

Introduction

Congratulations for choosing the quality and reliability of a SEACSUB S.p.A. product. The equipment you bought was produced using selected and tested materials. Our constant evolution results from continuous research and development. Innovative production processes, constant testing and actual functionality tests developed at our research centre guarantees the reliability characterizing all SEACSUB S.p.A. products.

Warning!

**This booklet is not a diving manual!
Read the whole instruction handbook before using this equipment!**

This manual for use must be preserved for the whole life of the product!

General Instructions

- ▶ Before using the regulator or any other products for underwater diving, you should attend a course held by qualified instructors and obtain the relevant diving certificate. The use of diving equipment by non certified divers is dangerous and can lead to serious accidents, or even death, to the diver and his/her diving mates.
- ▶ During the assembly and tuning of the regulator, every step was taken to ensure high reliability of the product over a period of time. These steps however may become ineffective if the regulator is not used correctly and if adequate maintenance is not provided. Seacsub S.p.A declines any liability for any problem arising from non-compliance with the instructions contained in this handbook.

- ▶ For any other problem, please contact your Seacsub dealer or Seacsub S.p.A. directly. Only servicing centres authorized by Seacsub S.p.A. may carry out repairs or maintenance.
- ▶ SEACSUB S.p.A. diving regulators are the result of a research carried out in close cooperation with many professional divers. Their innovative features ensure a reliability which remains unchanged even after a long series of dives. At the same time, easy mechanics and operation allow an extremely simple maintenance.
- ▶ If you are not experienced in the use of this equipment, we strongly advise you to get familiar with its operation during test diving in shallow waters and under favorable conditions; if needed, contact a qualified instructor for a refresher course.
- ▶ This diving regulator has been certified according to standard EN 250: 2000 which has provided a long series of functional tests up to a maximum depth of 50 meters and at a temperature of 4 degrees centigrade (test tolerance range -2°C/ +0°C).

Warning!

This diving regulator is designed to be used with normal atmospheric air complying with the specifications of standard EN 12021.

Danger!

Do not use this or any other product of the Seacsub S.p.A. range with other gases or oxygen enriched air mixtures (usually known as NITROX). Failure to follow this recommendation could cause serious accidents or even death, due to fire or explosions, or seriously damage your equipment.

Reference to European Standard EN 250: 2000

PURPOSE - DEFINITIONS - LIMITS

The purpose of the requirements and tests specified by standard EN 250: 2000 is to ensure a minimum safety level for the operation of Self-Contained Underwater Breathing Apparatus (SCUBA) at a maximum depth of 50 meters.

SCUBA Definition:

Compressed-air open-circuit underwater breathing apparatus contained in a cylinder.

SCUBA - MINIMUM EQUIPMENT REQUIRED (EN 250 : 2000)

1. Cylinder body and valve assembly (cylinder assembly)
2. Regulator
3. Pressure gauge or pressure control, reserve or alarm device
4. System for cylinder support, transport and connection to the diver (back-piece and/or straps)
5. Head equipment (mouthpiece or complete mask or diving helmet)
6. Instructions for use

SCUBA - Component assemblies (EN 250 : 2000)

- ▶ The Scuba may consist of separate component assemblies, such as:
Cylinder assembly, Regulator, Pressure gauge, Support-transport system.
- ▶ Cylinder assembly defines the assembly of cylinder body, valve and cylinder boot, if any.
- ▶ The SEACSUB S.p.A. regulators described in this handbook are to be used in the SCUBA assembly and are certified in compliance with European Directive 89/686/EC and standard EN 250 : 2000.
- ▶ The compressed air contained in the cylinder assembly shall comply with the requirements for breathable air defined in EN 12021 : 1998

Warning!

The following instructions shall be integrated with the relevant to the other components of your SCUBA. Before using your SEAC SUB regulator, read carefully all the instructions for use contained in the relevant handbooks.

CE Certification

The SEACSUB S.p.A. regulators described in this handbook were tested and certified by the notified testing body 0474 RINA, Genoa office (Italy) in compliance with Directive 89/686/EEC of 21 December 1989.

Tests were carried out in compliance with standard EN 250: 2000, implementing the above Directive, which defines the conditions of sale and the essential safety requirements of Third-Category Individual Protection devices (DPI).

CE marking means compliance with the essential health and safety requirements (Ann. II DE 89/686/EEC). Number 0474 "CE" identifies the notified testing Body RINA in charge of production control under Art. 11B DE 89/686/EEC.

The certification obtained for the D-SYNCHRO, D-SYNCHRO ICE, M-SYNCHRO, P-SYNCHRO, SYNCHRO OCTO provides possible use in both of the following categories:

- ▶ Regulators for non-cold waters, having a water temperature equal to or exceeding +10° C
- ▶ Regulators for cold waters, having a water temperature lower than +10° C

In compliance with standard EN 250 : 2000, waters are considered cold when their temperature is lower than + 10° C.

MARK ON EACH REGULATOR:  0474

NEW SERIES OF SYNCHRO REGULATORS

The family of Seacsub regulators is expanding its range with the new SYNCHRO series. Developed through of the experience of noted experts in this sector and thanks to the continuous collaboration of our diving centres situated throughout the world. This new series of regulators characteristic reliability has astounded people with its excellent performance, and its simple functioning and maintenance.

As our intention is to offer a wide selection of products, we have combined the SYNCHRO

second stage with different types of first stages.

The various combinations include the first stage with conventional piston or with two versions of balanced diaphragm. The same is assembled in a standard 230 bar version with threaded yoke and threaded coupler or in an antifreeze versions, as well as an Octopus version.

For an easy identification of each combination, there is a special label on the second stage that identifies the model.



DIAPHRAGM
BALANCED



DIAPHRAGM
BALANCED



CONVENTIONAL
PISTON



OCTOPUS

D-SYNCHRO REGULATOR

FIRST STAGE

This first stage combines very high performance with an extremely compact and round shape.

Operation is ensured by a balanced diaphragm system which keeps a constant intermediate pressure with reference to both tank pressure and depth. In addition, the diaphragm completely separates the regulator core from the external environment, ensuring total reliability over a long series of dives.

It is cast as a single block of copper-plated brass, subsequently nickel- and chrome-plated. The outer finish in polished chrome guarantees the first stage high resistance to saline corrosion over time, as the extremely smooth surface allows no type of anchorage.

Internal components are manufactured from chrome-plated brass with music-wire springs and nitrile-rubber seals. Particular care has been given to the separating diaphragm, made of a special rubber, which remains unchanged and is resistant to low temperatures. Four low-pressure ports, provided with 3/8" thread, supply a constant pressure of 9.8 bars; all ports are considered preferential, as they are implemented on the same axis; in addition, two of them are positioned at 30° with regard to the first stage body, so as to make the correct bending of the valves inserted

easier; the most important components, such as the main regulator (on the right) and the jacket or dry diving suit hose (on the left), shall be connected to these two ports.

In decentralized position there are two high-pressure ports (one to the right and the other to the left) with 7/16" thread and inner hole having a 0.20 mm. diameter; a diving pressure-gauge may be connected to these high-pressure ports, to check the internal pressure of the cylinder used, by means of a hose with 7/16" thread male connection.

Particular attention has been paid to the YOKE connection (Fig. 1)

The round shape and the technical details make it extremely strong and functional, adaptable to any type of valves. The ergonomic locking handle (Fig. 2) allows a safe blocking of the yoke without needing to use excessive force; the movement to loosen the handle when disassembling the regulator will be just as easy.

The intermediate pressure upon exiting the first stage is 9.8 Bar. Periodic control allows the correct functioning of the regulator over time, maintaining its performance characteristics. For this purpose, we recommend carefully following the maintenance instructions below.

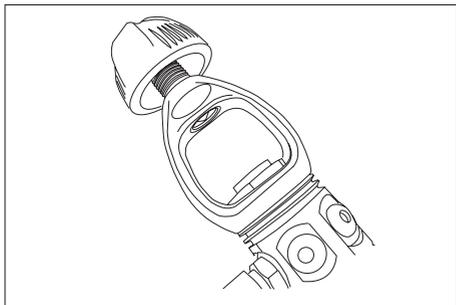


Fig. 1

Warning!

Use only CE certified pressure gauges provided with standard thread. Do not use any type of adapter between the first stage and the high pressure hose connection.

The D-SYNCHRO first stage has been designed to operate with cylinder working pressures up to 300 bar. For pressure exceeding 230 bar it is advisable to use the version provided with the 300 bar thread connection (THREAD CONNECTION ISO 12209-2/3.2; 300 BAR) implemented in our model D-SYNCHRO ICE

The D-SYNCHRO first stage is implemented in the following versions:

- ▶ International YOKE connection (ISO 12209-1 230 BAR)
- ▶ THREAD connection (ISO 12209-2/3.5; 230 BAR)

D-SYNCHRO ICE REGULATOR FIRST STAGE

First stage has the same characteristics as the D-SYNCHRO version, but with the addition of the innovative ANTIFREEZE DRY SYSTEM (Fig.3).

This system enables diving under extreme temperature conditions, while maintaining operating characteristics.

An antifreeze silicone separating diaphragm, placed at the end of the first stage insulates the regulator mechanics from the outside.

The external pressure needed for a correct and constant equilibrium of the first stage is transmitted by means of a simple and functional mechanism that assures correct functioning under any environmental, pressure, or immersion conditions.

This version is suggested for those who dive in cold waters or in mountain lakes where the

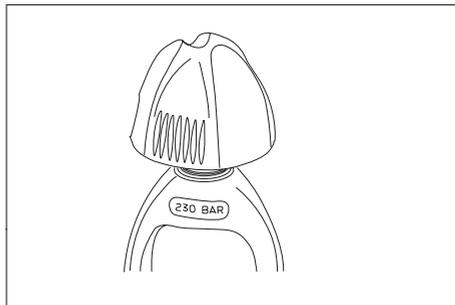


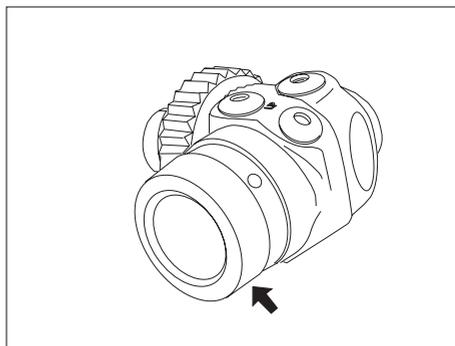
Fig. 2

water temperature may reach temperatures near zero and where the outdoor temperature goes well below zero.

The D-SYNCHRO ICE version first stage is implemented in the following versions:

- ▶ International YOKE connection (ISO 12209-1 230 BAR)
- ▶ THREAD connection (ISO 12209-2/3.5; 230 BAR)
- ▶ Thread connection (ISO 12209-2/3.2; 300 BAR)

Fig. 3



M-SYNCHRO REGULATOR FIRST STAGE

An extremely compact and rounded first stage.

Optimal functioning of the M-Synchro version is guaranteed by a balanced diaphragm system that allows the diver to maintain absolutely constant intermediate pressure in relation to the internal tank pressure as well as the depth reached. Advanced CNC machining of copper-plated brass bar stock offers optimal results in terms of precision and reliability.

ty. The machined parts are then nickel and chrome plated. The polished chrome outer finish guarantees the first stage high resistance to saline corrosion over time because the extremely smooth surface allows absolutely no anchorage.

Four low-pressure outlets with 3/8" thread supply a constant pressure of 9.8 bar. The two outlets near the separation diaphragm are preferential and for maximum flow, while the other two are advisable for the connection of service hoses, like those for the jacket or the dry suit.

There are two high-pressure outlets in lateral positions (one to the right and one to the left) with 7/16" thread and 0.20 mm inner hole. These high-pressure outlets may be used to connect an underwater pressure gauge to control the inner pressure of the tank being used. This connection can be made with a hose with a 7/16" threaded male end.

The M-SYNCHRO also features a new connecting YOKE (Fig. 1).

The round shape and the technical details make it extremely strong and functional, adaptable to any type of valves. The ergonomic locking handle (Fig. 2) allows safe blocking of the yoke without needing to use excessive force; the movement to loosen the handle when disassembling the regulator will be just as easy

The intermediate pressure exiting the first stage is 9.8 Bar. Periodic control allows the correct functioning of the regulator over time, maintaining its performance characteristics. For this purpose, we recommend carefully following the maintenance instructions below.

Warning!

Use only CE certified pressure gauges provided with standard thread. Do not use any type of adapter between the first stage and the high-pressure hose connection.

The M-SYNCHRO first stage is implemented in the following versions:

- ▶ International YOKE connection (ISO 12209-1 230 BAR)
- ▶ THREAD connection (ISO 12209-2/3.5; 230 BAR)

P-SYNCHRO REGULATOR FIRST STAGE

The simpler of the SEACSUB first stages has its strong points in its lightness and ease of maintenance. Its features place it fully within the strictest parameters required by European standards, allowing the ability of this model for use in cold waters. This most recent and important technical recognition allows the regulator an ample range of use and the possibility to carry out high-level sport diving with the maximum peace of mind under any environmental conditions.

Its functioning is ensured by a conventional piston inside an integrated brass chamber with three layers of electro-galvanized coatings for a total thickness of 12 -15 microns. The internal parts are always in chrome and/or nickel-plated brass with harmonic stainless steel springs and nitrile rubber gaskets.

Eight slots on the head of the piston chamber allow an immediate and constant compensation of the pressure while facilitating the passage of water. This latter technical feature further facilitates proper functioning in cold waters.

Even the P-SYNCHRO YOKE version has a new ergonomic yoke equipped with the new specially designed blocking knob.

Four low-pressure outlets with a 3/8" thread provide a starting pressure of about 10 bar; there is also a high-pressure outlet with a 7/16" thread and inner hole with a diameter of 0.20 mm. This high-pressure outlet can also be fitted with an underwater pressure gauge by means of a hose with a male 7/16" terminal. Particular care was taken in positioning the various outlets with angles studied specifically to give the correct curvature to each hose connected.

The protective rubber hood at the base of the regulator will protect it from damage caused by accidental impacts (Fig. 4).

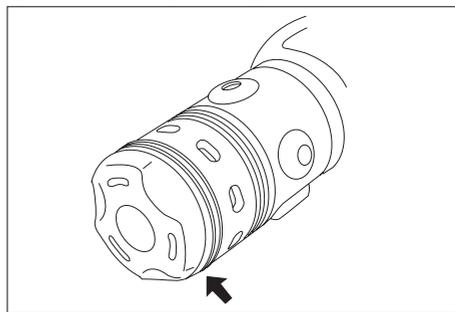


Fig. 4

Attention!

Only use EC-certified pressure gauges with standard threads; avoid using any other valves between the first stage and the high-pressure hose terminal.

The P-Synchro regulator can easily support tank pressure up to 300 bar; however we recommend using this first stage with the connection supplied by SEAC and subjected to EC certification.

The P-SYNCHRO first stage is available in the following versions:

- ▶ International yoke connection (YOKE ISO 12209-1 230 BAR)
- ▶ Thread Connection (THREAD CONNECTION ISO 12209-2/3.5; 230 BAR)

Attention!

To use the YOKE connection (ISO 12209-1 230 bar) or the THREAD connection (ISO 12209-2/3.5; 230 bar), you must use a cylinder having valves fitted with the relevant connections.

It may be necessary to remove the adaptor on the valve outlet depending on the type of connection being used.

We recommend acquiring a 5 mm Allen Key (ISO 12209-3) to be used on the valves and to remove or insert the adaptor in order to obtain the correct connection.

Attention! It is still possible to find valves with adaptors that require the use of an 8 mm Allen key for assembly/disassembly. This adaptor refers to the previous standard. There are no other contraindications against using this valve or adaptor from a safety point of view.

Concerning the 300 bar THREAD connection (ISO 12209-2/3.2; 300 bar), only the relevant connection with the valves shall be used.

As an alternative, it is possible to use connection adaptors that allow you to use regulators with threaded ISO 12209-2/3.5 230 BAR connections on valves with YOKE ISO 12209-1 230 BAR connections. These adaptors conform to ISO 12209/3 standards.

SYNCHRO REGULATOR

SECOND STAGE

When designing this new second stage we took into account all suggestions and com-

ments that we received over the years from our diving centers and expert divers form all over the world.

The SYNCHRO second stage is built with regard to the technical details of every component while seeking to optimize performance, security, and comfort.

The careful selection of materials and in depth study of the components has allowed a reduction in the overall respiratory efforts, offering linear and constant ease of breathing.

The Venturi effect obtained with the SYNCHRO second stage allows a gradual and abundant airflow that naturally varies according to the inhalation demanded.

An externally adjustable flow deviator (Dive and Pre-Dive) allows the optimization of airflow according to the breathing needs of every individual diver.

Each individual component was subjected to in depth study and continual laboratory testing to optimize performance.

The asymmetric form of the flow lever (Fig.5) allows a longer course, therefore increasing the performance in air flow.

Each metal component is perfectly chrome-plated and polished in order to reduce friction and, consequentially, reduce inhalation effort.

The concave outer air conveyor, commonly known as the deflector, allows the diver to rest his chin (Fig. 6), a divisor inside protects the dump valve from the risk of uncontrolled opening in case of diving in the presence of strong currents.

The larger oval-shaped dump valve (Fig. 7) allows a sudden dumping of air, reducing the breathing effort to a minimum.

The new anatomically shaped mouthpiece (Fig. 8) fits comfortably into the mouth while adapting to any shape; this excellent result was obtained thanks to research carried out in dentistry and to the tests carried out on samples given by hundreds of divers.

The particular grip allows the mouthpiece to remain fixed in the mouth even in the presence of strong currents. The correct hardness of the silicon gives the mouthpiece a considerable life span while maintaining its softness and anatomic fit.

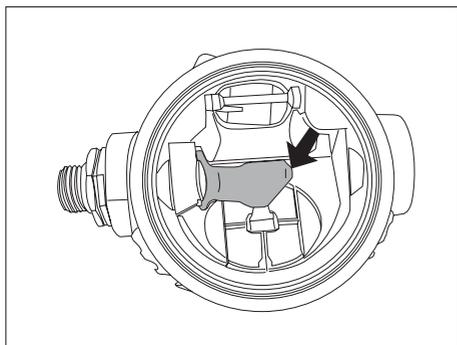


Fig. 5

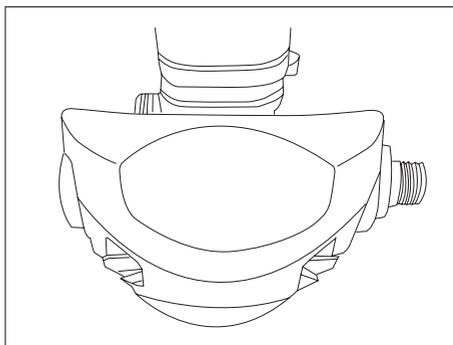


Fig. 6

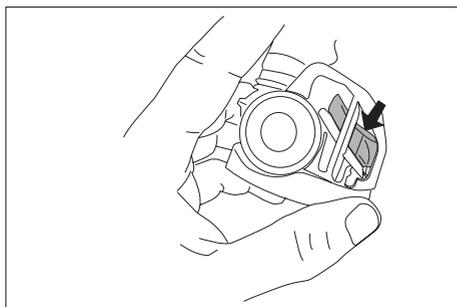


Fig. 6b

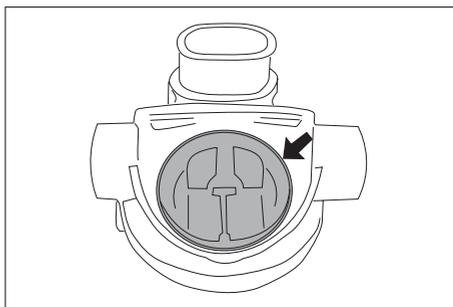


Fig. 7

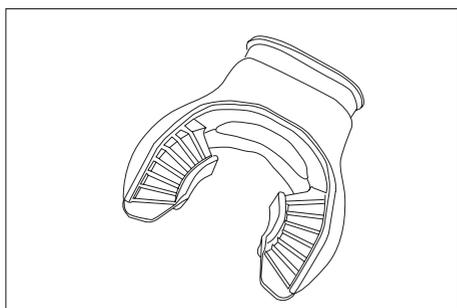


Fig. 8

An inner locknut blocks the membrane (Fig. 9) and fixes it solidly to the casing, increasing safety and functionality. This component eliminates the risk of losing the membrane in the case the external cap should unexpectedly become loose.

The external cap (Fig. 10) is made of rubber that is highly resistant to sunlight and saline corrosion. Its special shape makes it easy to find the centre, therefore facilitating the manual regulation of the pressure.

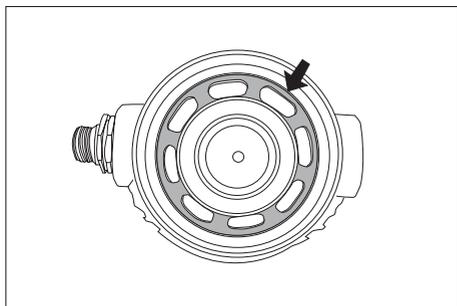


Fig. 9

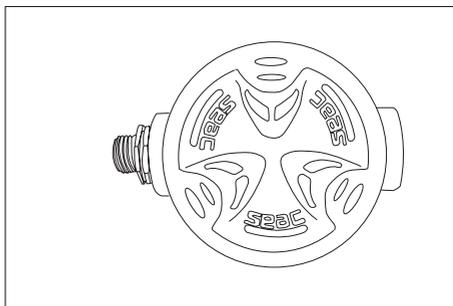


Fig. 10

The membrane is made in transparent, elastic silicon while the central disk is made from acetate resin to eliminate any friction in order to further facilitate inhalation.

The casing is produced from synthetic resin, particularly resistant to impact, abrasion, ultraviolet rays, and external chemical agents. The O-rings are in nitrile rubber subdivided into different degrees of hardness (shore) according to their applications. The internal components are made from chrome-plated brass and stainless steel.

The operation is of the "Downstream" type. This system allows for low air consumption by reducing air waste, as it perfectly meets the breathing demand.

This means that the air flow delivery is perfectly controlled by the diver's breathing action: a normal breathing action produces a light air flow, while heavy breathing due to fatigue or deep diving produces a free air flow, also increased by the Venturi effect.

In addition, this system also provides safety margins in case of first stage overpressure: should the intermediate pressure supplied by the first stage suddenly increase, the second stage would continue to work, thus releasing excess pressure and enabling the diver to breathe.

The control of the DIVE and PRE-DIVE mechanism adjust the Venturi effect. The lever, regulating the breathing effort reduction system, control this system. By actuating this mechanism placed to the left of the second stage you can adjust the Venturi effect and consequently increase air delivery.

By turning the lever towards the outside you reach the "DIVE" position, and by turning the lever towards the diver you reach the "PRE-DIVE" position (Fig. 11).

The "PRE-DIVE" position is recommended to prevent accidental delivery when the regulator is under pressure but not in use, while the "DIVE" position is recommended during the dive.

Warning! Move the lever to "PRE-DIVE" only when the regulator is not used, and rotate it to "DIVE" before starting diving.

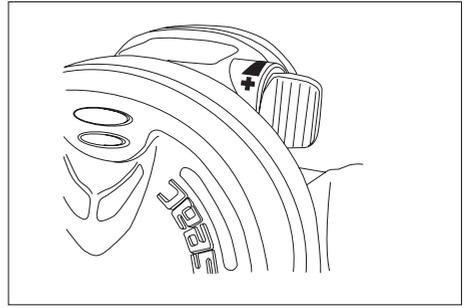


Fig. 11

SYNCHRO OCTO.

The technical specifications and the materials used for the SYNCHRO OCTO are the same as for the second stage version assembled on the previous described D-SYNCHRO, D-SYNCHRO ICE, M-SYNCHRO and P-SYNCHRO regulators.

The only differences are in the color of the shield, which is yellow, especially designed for easy identification in case of quick use, and in the hose, which is also yellow. The latter is especially made with a length of 1000 mm (3/8" thread) for easier use in emergency conditions.

We recommend correct positioning of the SYNCHRO OCTO to PRE-DIVE and with the air flow regulation knob fully screwed up if it is used as an auxiliary or emergency regulator. A certified technician shall only carry out assembly of the SYNCHRO OCTO first stage in order to ensure the functionality and safety requirements needed.

Use a common 4 mm Allen key to remove the low pressure port closing cap (3/8" thread) then make sure that the O-ring is present, inserted and positioned in the hose over the relevant thread. Screw up the hose with your fingers until the end stop is met, and then tighten the nut with a 14 mm spanner without using excessive force.

Check for proper operation by putting the assembled regulator under pressure from a cylinder before the dive.

Warning!

For safety reasons you are recommended to use the SYNCHRO OCTO only on the D-SYNCHRO, D-SYNCHRO ICE, M-SYNCHRO and P-SYNCHRO first stages having an intermediate pressure of 9.8/10,2 bar.

The use of the SYNCHRO OCTO connected to other first stages automatically makes the CE Certification null and void, as the latter was obtained with tests carried out with connection of the SYNCHRO OCTO to Seacsub S.p.A. first stages.

Failure to comply with this recommendation may also cause malfunctioning of the second stage and serious accidents may result.

Warning!

Do not use adapters for any reason with the purpose of connecting the low pressure hose and relevant second stage to the high pressure port identified by letters HP. Low pressure components were designed and implemented to operate with pressures not exceeding 20 bar. Failure to comply with this warning may cause serious damage to persons and equipment.

Be extremely careful when handling components that are under pressure.

TECHNICAL SPECIFICATIONS

SPECIFICATION DESCRIPTION	D-SYNCHRO	D-SYNCHRO ICE	M-SYNCHRO	P-SYNCHRO	SYNCHRO-OCTO
CE Certification	Cold Water < 10 c°			Cold Water < 10 c°	Cold Water < 10 c°
Mark and Certifying Body	CE 0474			CE 0474	CE 0474
Mark Position	On the first stage			On the first stage	On the hose
First Stage System	H.F. Balanced Diaphragm			Conventional Piston	-
Antifreeze Dry System	YES D-Synchro Ice version			No	-
Low Pressure ports	No. 4 3/8" UNP			No. 4 3/8" UNP	-
High Pressure ports	No. 2 7/16 UNP			No. 1 7/16 UNP	-
Intermediate Pressure	9,8 bar			10 bar	-
First Stage weight					
Yoke 230 bar	890 gr			650 gr	-
Thread 230 bar	720 gr			460 gr	-
Thread 300 bar Antifreeze	770 gr			-	-
M-Synchro First Stage weight					
Yoke 230 bar	790 gr				
Thread 230 bar	630 gr				
Hose Length	770 mm			770 mm	1000 mm
Second Stage System	Downstream Venturi Effect			Downstream Venturi Effect	Downstream Venturi Effect
Second Stage Weight with hose	350 gr			350 gr	390 gr

USING SYNCHRO SERIES REGULATORS BEFORE EACH DIVE

- ▶ The regulator must always be transported separately so as to prevent it from being in contact with the other components of equipment or with heavy or pointed objects.

To assemble the regulator properly onto the cylinder valve, proceed as follows:

- ▶ When assembling a first stage with YOKE connection, check that the O-Ring embedded in the valve is clean, in good condition and correctly fitted ; in case of THREAD connection, the O-ring is housed in the first stage.
- ▶ The O-ring must be in perfect condition, free from cuts or porosity; it is advisable to have some spare available, so that it may be replaced immediately once any signs of damage are detected.

- ▶ Check that all the hoses are properly connected to the first stage and that they have no apparent signs of wear or damage. ▶ Open the valve, let out a small quantity of compressed air, thus clearing the any foreign matter from the nozzle.
- ▶ Remove the filter protection cap inserted on the relevant connections.
- ▶ Check for filter integrity and proper cleaning.
- ▶ Position the first stage on the valve and start screwing it up using the knob, in case of yoke connection, or the swivel screw, in case of thread connection.
- ▶ Slowly open the cylinder valve counter-clockwise taking care to avoid violent and sudden airflow through the regulator; at the same time, *it is recommended to let out a breath of air from the second stage by keeping the latter slightly depressed*

warning!

do not carry out this operation if ambient temperature is lower than +10°C.

- ▶ Depress two or three times the purge button of the second stage to discharge dust or foreign matter. Finally, breathe from the second stage to make sure that everything functions correctly.

warning!

Do not carry out this operation if ambient temperature is lower than +10°C.

- ▶ Check the cylinder internal pressure by means of the appropriate pressure gauge.
- ▶ In order to optimize the positioning of the different valves, it is recommended to place the main and secondary regulators on the right hand side and the service valves (pressure gauge hose, jacket hose, and dry diving suit hose) on the left.
- ▶ The valve must be fully open before starting diving.
- ▶ When the regulator is not held in your mouth at the time of entering into the water, it is advisable to submerge it completely to prevent air discharge due to its high sensitivity.
- ▶ The Octopus or the second safety regulator should be used in PRE-DIVE position and with the appropriate cap fitted on the mouthpiece to prevent the entrance of foreign matters or accidental air delivery.

Warning!

- ▶ Do not rotate the first stage connection with the cylinder at any time with the system under pressure.

DURING THE DIVE

- ▶ When the regulator is not held in your mouth, air self-delivery may occur. Rotating the regulator upside down while checking that the same has been previously filled with water may easily eliminate this inconvenience.
- ▶ The use of suitable containers for mouth-piece protection will prevent such inconvenience and will also provide a cover for the passage inside the second stage, thus removing the risks of sand or dirt contamination.
- ▶ Verify that the DIVE/PRE-DIVE regulation on the SYNCHRO second stage is set to fully guarantee the necessary airflow.

AFTER EACH DIVE AND PERIODIC MAINTENANCE

Your regulator is made of very high-quality materials and has undergone exhaustive seawater. However, every precaution shall be

taken in order to protect the product equipment from the corrosive action of salt.

Below is the procedure to be followed after surfacing or on board at the end of the dive.

The first operation to be carried out after the dive is to disassemble the equipment used.

- ▶ Close the valve by turning it clockwise; once fully closed discharge all the residual air remaining in the regulator system by actuating the second stage purge button.
- ▶ This operation may require several seconds, as the air leaving the pressure gauge through the first stage shall pass through a 0.20 diameter. hole.
- ▶ Unscrew the knob positioned on the yoke or, in case of Thread connection system, unscrew the threaded ring nut.
- ▶ Lay the cylinder down to prevent it from falling, positioning it in such a way that it cannot roll in any direction.
- ▶ Thoroughly clean and dry the first stage filter and housing with a cloth or with a soft compressed-air jet.
- ▶ Repeat the same operation on the protection cap covering the filter.
- ▶ Place the protection cap onto the filter and fasten it by tightening the handle, or in case of thread connection, screw up the swivel-screw cap.
- ▶ Rinse but do not immerse the regulator in running fresh water taking care of with all parts.
- ▶ In this phase do not for any reason remove the first stage filter protection cap. During this operation be extremely careful not to press on the diaphragm, to avoid water entering into the first and second stage.

If you are not using the regulator for some weeks, again connect the regulator to a cylinder and, by depressing the second stage purge button to cause continuous air delivery for about ten seconds. In this way all the water is discharged and there is no risk of scale deposits or undesirable taste.

The regulator shall be put to dry in a place sheltered from the sun and dust, hanging from the first stage yoke, so that the hose is not bent.

At the end of a particularly intensive diving period or, in any case, after a long term of inactivity, it is advisable to have a complete overhaul carried out at an approved Seacsub service centre. Consequently, we advise you to contact your dealer who will advise further in-

formation on the quickest and safest way of servicing your regulator.

DIVING IN COLD WATER

Incorrect preparation for cold water diving (less than +10 degrees centigrade) may cause serious damage.

Before diving in cold water, you should follow specific training under the supervision of specialized and qualified trainers in cold-water diving techniques.

You must use specific regulators certified for such conditions and closely follow the instructions contained in the relevant handbooks.

Though the risks of freezing are limited as far as possible by continuous research, it is not possible to prevent a second stage freezing in the most extreme conditions.

This could be the case when the water tem-

perature is below +4 degrees centigrade and with external air temperatures is below zero).

Consequently, in order to prevent or reduce any possible risks, adequate training is needed to prevent the regulator from freezing.

In extreme conditions you should strictly observe the following guidelines:

1. Do not use the regulator out of the water particularly when the external surface temperature is below zero.
2. Never actuate the second stage discharge pushbutton unless under water.
3. Limit as much as possible the time of rest on the surface before diving.
4. Avoid actions or situations that may lead to a rapid release of air from the second stage.

For further information you may contact our technical office at the following e-mail address: info@seacsub.com

Warranty Certificate

SEACSUB S.p.A. guarantees the correct operation of this product as described in this document. The warranty has a duration of 2 (two) years in accordance with current European regulations. The warranty herein contained may be exercised only on the condition and within the limits hereinafter specified:

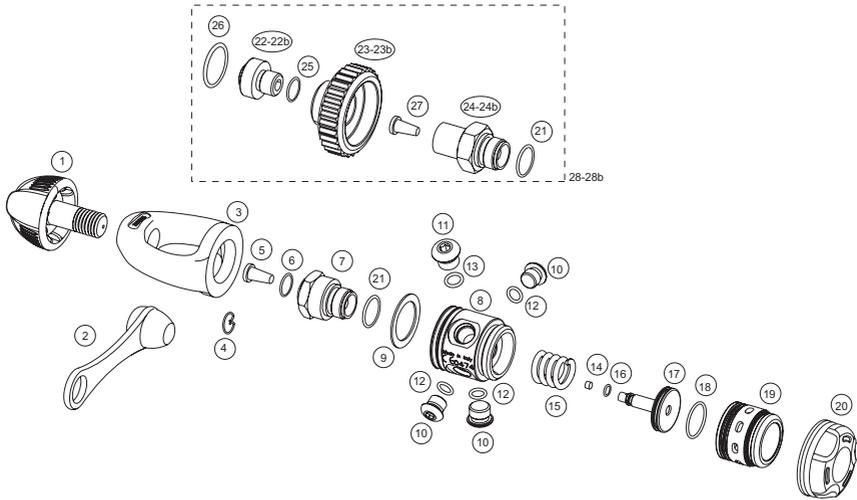
1. The warranty has a duration of 2 (two) years starting from the time the product is bought at a SEACSUB S.p.A. authorized dealer and does not need any previous or subsequent formal validation.
2. The warranty is acknowledged only to the first buyer of the product at a SEACSUB S.p.A. authorized dealer. As it is strictly personal, it cannot be transferred to third parties unless prior authorization by SEACSUB S.p.A. is obtained.
3. The warranty covers all and only the malfunctioning due to:
 - ▶ Inherent vice resulting from materials deemed to be unsuitable
 - ▶ Apparent errors in design, manufacturing or assembly of the product or parts of it
 - ▶ Wrong or inadequate instructions and recommendations for use.
4. The warranty terminates automatically, and with immediate effect, following the occurrence of repairs, modifications, transformations, adjustments or tampering in general, carried out on the finished product or parts of it, which were not previously authorized by SEACSUB S.p.A. and were carried out by non-authorized personnel.
5. The warranty entitles to intervention and free repair in the shortest possible time, or to complete free replacement of the product (at SEACSUB S.p.A. absolute discretion) or parts of it whenever the malfunctioning specifically mentioned at item 3 above is acknowledged by SEACSUB S.p.A.
6. The warranty can be exercised by forwarding the product deemed to be defective to SEACSUB S.p.A. through the SEACSUB S.p.A. authorized dealer where the product was bought. If this is feasibly impossible, after prior authorization, any other SEACSUB S.p.A. dealer may be authorized to send the defective product. A necessary condition to exercise the warranty is that the product is accompanied by a copy of the receipt or invoice (or other proof of receipt specifying the name of the SEACSUB S.p.A. authorized dealer where the product was bought as well as the date of purchase of the same) certifying the purchase. Whenever SEACSUB S.p.A. receives a product which:
 - ▶ is not accompanied by proof of purchase having the above mentioned characteristics
 - ▶ is in such condition as to determine the termination of the warranty in accordance with the provisions of item 4 above
 - ▶ has defects resulting from external and additional causes as compared to the ones specifically mentioned at item 3 above
 - ▶ has been improperly used and/or for different uses from the one for which the product has been designed

SEACSUB S.p.A. will not carry out any investigations on the product, and will advise the sender/authorized dealer. If the sender requires the investigation to be carried out in any case, the sender will forward a request to SEACSUB S.p.A. within the subsequent fifteen working days; in this request he/she shall expressly state he/she is willing to bear all the costs relevant to such investigation (labor, spare parts, if any, forwarding charges). Failing this, SEACSUB S.p.A. will return the product at the expense and care of the consignee.

1° STADIO EROGATORE FIRST STAGE REGULATOR

P-SYNCHRO INT 230 - DIN 230

Seac Ref. 8410
Seac Ref. 8415



1)	Manopola primo stadio	Handgrip	S500025
2)	Tappo primo stadio	Dust cap	S500024
3)	Staffa Synchro	Synchro yoke	S840010
4)	Anello elastico	Snap ring	S500029
5)	Filtro conico INT	INT cone-shaped filter	S500030
6)	O-Ring 2037	O-Ring 2037	S510021
7)	Blocca staffa P-Synchro	P-Synchro yoke nut	S840011
8)	Corpo primo stadio P-Synchro	P-Synchro first stage body	S840021
9)	Rondella antifrizione	Antifriction washer	S840013
10)	Tappo L.P. Synchro	Synchro L.P.port plug	S850020
11)	Tappo H.P. Synchro	Synchro H.P.port plug	S850022
12)	O-Ring 2031	O-Ring 2031	S101017
13)	O-Ring 108	O-Ring 108	S510022
14)	Pastiglia pistone	Piston seat	S540005
15)	Molla 1° stadio Synchro	Synchro main spring	S540006
16)	O-Ring 2018	O-Ring 2018	S540007
17)	Pistone Synchro	Synchro piston	S540008
18)	O-Ring 2100	O-Ring 2100	S540009
19)	Cappuccio P-Synchro	P-Synchro cap	S840014
20)	Protezione cappuccio P-Synchro	P-Synchro protection cap	S840015
21)	O-Ring 2056	O-Ring 2056	S101024
22)	Raccordo volantino 230 Bar Synchro	Synchro Din 230 bar handwheel connection	S850003
22B)	Raccordo volantino 300 Bar Synchro	Synchro Din 300 bar handwheel connection	S850004
23)	Volantino Din 230 Bar Synchro	Synchro Din 230 bar handwheel	S850005
23B)	Volantino Din 300 Bar Synchro	Synchro Din 300 bar handwheel	S850006
24)	Fermo volantino P-Synchro 230 Bar	P-Synchro Din 230 bar handwheel lock	S840016
24B)	Fermo volantino P-Synchro 300 Bar	P-Synchro Din 300 bar handwheel lock	S840017
25)	O-Ring 2043	O-Ring 2043	S101030
26)	O-Ring 3043 90 Sh	90 Sh O-Ring 3043	S810024
27)	Filtro conico DIN	DIN cone-shaped filter	S500051
28)	Kit DIN 230 bar P-Synchro	P-Synchro DIN 230 bar Kit	S840025
28B)	Kit DIN 300 bar P-Synchro	P-Synchro DIN 300 bar Kit	S840026

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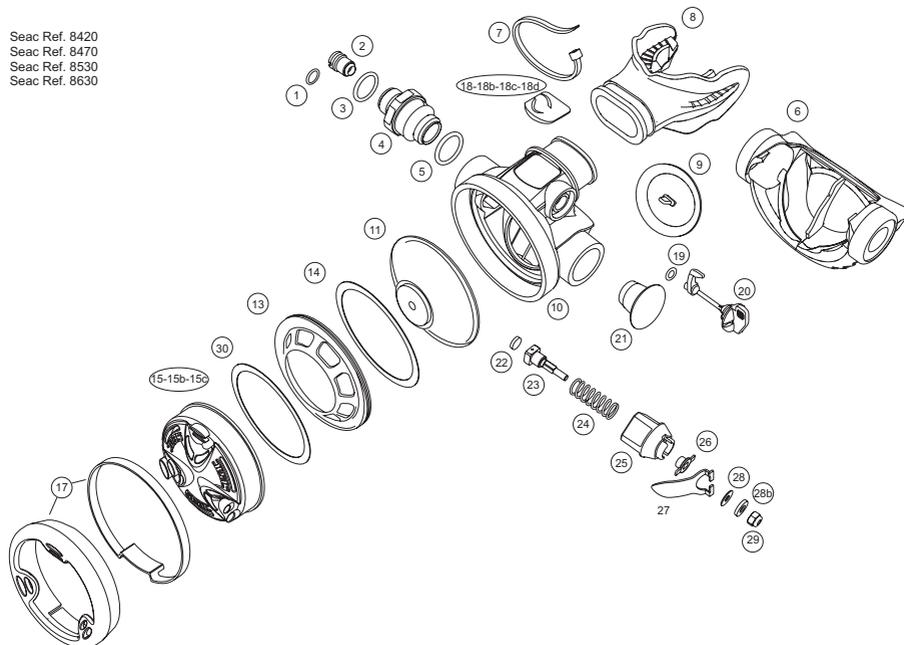
Via Domenico Norero, 29 - 16040 S. Colombano Certenoli (Genova) Italy
Telefono: ++39 0185 356301 (r.a.) Fax: ++39 0185 356300

www.seacsub.com

2° STADIO EROGATORE SECOND STAGE REGULATOR

D-SYNCHRO P-SYNCHRO
OCTO SYNCHRO M-SYNCHRO

Seac Ref. 8420
Seac Ref. 8470
Seac Ref. 8530
Seac Ref. 8630



1) O-Ring 2025 6,07 x 1,78	6,07 x 1,78 O-Ring 2025	S500021
2) Ugello regolazione	Orifice	S842031
3) O-Ring 2050 12,42 x 1,78	12,42 x 1,78 O-Ring 2050	S800003
4) Attacco frusta	Hose connection	S842032
5) O-Ring 2062 15,60 x 1,78	15,60 x 1,78 O-Ring 2062	S77494
6) Baffo di scarico	Exhaust tee	S842033
7) Fascetta bocchaglio	Mouthpiece strap	S500023
8) Bocchaglio	Mouthpiece	236
9) Valvola di scarico	Exhaust valve	S842035
10) Cassa secondo stadio	Second stage body	S842004
11) Membrana completa	Complete diaphragm	S842003
13) Ghiera filettata interna	Internal retaining ring	S842007
14) Anello antifrizione	Antifriction washer	S842008
15) Calotta Synchro grigia	Synchro rubber cover	S842009G
15b) Calotta Octo Synchro gialla	Octo-Synchro rubber cover	S842009Y
15c) Calotta M-Synchro nera	Black M-Synchro rubber cover	S842009N
17) Ghiera calotta completa	Complete cover retaining ring	S842011
18) Etichetta P-Synchro	P-Synchro label	S842012
18b) Etichetta D-Synchro	D-Synchro label	S842013
18c) Etichetta Octo-Synchro	Octo-Synchro label	S842014
18d) Etichetta M-Synchro	M-Synchro label	S842015
19) O-Ring 2018 4,48 x 1,78	4,48 x 1,78 O-Ring 2018	S540007
20) Deviatore completo	Complete jetavator	S842020
21) Tappo baffo	Exhaust tee plug	S842021
22) Pastiglia	Rubber seat	S842022
23) Alberino II° stadio	II° Stage stem	S842023
24) Molla II° stadio	II° Stage spring	S842024
25) Supporto leva	Lever support	S842025
26) Guida alberino	Insert housing	S842026
27) Leva	Lever	S842027
28) Rondella inox 3,2 x 7 x 0,5 UNI 6592	3,2 x 7 x 0,5 UNI 6592 stainless steel washer	S842028
28b) Rondella centratura alberino	Stem's truing washer	S842029
29) Dado autobloccante M3	M3 elastic stop nut	S500019
30) Anello antifrizione per calotta	Cover antifriction washer	S842019

SEACSUB S.P.A.

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13/06/07