CRESSI

SINCE 1946

Manuale d'uso
Direction for use
Manuel d'instructions
Bedienungsanleitung
Manual de Istrucciones

RUBINETTERIA/BOMBOLE
VALVE/TANKS
ROBINETTERIE/BOUTEILLES
VENTILE/FLASCHEN
GRIFERIA/ BOTELLAS

CE

made in Italy

ITA: La dichiarazione di conformità UE 2016/425 del presente DPI è consultabile all'interno del sito www.cressi.com

EN: The EU 2016/425 declaration of conformity of this PPE is available on the www.cressi.com website

FRA: La déclaration UE de conformité 2016/425 de cet EPI est disponible sur le site internet www.cressi.com

ES: La declaración de conformidad 2016/425 de la UE de este PPE está disponible en el sitio web www.cressi.com

DE: Die 2016/425 EU-Konformitätserklärung dieser PSA ist auf der Website www.cressi.com verfügbar

RUS: Декларация ЕС 2016/425 о соответствии этого СИЗ доступна на веб-сайте

CN: 欧盟的PPE符合性声明可在www.cressi.com网站上获得

PT: A declaração UE de conformidade 2016/425 deste EPI pode ser consultada no site www.cressi.com

CE BREATHING APPARATUS - VALVES

IMPORTANT: This handbook does not replace a diving training course!
All Cressi-sub devices must be used by divers who have attended regular courses taught by certified trainers. Using diving equipment without a license or the necessary technical training may be dangerous for the diver's safety and can even be deadly.

⚠ **WARNING:** Please read this instruction book carefully before using your equipment. Do NOT use your equipment until you have read this user manual. Make sure that you have fully understood the contents of this manual, and keep it to consult in the future.

INTRODUCTION

Congratulations! Ongoing research and evolution conducted at our technical centers, together with Cressi-sub's renowned reliability, have led to the product you just purchased, which will allow you to dive comfortably and safely for a long time.

INSTRUCTIONS

The valves for Cressi-sub open-circuit compressed-air breathing apparatus are certified to 50 m in depth, as set forth in standard EN 250:2014 in accordance with EU regulation 2016/425 (ex 89/686), which establishes marketing conditions and minimum essential safety requirements for Personal Protective Equipment (PPE).

The valves for Cressi-sub open-circuit compressed-air breathing apparatus belong to the maximum PPE category (Category III), and have met the requirements called for by the tests established by standard EN 250:2014, recognized as the technical reference standard for breathing apparatus for recreational use produced and sold on the European market.

Consequently, all Cressi-sub air regulators bear the CE mark followed by the certifying agency identification number 0474, identifying RINA, the registered testing agency with offices in Via Corsica 12, 16100, Genoa, Italy that monitors its manufacturing pursuant to Form B+C2 of the EU 2016/425 regulation as well as the critical health and safety requirements for Category III PPE and regulates the conditions for bringing such equipment to market, followed by the valve threading acronym M25X2 EN144-1 (in compliance with the requirements of standard EN144-1:2000/A2:2005), the valve serial number, and the EN 250:2014 reference standard, and finally the maximum operating pressure.

The cylinder/valve assembly meets the basic safety requirements set forth in Attachment III REG. EU 425/2016 where applicable in sections a) to m).
Cressi-sub open-circuit compressed-air diving apparatus are only EC certified for use with breathable air compliant with standard EN 12021, and NOT with mixes containing oxygen percentages higher than 22%.
Cressi-sub open-circuit compressed-air diving apparatus are therefore not used with hyperoxygenated mixtures, but only with breathable air compliant with standard EN 12021.

NOTE: The instructions and directions found in this manual are based on the most up-to-date information about the equipment available before printing. Cressi Sub reserves the right to make changes at any time.

MAIN COMPONENTS

Scuba equipment consists of one or more cylinders, valves and protective cylinder boots.

The regulator is connected to the valve in order to reduce cylinder air pressure (high pressure) to ambient pressure that a diver can breathe.
The regulator must feature a pressure control system consisting of a pressure gauge or a pressure measuring computer.

NOTE: Standard EN 250:2014 defines SCUBA as an open-circuit, self-contained, diving apparatus using compressed-air contained in a cylinder, and its equipment must include at least:

1. cylinder(s) with valve(s);
2. on-demand regulator;
3. pressure gauge or device for monitoring the pressure in the cylinder(s);
4. diving mask;
5. system for transporting, supporting, and connecting to the diver (such as harnesses, etc.);
6. Manufacturer's user manual.

The SCUBA can be fastened to the diver's body both by a backpack complete with straps or by a buoyancy compensator (jacket) designed to offer the diver a perfect fit with the equipment.

CYLINDERS

The cylinders are made of steel alloyed with chromium-molybdemum for an operating pressure of 232 bar (max) and are hydraulically tested at a pressure of 372 bar. The upper end has M25x2 EN144-1 threading in compliance with the requirements of EN144-1:2000/A2:2005 for connecting to valves.

In order to make the inner cylinder walls corrosion-resistant, Cressi-sub cylinders are sandblasted and phosphatized. The outside surface is sandblasted and covered with zinc and oven-baked epoxy painting.
The cylinder bottom is protected by a plastic foot that allows it to remain upright during assembly of regulator, jacket and straps. It is advisable to lay the breathing apparatus on its side soon after the assembly operation to prevent it from falling, since this can always be dangerous with vessels under pressure.
The following necessary information about cylinder identification and certification is stamped on the outer surface, in compliance with UNI EN 1964-1:1999 standard, and in compliance with 97/23/CE (PED) Directive.
This includes, in the relevant order:
• cylinder thread code (M 25x 2 EN144-1); • reference standard (UNI EN 1964-1); • cylinder manufacturer identification data, serial number and manufacturing year • identification number of notified board; • minimum design thickness; • cylinder weight without accessories • nominal cylinder capacity in litres • working pressure in bars; • hydraulic test pressure in bars; • inspector stamp; • test year and month.

VALVES

With a rugged and reliable appearance, Cressi-sub valves perform a dual function. They serve as the valve for the cylinder and also allow it to be connected to a regulator, for the purpose of reducing the high pressure in the cylinder to exact ambient pressure.

The convenient handle assists in transporting the cylinder.

The threaded connection between valve and cylinder is the M25x2 EN144-1 type, compliant with the requirements of standard EN144-1:2000/A2:2005.

A safe connection between the cylinder valve(s) and the regulator is ensured on demand using the connections described in UNI EN ISO 12209:2013/A1:2016 standards.

⚠ **WARNING:** The valve threads are absolutely INCOMPATIBLE with old-style cylinders that have ¾ gas threading. Do not screw the valve to old-style cylinders with ¾ gas threading! Any improper coupling of this valve to cylinders with ¾ gas can result in the extrusion of the valve and even deadly accidents!

⚠ **DANGER!** All operations on the cylinder valves must be performed by personnel qualified by an Cressi-sub authorized Center.
IT IS CRUCIAL that the coupling is perfect and that the threads on the valve and those on the cylinder neck match perfectly. The current threading for the valve-cylinder connection is envisaged by standards EN 250 and EN 144-1 as a M25x2 thread, COMPLETELY incompatible with the threadings of 3/4 gas cylinders produced in the past, which are now not regulation. However, given that cylinders produced in the past with ¾ gas threading still exist on the market, it is important to stress that these two types of threading
are utterly incompatible with each other, and that improper connections can cause explosions and accidents,
including deadly ones. The greatest risk in fact occurs when pairing an M25x2 valve with a ¾ gas cylinder.
Assembly and tightening can appear to be correct to inexpert personnel. Nevertheless, the threading does not line up exactly, so during refilling or once pressurized, it can allow the valve to extrude from the cylinder due to the internal pressure, with deadly consequences for people and extreme damage to objects affected by the phenomenon.

⚠ **WARNING:** This valve can only be used on cylinders that comply with EN 144-1.

A safe connection between the cylinder valve(s) and the regulator is ensured on demand using the connections described in UNI EN ISO 12209 standards.

In fact, for regulator assembly, the valves feature an internal connection which can be turned into a DIN connection by simply removing the adapter present only in 232 bar valves.

Cressi-sub valves have been designed to provide maximum safety and ease of operation. The handwheels are generously proportioned and their grooved surface makes it easier to operate them even when wearing thick neoprene gloves. The slots at the base of the handwheels allow the diver to easily check if the valve is open or closed.

NOTE: Through these openings an underlying insert is visible which is red when the valve is open and yellow when the valve is closed.

⚠ **WARNING:** To operate correctly, open the valve completely, and NOT partially, fully unscrewing the handwheel until you see a clearly red color through the slot. This indicates that the value is correctly open and operating.
In compliance with the applicable EU standards, it takes more than two complete turns of the handwheel to shift from a closed to a completely open position.

A Ø 3 mm metal hose at the base of the valve prevents any impurity, condensation liquids or water from entering valves at the end of the hose so that also when swimming downwards or with the head lower than the legs, the air will still flow from the cylinder to the regulator.

ASSEMBLY OF THE BREATHING APPARATUS

Before assembling the scuba, make sure that the cylinder (or cylinders) is (are) pressurized only with compressed air at the nominal working pressure, in compliance with the breathable air provisions set forth in the UNI EN 12021 standard.

NOTE: Please note that only the cylinders provided with a cumulative test certificate (in compliance with PED 97/23/CE Directive) can be pressurized within the time period specified in the above certificate.

In Europe, the cumulative test certificate (in compliance with PED 97/23/CE Directive) has a 4-year validity for new cylinders, and a 2-year validity after each subsequent successful test.

ASSEMBLY OF BUOYANCY COMPENSATOR AND BACK-PACK

To finish assembling the breathing apparatus, first connect the jacket or the backpack to the cylinder (or cylinders), or to the backpack featuring straps for holding the equipment (accessory).

In both cases, the backpack must be fastened to the cylinder with the special fastening system so that the harness is arranged on the same side of the cylinder as the valve air exit. The height of the backpack with respect to the tank is a matter of personal choice, but we recommend keeping the top of the backpack about 2-4 cm below the valve air exit so that the head won't easily knock against the regulator, but at the same time the bottom of the cylinder won't hit the diver's legs, impeding them as they swim.

⚠ **WARNING:** the fastening of the cylinder to the harness is of the utmost importance, because if it were to slide out during the dive it could endanger the diver. Make sure the straps have been inserted in the proper sequence into the locking buckle. Holding the cylinder by the backpack, shake it several times to make sure the two parts hold together.

ASSEMBLY OF THE REGULATOR

After securing the jacket or the backpack with the straps, the assembly of the regulator can begin.

⚠ **WARNING:** check that the valve sealing O-ring is in perfect condition. It must not have any cuts, scratches or other damage. In any case, it must be replaced regular intervals, even when still in perfect condition, since O-rings are subject to the high pressure of air from the cylinder's and to atmospheric agents as well. Only original Cressi-sub spare parts may be used.

⚠ **WARNING:** Before assembling, check that the cylinder has been filled exclusively with compressed air at working pressure, using a suitable compressor, which supplies breathable air in compliance with the EN 12021 standard.

After unscrewing the yoke's lock knob, take the protective cap from its seat and place the 1st stage on the air exit valve, checking that the 2nd stage is positioned correctly.

Next, screw the yoke's knob to lock the 1st stage on the valve.

Turn the cylinder handwheel counter-clockwise, while holding down the 2nd stage air flow button for a moment. As a rule, we highly recommend opening the cylinder valve slowly, so that the regulator gets filled gradually.

NOTE: It is not necessary to tighten down the 1st stage lock knob too far to ensure a seal between the regulator and the valves.

NOTE: Before opening the cylinder's valve, check that the underwater pressure gauge indicates zero pressure.

If the regulator gets pressurized too suddenly, it creates an adiabatic compression of the breathable gas inside the 1st stage that might cause the equipment to work imperfectly. As soon as you hear air flowing out of the second stage, stop pressing the manual supply button and open the valve fully.

It is good practice to turn the valve clockwise for one quarter turn in order to avoid damaging the poppet thread.

For DIN connection first stages, the assembly procedure is not very different from that described above. Simply screw the fitting directly onto the valve; again in this case,

you do not need to screw the fastening wheel down overtight.

In the event that a second independent regulator is used, connect it to the additional valve outlet following the above instructions.

⚠ **WARNING:** Do not turn the 1st stage connected with the cylinder when the system is pressurized, and do not use the 1st stage connected to the valve as a handle to carry the equipment: it might damage the regulators, its O-rings, and the valves.

⚠ **WARNING:** if the hoses are not positioned correctly, do not try to rearrange them while the regulator is pressurized. Close the cylinder, depressurize and, only then, position the hoses correctly.

NOTE: If a sound check before the dive reveals any leaks at the connections, from the hoses, or a free flow of water from the 2nd stage, we recommend that you do NOT perform the dive and that you contact an authorized Cressi-sub center.

⚠ **WARNING:** Once assembled, the scuba equipment must be laid on its side to prevent any accidental falls from damaging the components or injuring people.

TESTING BEFORE USE

Check cylinder pressure with the underwater pressure gauge or with a computer with a pressure gauge function. Pressure must be 200 bar.

NOTE: Before opening the cylinder's valve, check that the underwater pressure gauge indicates zero pressure.

⚠ **WARNING:** the cylinders do not feature any reserve device. It is therefore necessary to use an underwater pressure gauge connected with the 1st stage to keep track of air consumption when diving. The pressure gauge must signal the minimum pressure of 50 bar with a contrasting colour. This air reserve must not be considered usable for diving; it is only to be used in an emergency. Diving without a pressure gauge is very dangerous. If you are not aware of your air consumption you can suddenly run out of air and jeopardize your life.

Before using your Cressi-sub regulator, we recommend that you carry out some easy but very important and vital checks in order to avoid any kind of problem.

For example, check that all the hoses are solidly connected

to the 1st stage; if you can manually loosen the 1st stage, it will need to be tightened with a wrench before the equipment is pressurized. Moreover, check that the hoses do not look worn in any way and are not cut or damaged at all.

Similarly, check the 1st and 2nd stages for any damage: check, for example, the 2nd stage' s mouthpiece for cuts or scratches and connect it firmly with to the 1st stage by means of a lock band.

Before opening the cylinder's valve, check that the underwater pressure gauge indicates zero pressure.

The pressure in the cylinders must be checked by means of the special underwater gauge or a computer with this function: after opening the cylinder's valve, the gauge must show the cylinder's correct working pressure.

Should you have also an "octopus" (two second stages connected to a single 1st stage) you must test the reserve 2nd stage as well.

We recommend always performing a final auditory test before using the equipment to check that there are no leaks from the connections, LP or HP hoses, or the 2nd stage. All of these situations are anomalous, and will require an overhaul and replacement of the worn components; only an authorized Cressi Center can perform this overhaul.

NOTE: **If an auditory test before diving detects possible leaks, this is evidence of an anomaly in the equipment, and you should NOT continue or take the dive. Contact an authorized Cressi-sub center as soon as possible.**

⚠ **WARNING: Users CANNOT perform equipment maintenance. This can only be done by an authorized Cressi-sub center. If improper maintenance is performed on the equipment, if it is performed by someone other than authorized Cressi-Sub personnel, or if it is used for purposes other than those specifically intended, responsibility for proper and safe operations fall to the owner/user.**

NOTE: **You can find your authorized Cressi-Sub center by asking your dealer, or Cressi Sub S.p.A. itself by sending an e-mail to: info@cressi.com.**

NOTE: **Maintenance (or repair) operations for the equipment must exclusively use original Cressi-Sub spare parts.**

⚠ **WARNING:** Once assembled, the scuba equipment must be laid on its side to prevent any accidental falls from damaging the components or injuring people.

HOW TO WEAR THE SCUBA EQUIPMENT

You can put on the breathing equipment on land or in the water. You'll need to decide in each case which procedure is best for the circumstances. It is crucial to obtain training in a diving course on how to correctly put on the breathing apparatus.
If using a buoyancy compensator vest (a BC), the shoulder straps serve to support the breathing apparatus, while the cummerbund holds it secure around your waist, possibly with the aid of supplementary buckles.
If instead you are using a backpack with a harness, two special adjustable straps support the breathing apparatus on the shoulders, while a waist strap fastens it around the waist, and an additional strap between the legs prevents the breathing apparatus from shifting upward, interfering with the diver's head.

USE OF THE REGULATOR AND RISK ASSESSMENT

⚠ **WARNING:** in order to undertake a dive in complete safety, Cressi-sub recommends the use of a cylinder fitted with a valve offering two independent ports to which two complete regulators can be connected

Before using diving equipment it is necessary to complete a specific training course and get a diving license. Using underwater devices without a license or the necessary technical training may be dangerous for the diver's safety and can even be deadly. Nonetheless, before any use all environmental conditions should be assessed, as well as the diver' s mental and physical state: if just one aspect is risky, diving must be avoided. In the presence of the following conditions diving should not be attempted: rough sea, strong currents, overly low water temperature, low visibility, poor health, lack of training, fatigue or bad digestion.

Among mental and physical conditions, please consider imperfect health, emotional or physical stress, lack of training, tiredness, and poor digestion.

Keep in mind that someone who has not taken a dive in a long time is exposed to much greater risk, because you forget some or all of the automatic reactions and technique learned in your course.

Cressi-sub scuba equipment is made with top quality corrosion-resistant materials and is certified for use down to a depth of 50 m (UNI EN 250).

Note that open-circuit compressed-air diving apparatus are certified to 50 m in depth, in accordance with standard EN 250:2014, the purpose of which is to guarantee a minimum level of safe operation for the device to a maximum depth of 50 m, although teaching methodologies set a maximum depth of 40 m for recreational dives, and exclude the performance of any type of underwater work.

NOTE: Transport of this equipment is subject to local regulations in force; always respect applicable law and find out in advance which laws govern equipment transport in the country.

MAINTENANCE AND STORAGE

Rinse Cressi-sub scuba equipment with fresh water after each dive. Use air under pressure from the cylinder to remove all water remains from the hoses. All valves must be checked on an annual basis by an authorized Cress-sub repair workshop to remove corrosion build-ups.

Regardless of the expiration of the testing certificate, (which, remember, is valid for four years for new cylinders and then for two years after every successful retest), we strongly encourage a thorough inspection if possible, each year, both of the outside and inside of the cylinder, in order to identify any signs of corrosion as soon as they occur.

The same is true for the valves. Here too we recommend a careful inspection, annually if possible (this is mandatory when the testing certificate expires). This inspection must be performed by an authorized Cressi-sub center, removing any trace of rust, replacing the O-rings, and greasing the valve stems with the correct grease. If the valve seat is considerably worn, replace it.

NOTE: in order to avoid damaging the retaining seats and stems, do not overtighten the valve handwheels.

⚠ **WARNING:** If replacing a valve, meticulously check that the M25x2 pairing threading on both the valve stem and the neck of the tank match up perfectly and that they are both compliant with the requirements of EN144-1:2000/A2:2005. Never force valves when tightening.

For cylinders, an annual inspection is recommended where possible

inside the containers (this becomes mandatory when the testing certificate expires). It must be performed only by an authorized Cressi-sub Center.

All traces of corrosion caused by salt water that may have accidentally leaked into the cylinders must be eliminated with a sufficient tumbling treatment, and retesting the cylinder if necessary, even if the testing period has not yet expired.

Please note that only the cylinders provided with a cumulative test certificate (in compliance with PED 97/23/CE Directive) can be pressurized within the time period specified in the above certificate.
In Europe, the cumulative test certificate (in compliance with PED 97/23/CE Directive) has a 4-year validity for new cylinders, and a 2-year validity after each subsequent successful test.

In the winter or when not used for long periods, about 30 bar of air must remain inside the cylinders. The valves must be firmly

closed, and in salty environments, tighten the taps and lubricate them with silicone grease to protect chrome parts.

Before using the cylinder again, open the valve slightly to let out the air very slowly in order to prevent condensation from forming inside the cylinders.

Cressi-sub assumes no responsibility for any work carried out by personnel not authorized by Cressi-sub.

⚠ **WARNING:** Users must never perform maintenance themselves; all maintenance must be performed by an authorized Cressi-Sub centre. If improper maintenance is performed on the equipment, performed by someone other than authorized Cressi-Sub personnel, or used for purposes other than those specifically intended, responsibility for proper and safe operations fall to the owner/user.

IMPORTANT: regulators must be serviced exclusively at an authorized Cressi-sub centre, using only original spare parts. Any tasks carried out by untrained personnel may cause very high risks to the diver's health and put their life in danger. Cressi-sub declines any responsibility for any maintenance or calibration of regulators performed by personnel not expressly trained and authorized by the company.

N.B.: exploded diagrams for the product described in this manual contain all codes for individual spare parts. They can be freely downloaded and consulted, as can this following manual, by clicking the Login link on www.cressi.com, accessible only to authorized Cressi-sub maintenance centers, containing a complete library of specific technical information, such as exploded diagrams for spare parts, maintenance manuals, calibration procedures, and cleaning and greasing procedures for your equipment.

NOTE: You can find your authorized Cressi-Sub center by asking your dealer, or Cressi Sub S.p.A. itself by sending an e-mail to: info@cressi.com.

After the necessary checks have been done on the valves and cylinders, they can be refilled. Remember to check the purity of the air delivered by the compressor, which must meet the requirements established by UNI EN 12021.

Cressi-sub breathing apparatus valves, thanks to the specific characteristics described above, are compliant with the safety requirements set by regulation EU 2016/425 and therefore bear the CE mark followed by the certifying agency identification number 0474, identifying RINA, the registered testing agency with offices in Via Corsica 12, 16100, Genoa, Italy that monitors its manufacturing pursuant to Form B+C2 of the EU 2016/425 regulation as well as the critical health and safety requirements for Category III PPE and regulates the conditions for bringing such equipment to market.

The air supplied by Cressi-sub scuba equipment is breathable in compliance with UNI EN 12021 standard.

LIMITED WARRANTY

Cressi Sub SpA guarantees that this product operates correctly;

Your Cressi-Sub regulator is guaranteed for two years from the date of initial purchase against:

• clear manufacturing and/or assembly defects in the product or its individual parts;

• material considered unsuitable that causes the regulator to malfunction;

• clear errors in the design, or instructions and warnings that are incorrect or inadequate.

The warranty period begins on the date of the initial retail purchase as demonstrated by a receipt or invoice;

The warranty does not cover:

• damage caused by improper use of the equipment, poor maintenance, negligence or modifications, conversions, adaptations, tampering with the finished product;

• damage resulting from repairs performed by personnel not authorized by Cressi-sub;

The warranty is forfeited automatically should any of these conditions occur.

During the warranty period, Cressi-sub, or a Cressi-sub authorized service centre, according to their exclusive judgment, will remove any defect in terms of material, design and workmanship, free of charge, by means of repair or replacement of the product according to this limited warranty.

Requests for repair under warranty will be satisfied free of charge by Cressi-sub or by a Cressi-sub authorized service center, according to their sole judgment, and the product will be repaired or replaced within a reasonable time.

If the product is deemed non-compliant with the terms and conditions of this limited warranty, Cressi-sub or a Cressi-sub authorized service center reserve the right to charge service and/or repair costs.

The warranty cannot be transferred by the first purchaser to a third party. A purchase receipt (with purchase date) from an authorized Cressi-sub dealer is required for warranty service.

Any repairs not covered by the warranty will be carried out at the buyer's expense.

The warranty does not include any document or warranty granted by retailers or agents beyond this warranty's terms.

No retailer or agent is authorized to make any changes to this warranty or to grant an additional one.

For repair under warranty, send the product, carriage forward, to your Cressi-sub retailer or to an authorized Service Centre. Write down your full name and address and enclose the purchase receipt or invoice.

You can find your authorized Cressi-sub center by asking your dealer, or Cressi-sub S.p.A. itself by sending an e-mail to: info@cressi.com.;

Cressi-sub assumes no responsibility for any work carried out by personnel not authorized by Cressi-sub.

The instructions and directions found in this manual are based on the most up-to-date information about the equipment available before printing. Cressi-sub reserves the right to make changes to the content at any time.

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