

Owner manual for FLY side



Buoyancy Control Device for diving with side bottles (Side Mount System)

Distribution and service

FINN SUB s.r.o.
Rakovecká 35
63500 Brno
Czech Republic
www.finnsup.cz

Content

1. Important information for user
2. Technical description
3. Instructions to operation Buoyancy Control Device
4. Get ready before use
5. Use of Buoyancy Control Device
6. Care of Buoyancy Control Device after use

7. Checking of Buoyancy Control Device
8. Storage and maintenance
9. Malfunction and solution
10. Info label

1. Important information for user

- Before first usage of the Buoyancy Control Device of inflatable style, allowing diver to control buoyancy (furthermore just buoyancy compensator), this owner manual must be read and fully understood by every user. At the same time, the user must practice all instructions of this manual. Neglecting those might lead to injury or death of the user or other persons. In case of uncertainties in instructions of this manual, please contact supplier of the buoyancy compensator.
- Buoyancy Control Device is designed such in order to meet all requirements of technical standard ČSN EN 1809. Quality of pressurized air to filling tanks must meet technical standard ČSN EN 12021.
- User must be a certified graduate of relevant diving training at any of the globally recognized diving school like PADI, IANTD, TDI, NAUI, SSI etc. Moreover the user must be fully acquainted with methods and procedures to operating the compensators for ascend, descend and neutral buoyancy. User must cope practically all these skills and train them repetitively!
- User must be admitted fit physically and mentally to using the scuba.
- Supplier refuses fundamentally any liability in case of breaching the instructions and recommendations in this manual.

2. Technical description of the compensator

2.1. Introduction

FLY side is a buoyancy compensator in style of side mount, designed to carrying side tanks, offering a comfortable buoyancy compensation for both sports and professional diving. It consists of inflating sack made in black or red color, harness, back plate and optional accessory Butt Plate.

Buoyancy compensator is not intended as a life jacket and also can't substitute a function of lifting sack to bringing objects on surface. In case of loss of an elevated object the loss of buoyancy control is very likely with subsequent uncontrolled ascend on surface!

Buoyancy compensator meets standard EN 1809. Buoyancy compensator is intended only for compensation of buoyancy during diving. This device doesn't assure anytime to user the head up position when swimming on surface.

Quality of pressurized air to filling tanks must meet technical standard ČSN EN 12001.

We highly recommend using the tanks with neutral buoyancy, e.g. Luxfer 7l, S40, S80 or Faber 7l, 12l.

2.2. Harness, Back plate and Butt Plate

Harness is designed and constructed in such a way that it meets requirements for diving with all commonly available and frequently used types of tanks.

A Continuous, indivisible belt can be adjusted exactly to need/volume of user. It is delivered in two sizes – standard and XXL.

Harness is made of polypropylene. If worn out, can be replaced by user.



Pic. 1 Harness



Pic. 2 Stainless back plate with harness



Pic. 3 Aluminum back plate with harness

Back plate can be delivered on wish in three different materials:

- Aluminum alloy 3mm with surfacing elox (weight 0,75 kg)
- Polished stainless steel 3mm (weight 2,75 kg) or
- Polished stainless steel 6mm (weight 5,50 kg)

User selects the appropriate plate in accordance to his requirements on ballast.

Back plate is equipped with a system of high quality harness, backcloth with pocket for buoy, set of stainless D-rings and stops. Adjustment of distance and exact position of those components depends on preferences of each user and might differ according to actual style and type of diving activity.

Back plate is equipped moreover with a system of six pockets for ballast - (2 pockets for 3 kg ballast in each, 2 pockets for 2 kg ballast in each and 2 pockets for 1 kg ballast in each). Producer recommends as a best choice to use the FLY pellet ballast because the classic cast-lead cubes might not fit the pockets. This ballast system can be substituted optionally by a pair of integrated ballast of total weight 10 kg (2x 5 kg), attached to the back plate with stainless screws and arrays.

Producer recommends highly that users complete the training at accredited diving institutions for using this type of compensators and also recommends paying attention to maximum safety, comfort and usefulness when adjusting the length and position of the D-rings. The harness is equipped with 10 D-rings and 12 stops in a standard configuration.



Pic. 4 Pockets for ballast on back plate with harness



Pic. 5 Pockets for ballast on back plate with harness



Pic. 6 Integrated ballast on back plate with harness and flexible rope

Butt Plate – this practical unit is an optional accessory and it serves to fixing other parts of equipment, like e.g. canister torch, reel and buoy. It offers stainless steel snares (so called trapeze) and a grommet to attaching the canister torch. It is joined with the sack of compensator with 4 pcs of stainless screws and plastic arrays.



Pic. 7 and 8 Butt Plate – without or with the grommet of canister

2.3.Sack of buoyancy compensator

Sack of buoyancy compensator has a double layer construction consisting of inner tube, outer coat, inflator and safety valve. The inner tube combines two quality materials, polyurethane foil of 500 microns and Cordura 500 with PU painting in order to resist the most exacting conditions of recreational, professional and technical diving. The sack itself is protected by the outer coat made of black or red Cordura 2000 with PU painting and with connecting piece of Cordura 1000 with rubberized surface which guarantees maximum possible resistance against damage and environment. The buoyancy compensator is delivered with rubber rope and three snap-hooks, two small of them are to fixing the rubber rope. One middle size snap-hook serves for fixing inflator from left-hand or right-hand direction (not from above). Buoyancy compensator can be purchased separately if user already possesses his own back plate with harness.



Pics. 7, 8 and 9 Sack of the compensator

2.4. Inflator, safety valve and a third alternative position for placing inflator or safety valve

Buoyancy compensator is equipped with one inflator, one safety valve and one alternative position for placing inflator or safety/deflate valve, primarily blinded. Both Inflator and safety/deflate valve can be switched in frame of those three positions in accordance to the need of user. Inflator has an inflate button, deflate button and standard plug for middle pressure hose which is supply as a part of basic configuration.

Maximum flow rate of inflator is less than the flow rate of deflate valve so that an adequate deflating is assured over the pressurized valve in case of malfunction (freezing) of inflator in inflating position. This serves as prevention of explosion of the buoyancy compensator.

Maximum working pressure of inflator is 20 bar, minimum working pressure is 7 bar. The producer doesn't provide the maximum gas flow rate value of the deflate unit.

3. Instructions to operation the Buoyancy Control Device

3.1. Preparation to use

Before use of the buoyancy compensator read please this manual.

3.2. Adjustment the length of harness

Before use it is necessary to adjust an adequate length of harness, appropriate position of D-rings and length of flexible (rubber) rope. Setup of those elements should be made on the suit selected to diving with this compensator. The length of shoulder harness must be comfortable however it must not allow too much of free movement of the compensator over the body. Checking the right length must be done just after connecting of the crotch harness. After setting up the right length it is important to leave a sufficient reserve of harness if a modification of your suit was required. Cut off the superfluous harness and heat-seal the end.

3.3. Setting the position of D-rings

It is recommended to position the sloped D-rings in the middle part of breast muscle otherwise in accordance to personal preferences of user. The fixed D-rings on left and right sides of the belt should be situated in axis of body. These D-rings are intended for usage of steel tanks and of full (200 bar) aluminum tanks S080. A right position of secondary D-rings is cca. 10 cm front direction, those D-rings are intended for carrying of aluminum tanks which becoming neutral with cca. 120 bar. The reason for such a positioning is a higher buoyancy of aluminum tanks and therefore a need of ensuring their right position in the axis of body.

D-ring of back part of the crotch harness can be manipulated with right hand or left hand. It is situated 10-20 cm under bottom edge of the back plate. Primarily it serves to attaching of backup DPV (diver propulsion vehicle), so called underwater scooter. D-ring of front part of the crotch harness serves primarily to fixing the employed DPV.

3.4. Setting the length of flexible rope

Diameter of flexible rope was chosen at 9 mm. Such a diameter of rope provides sufficient comfort during manipulation with the tanks under water. At the same time it ensures sufficient stiffness required to maintaining the right position of tanks in the axis of body during dive.

Length of flexible rope can be adjusted via a length of knot at the back part of the harness. The length is individual, depending on the height of user and selected tanks. Correct length of flexible rope must allow the required manipulation with the tanks and at the same time it must ensure their right position along body. There are two snap-hooks added for fixing. Secondary, low profile shoulder D-rings are intended for those.

Warning!!

When the length of harness and position of D-rings is being adjusted, it is important to take into consideration both the personal preferences of user, his training school and the way of usage of the compensator. The setting done by producer is just indicative, fitting to an average figure of user. Exact adjustment of the length of harness, flexible rope and right position of metal accessories are essential for correct use of the product!!

4. Get ready before use

4.1. Choice of right tanks

Buoyancy compensator Fly is primarily intended to carrying two side tanks. According to a need of user and considering a buoyancy of employed tanks the compensator can be used also with only one side tank, eventually with one tank situated diagonally on user's chest or with other staging tanks as well. Their total number and volume must be in line with the buoyancy capabilities of the compensator. Figure of compensator's buoyancy in N (Newtons) is stated in the producer label. We recommend strongly using the tanks with neutral buoyancy like e.g. Luxfer 7l, S40, S80 or Faber 7l, 12l.

4.2. Attaching tanks to the compensator

Selected tanks/tank must have a snap-hook at their bottom part serving for attaching to the compensator. According to size and buoyancy of employed tank, select please one of the side D-rings on the abdominal harness, eventually the snare of Butt Plate. Adjust the position of snap-hook so that after attaching tank to the compensator the closure of valve is oriented forward and the outlet for connecting the 1st stage of regulator is oriented backward.

At top part, attach the tank to the compensator by looping the flexible rope around the closure of valve. The valve of tank should be situated approximately in armpit level. We recommend using the right mono-valve and the left mono-valve when diving with two side tanks.



Pic. 10 Attaching tank - bottom



Pic. 11 Attaching tank - top

4.3. Attachment of regulators

Left tank: 1st stage can be a fixed (not revolving). To the above direction is attached middle pressure hose toward 2nd stage. Connect the middle pressure hose of inflator to middle pressure outlet of your 1st stage of regulator. Then, the other end of hose you can connect to inflator via connector. Inflator hose can run over or below shoulder.

Hose of 2nd stage of the regulator can lead below the shoulder along neck. 2nd stage is equipped with flexible loop to fixing around the neck. We recommend using 2nd stage with articular connection of hose – length of the hose depends on width of shoulders and personal preferences of the user. A High-pressure hose (HP) of 15 cm length equipped with manometer (gauge) leads downward direction from the 1st stage. If inflator hose of dry suit is necessary, attach it also downward direction from the 1st stage – its length is cca. 25 cm.



Pic. 12 Attaching the regulator – Left tank

Right tank: It's advantageous to use a regulator with revolving 1st stage. From the 1st stage the middle pressure hose leads toward the 2nd stage of your regulator. The hose runs over the chest behind head and around neck, with mouthpiece oriented to your mouth. When the 2nd stage is not employed, we recommend fixing it with a middle size snap-hook to D-ring on the right shoulder belt of harness. High-pressure hose (HP) of 15 cm length with gauge leads further downwards from the 1st stage.



Pic. 13 Attaching the regulator – Right tank

Now the compensator is assembled to use.

4.4. Checking of the buoyancy compensator before use

4.4.1. Overall inspection of buoyancy compensator and checking of all connections

Check carefully a proper tighten of all threaded connections when you're assembling the apparatus before its use. Check also the condition of O-rings and condition of other individual components.

4.4.2. Control of functionality

- Open the valve of tank
- Read the figure of pressure from the gauge.
- Close the valve of the tank, and check if a leak of air occurs when monitoring the gauge.
- Open again the valve of tank.
- Inflate fully the compensator by pressing the inflating button and then leave the secure valve to blow off a bit so that its correct functioning is confirmed.
- Check the correct function of deflating button by gentle blowing off the compensator.

5. Use of buoyancy compensator

5.1. Putting the buoyancy compensator on

- Depending on configuration of the equipment prepared for dive (type of used diving suit, number, volume and material of the tanks etc.), fill the pockets with adequate amount of ballast.
- Put the compensator on back. Connect the crotch belt with the girth part of belt and tighten with buckle.
- Attach the flexible rope with both snap-hooks to the secondary (low profile) shoulder D-ring.
- Attach the tanks.
- Open fully the valve of the tanks.
- Check correct position and connection of inflator.

Now is the apparatus prepared to use.

5.2. During use

During diving it is necessary to watch frequently the functionality of inflating and deflating valves. It is important to avoid potential leak of air or that inflating valve stuck in its working position. This happens commonly as a consequence of incorrect care after the dive (see chapter 6).

5.3. After use

- Release the buckle of girth belt, slide out the crotch belt and take down the compensator.
- Close the pressure valves of tanks.
- Disconnect inflating middle pressure hose.
- Dismantle the tanks in reverse way to assembling.

6. Care of the compensator after its use

6.1. Cleansing

- After each use it is essential to wash the compensator in fresh water.
- Do not use for treatment of compensator any chemical detergents that are not recommended and approved by producer.
- Via mouthpiece of inflator fill the compensator up to approx. $\frac{1}{4}$ of its volume with fresh water.
- Inflate the compensator by mouth and rinse the inner surface of sack by shaking.
- Turn around the compensator so that inflator is oriented downwards. Empty the compensator by pressing the deflating button of inflator.
- If needed, repeat the whole process.
- Before storage, make sure that the compensator is completely free of any rest of salt, silt or other dirt that could influence its damage or its next correct functioning.
- Leave the compensator dry out slowly. Don't dry on direct sun.
- Before storage, inflate a bit the compensator.
- Warning! It is necessary to treat the compensator also after its usage in pool because of a high content of chlorine in the water. Chlorine causes an aggressive damage to majority of used materials.

6.2. Cleaning and disinfection

- It is recommended to carry out the disinfection of inner sack of compensator once or twice a year. Anyway, before or after a long storage using an antiseptic solution.
- Procedure of disinfection is as same as the cleansing procedure described in the point 6.1.

7. Checking of Buoyancy control device

7.1. Overall inspection of the compensator

- Check the completeness of the compensator.
- Check that individual components of the compensator are not damaged or excessively worn out. If any component is damaged or excessively worn out, then replace it with a new one or send it in the service center of producer.

7.2. Checking of all connections

- Check carefully and tighten all threaded connections that are commonly checked by user before the use. Check condition of the sealing O-rings and condition of all individual parts. In case of damage or an excessive worn out of any part consider its replacement for a new one or send the affected part in the service center of producer.

7.3. Checking of O-rings of the inflator hose

- Check condition of O-rings of the fast connector of inflator hose, especially its sealing. In regular intervals use silicon grease or silicon spray to lubricating.

8. Storage and care of the buoyancy compensator

- The compensator must be stored in a dry room at temperature of 10 – 30° C (centigrade), without direct sunshine and without evaporating chemicals (especially acids and solvents). Relative humidity should not exceed 65%. Hoses of the compensator must be in a position like during the use of compensator, in any case they must not get contorted or folded. The compensator must not be burdened during its storage. The producer guarantees unchanged features of the product within min. of 7 years when the instructed conditions are kept.
- Before storage of the compensator it is necessary to clean and disinfect it.
- After each, even after a short use, however at least once a year, it is necessary to complete a cleansing and disinfection of all components of the compensator. Also an overall check of compensator is required at the same time.

9. Malfunction and solution

- When malfunctioning of the compensator occurs, eventually any leakage of the pressure circuit is detected, send the compensator to a professional repairing in the service center.

10. Info label

- Text of the English version: Warnings. This is not a lifejacket and does not guarantee a head up position. Before using this product, carefully read the owners manual.
- Text české verze: Upozornění. Toto není záchranná vesta a nezaručuje pozici hlavou vzhůru. Před použitím tohoto výrobku pečlivě přečtěte návod k použití.

Warranty

The buoyancy control device FLY side

Serial number of inflator:

Limits of liability:

Warranty is granted to the user on the proper functioning of the device. The user can exercise the right to repair or replacement with new parts, free of charge, when occurred because of workmanship defect or hidden defect in material during the warranty time period.

The warranty does not cover a common operational wearing, defects arisen due to intentional damage, serious carelessness during use, in case that the user made any unauthorized adjustments or changes of this device, or because of a damage during transportation. The producer shall in no event be liable for any damages arising from mishandling or damages resulting from improper maintenance out of the instructions in this owner manual. In case of any doubt related to operation or maintenance, contact the professional service.

Warranty period:

The produce provides this device with warranty for a period of two years after purchase.

Repair and service:

Guarantee repairs and outside guarantee repairs of this device provides and spare parts supplies:

FINN SUB s.r.o.
Rakovecká 35
63500 Brno
Czech Republic
www.finnsub.cz

Date of purchase:

Stamp and signature of vendor: