, drysuit designs and fabrics demands a different approach when mounting the seal. Refer to images **1.3-1.4.**

NOTE: The silicone seal has a shiny surface on one side and a matte finish on the other, bear in mind that it is the matte surface seals against your skin.

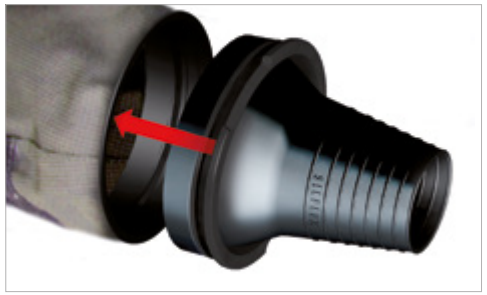


IMPORTANT: These two images illustrate two different ways of positioning the seal depending on the design and fabric of the drysuit and how the PU-Ring is attached into the drysuit! When you have reached the final step in the mounting process of your QCS Oval, one of these mounting alternatives will work better than the other. It is important to try assembling the components both ways to see which one works best.

1.3 Adjust the seal so that it covers the area marked red and aligns towards the part of the Oval Stiff Ring marked yellow.

1.4 The alternative way to do this is to adjust the seal so that it covers the area marked yellow. Prefered alternative depends on the design of the suit!

2. Attach to PU-Ring



2.1 Now it´s time to mount the Oval Stiff Ring with seal into the PU-Ring on the drysuit. Read the step by step instructions carefully so as not to damage the seal or mismatch the rings.

2.2 Keep the seal in a fixed grip and rest the Oval Stiff Ring firmly against your hand, when pressing the rings together. This will prevent the seal from slipping out of position.

2.3 Squeeze the two rings together, make sure that the seal does not slide out of its position.

2.4 if the seal slips out of its groove, it will almost certainly be squashed between the rings. If this happens, detach and restart from image **1.1** (check seal from damage).

2.5 Make sure the Oval Stiff Ring is bottomed out and that the ring flange is in the position shown in the image. Before diving your ANTARES system, you should check that the Oval Stiff Ring and seal has been fixed correctly in position. Grab the seal with one hand and try to pull it in the opposite direction from the suit without using excessive force. If everything feels ok, perform test dive! If not ok, refer to images **1.3-1.4.**

3. ANTARES Support Ring

The ANTARES Support Ring was released in November 2013. It solves locking problems that might occur when the ANTARES Dry Glove System is mounted in drysuits with short arm lengths or when the ANTARES user is wearing heavy duty undergarments.

When a large volume base layer passes inside the oval ring, it creates a bulge of the seal, which in some cases can cover the locking grooves for the latch arms and prevent them to lock onto the grooves.

The Support Ring will guide the latch arms of the ANTARES Glove Ring on its path towards the locking grooves of the ANTARES Oval Stiff Ring. It will at the same time prevent the seal or part of the glove liner to interfere with the locking process.

This chapter will help you to install the Support Ring and able you to fully enjoy your ANTARES Dry Glove System.

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OVAL DRY GLOVE SYSTEM

3.1 Start with pushing the seal so that it gets everted into the drysuit. Place the ANTARES Support Ring as the image shows.

3.2 Gently press and twist the ANTARES Support Ring into position so that it ends up as image **3.3** displays.

3.3 Next step is to fixate the ANTARES Support Ring as close to the ANTARES Oval Stiff Ring as possible without interfering with the seal.

3.4 Stretch the seal from the inside of the drysuit and at the same time press the ANTARES Support Ring to its final position. No part of the seal shall then be visible between the ANTARES Support Ring and the ANTARES Oval Stiff Ring.

3.5 Ensure the support flanges aligns with the locking grooves of the ANTARES Oval Stiff Ring as this left image displays.

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4. Detaching the QCS Oval assembly

4.1 Grab the QCS Oval assembly as shown in these images. Push the front end of the PU-Ring up and away from the Oval Stiff Ring using your thumbs. At the same time press the back end of the PU-Ring inwards to press the Oval Stiff Ring out of its position to release the whole assembly.

5. Attach glove

The ANTARES Dry Glove System is offering the user to choose from a variety of gloves. It is of great importance that you check the strength of the attachment as shown in image **5.6** after you have completed the attachment procedure.

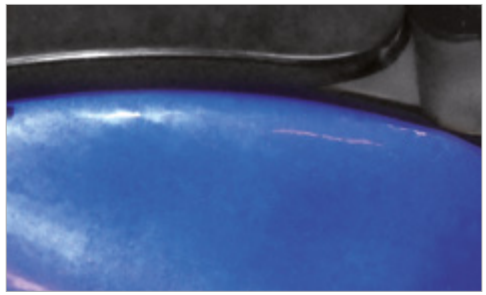
The two Spanner Rings included in the package allows a variety of gloves. The two Spanner Rings are color coded which indicates various thickness. You simply choose the thickness best fitted for your choice of gloves.

The surface of some fabrics as well as the thickness of some gloves will not be suitable for the system. It is crucial for the safety of the diver that the strength test **(5.6)** is made!

5.1 Place the Oval Spanner Ring on the inside of the glove. Make sure to find proper position for optimized length and ergonomics.

5.2 Fold the glove shaft inwards over the Oval Spanner Ring (latex gloves can be fitted and folded the opposite way).

5.3 Press the glove with Oval Spanner Ring evenly into the Oval Glove Ring.



5.4 Check for creases on the glove continously when pressing the Glove/Oval Spanner Ring into final position. The glove should be positioned as displayed in this image.

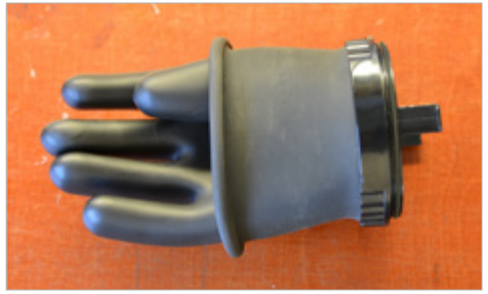
5.5 Press the glove and Oval Spanner Ring so that it bottoms in the Oval Glove Ring. Perform this procedure 360° around the ring.

5.6 Test the strength of attachment by pulling the Oval Glove Ring and the glove in the opposite direction.

5.7 For the best comfort and performance, cut back excess glove material.
Our recommendation is to remove enough excess material to prevent interference with the latch arms.

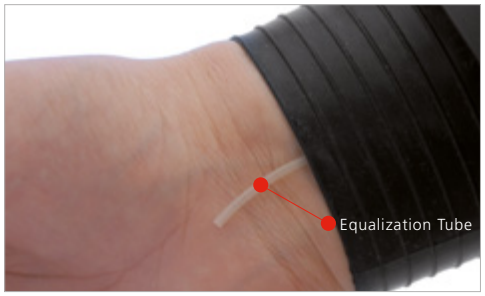
Alternative usage

There is an alternative way to fit and use dry gloves together with the ANTARES Dry Glove System. By using this procedure, you will automatically protect the system from debris and rust, as well as damages caused by shock.



Locate the Oval Spanner Ring on the outside of the glove, fold the cuff of the glove over it to prefered length and mount it into the Oval Glove Ring. When diving, you simply use the extended cuff as protection over the ANTARES Dry Glove System.

6. Donning

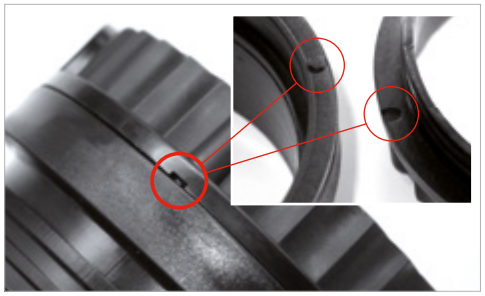


6.1 Put your hand through the seal and fit the Equalization Tube between seal and wrist. Make sure the Equalization Tube reaches all the way through the seal.

6.2 When using inner gloves, make sure that no part of the inner glove interferes with the seals, O-rings or Oval Rings.

6.3 Begin by aligning the Oval Rings before you start pressing the assembly together. This is crucial! Otherwise, the latch arms may not lock into the locking grooves.

6.4 Press the Oval Glove Ring into the Oval Stiff Ring on both sides until you see that it has bottomed and is properly fitted.



6.5 Check the fittings between the Oval Glove Ring and the Oval Stiff Ring. Ensure the latch arms have locked into the locking grooves and that the alignment nuts has positioned itself in its aligment grooves.

Dive the system in shallow waters until you feel confident with the system!

7. Doffing

7.1 Hold the drysuit side of the system firmly as displayed in the image above. (Hold steady when initiating hand rotation.)

7.2 Make a fist. This action will inhibit the movement of glove fabric when rotating your hand to release the system.

7.3 Turn your hand "thumbs inwards" and strive to push your hand forward until the system will unlock and release. In some cases it is easier for some users to turn the hand "thumb outwards". This may be dependant on how the user has positioned the Oval Glove Ring in conjunction with the drysuit.

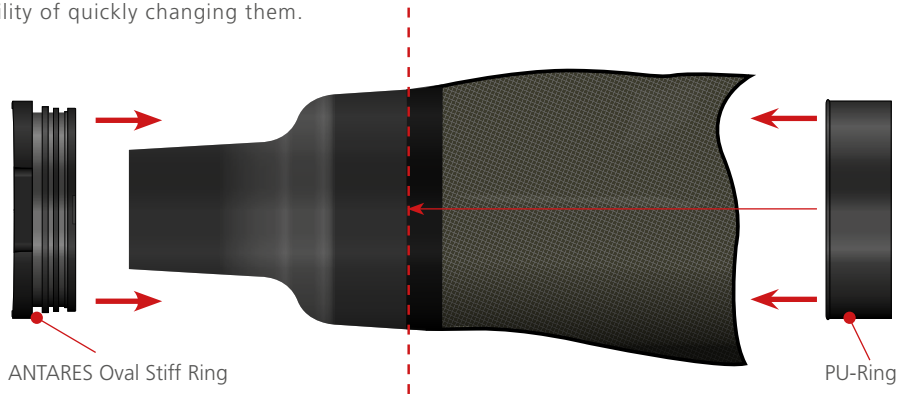
7.4 The Oval Glove Ring and glove is now unlocked and opened, ready to be removed.

These are suggested instructions only

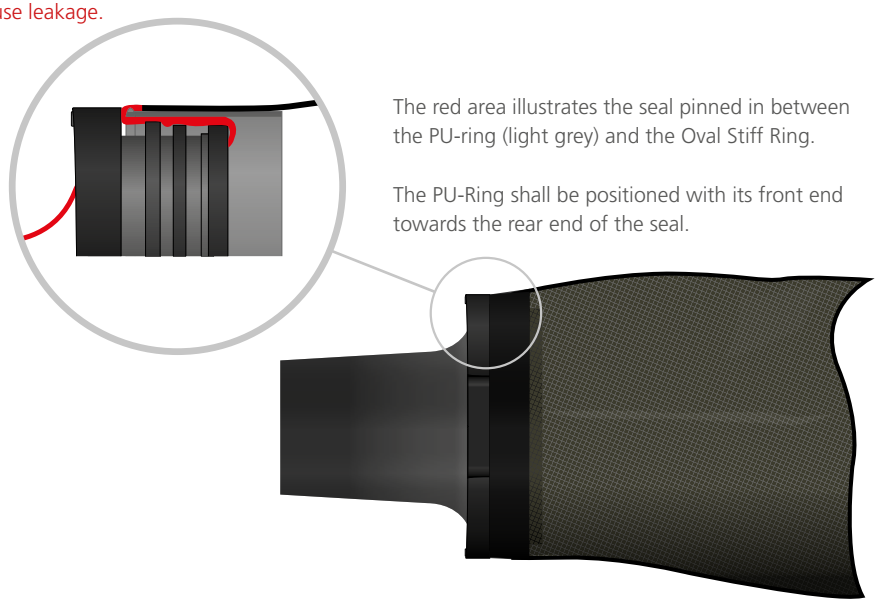
Whatever method chosen, be certain the wrist seal, be it latex or silicone, is properly treated. Always make a leakage and stress test on your drysuit seals before diving.

Attachment to fixed seals

This method of fitting the ANTARES system is an alternative to the usual procedure of gluing the PU-Ring onto the drysuit. Use this method if you are happy to use fixed seals without the ability of quickly changing them.



Locate the PU-Ring on the inside of the suit, with its front end positioned at the rear end of the seal. Keep it here while threading the ANTARES Oval Stiff Ring on top of the seal and finally pressing it into the PU-Ring with the seal pinned in between. Ensure that the Oval Stiff Ring is as close as bottomed into the PU-Ring as possible and that the seal has not been pinned double as this can cause leakage.



The red area illustrates the seal pinned in between the PU-ring (light grey) and the Oval Stiff Ring.

The PU-Ring shall be positioned with its front end towards the rear end of the seal.

Tips, Tricks and Troubleshooting

The ANTARES Dry Glove System is a technically advanced Dry Glove System because of its oval shape and slim design. The locking system has some advanced features to keep the slim design. The system itself requires some training and practice before handling comfort arises in regards to donning and doffing.

Here are some tips from the test divers who evaluated the system:

- O-rings should be generously lubricated. Remove old lubricant residues from adjacent parts of the system before joining the rings together.
- Ensure that the alignment nut has reached its correct position and that the Oval Glove Ring has bottomed into the Oval Stiff Ring.

Leakage problems?

- Check for scratches and tears in the glove.
- Make sure that your inner glove has not interfered with O-rings or latch arms/locking grooves.
- Ensure that the inside of the Oval Stiff Ring is clean.
- Ensure that the O-rings are clean, undamaged and properly lubricated.
- Ensure that the latch arms and locking grooves are clean from debris or grease.
- Check for creases in the attachment area between Glove and Oval Glove Ring.
- Check so that the alignment nut is in its correct position and that the Oval Glove Ring has bottomed in its position of the Oval Stiff Ring.
- If leakage occurs when you are twisting and moving your hand, your glove is most likely too short. When you twist your hand, the glove will get stretched and force the Oval Glove Ring to open up slightly.

Problems with releasing the system after dive?

If the Oval Glove Ring is jammed and does not want to come off, this is most likely a result of poor maintenance and/or improper lubrication of O-Rings. O-rings must be clean and lubricated before each use. The Oval Stiff Ring and the Oval Glove Ring should not be joined together when not in use. This can result in lubricant rancidity which will make the Oval Glove Ring extremely hard to remove.

Maintenance and Storage

- Always disassemble the Oval Stiff Ring and the Oval Glove Ring when not in use!
- The O-rings must be cleaned and lubricated before use.
- Remove the Oval Stiff Ring regularly to rinse the wrist seal of salt or debris and to relieve the Wrist Rings and seals from stress settings that will occur when the units are left assemble over any period of time. Avoid exposing the PU-Ring to heat or sunlight. Subjecting the assembled unit to prolonged heat or sunlight with an inserted cuff seal is not recommended.

Spare Parts

Item no.	Item
60251	PU-Ring for QCS Oval
60260	ANTARES Oval Stiff Ring
60261	Glove Ring
60263	Spanner Ring, blue: For medium fabrics
60264	Spanner Ring, green: For thin fabrics
80173	O-ring, black
60540	Lube Stick
60233	Pressure Equalization Tube
61025	Silicone Seal, Standard (circumference 13,2-17 cm / 5,2-6,7”)
61026	Silicone Seal, Small (circumference 10,6-15 cm / 4,2-5,9”)
61060	Latex Seal, X-Small (circumference 12,5-14 cm / 5,0-5,5”)
61061	Latex Seal, Small (circumference 13,5-16 cm / 5,4-6,4”)
61062	Latex Seal, Medium (circumference 15,5-18 cm / 6,2-7,4”)
61063	Latex Seal, Large (circumference 18-21 cm / 7,2-8,4”)
60266	ANTARES Support Ring

SI TECH is a Swedish company focusing on manufacturing and marketing of components for protective suits such as; drysuits, rescue suits and garments designed for diverse hostile environments. SI TECH is rooted in the diving industry which is still the company’s core market. The company was founded in 1971 by the diving pioneer Stig Insulán.

Core products

Modular Quick Change Solutions, Drysuit Valves, Drysuit seals, Dry Glove Systems, Gas Inflation Systems and special components for military purposes

Inhouse capabilities

Development and production is made in-house at our facilities in Brastad, Sweden. Inhouse competencies include: CAD construction, Injection Molding, CNC Machining, EMD Machining, Assembly, Sales and Marketing, Logistics and Administration. Our team of engineers, sales and marketing personell have close co-operation with the distributors and end-users of our products.

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