NORTHERN DIVER
OPENWATER SUITS & EQUIPMENT

DRYSUIT VALVE //
Operation, Care & Maintenance Manual



Tested To EN 14225

THANK YOU FOR PURCHASING NORTHERN DIVER DRYSUIT VALVES

All Northern Diver equipment is designed and manufactured to the highest standard and is guaranteed and backed by a first class after sales service.

When your equipment requires any service or should need repair, you should contact Northern Diver immediately. Contact our Repairs Department directly;

Tel: +44 (0) 1257 25 69 37

E-mail: testing@ndiver.com

Website: www.ndiver.com

CONTENTS

Valve Positioning	4
Valve Fitting Procedure	5
Valve Fitting Procedure Cont.	6
Inflation Valve Connections	6
Hose Connections	7
Suit Valve Operation	8
Care and Maintenance	9
Suit Valve Range	10
Guarantee	11

VALVE POSITIONING

Auto Dump Valve

It is recommended that the dump valve is fitted high up on the left or right am. With the forearm raised to a horizontal position across the chest, the dump valve should be directly on top of the upper arm where it can be operated easily by the opposite hand.

Cuff Dump Valve

As the name suggests, the cuff dump valves are fitted near the cuff of the suit. Ensure the valve will not be covered by gloves when fitted.

Suit Inflation Valve

It is not critical to the operation of the valve where it is fitted on the suit as it is with the dump valve, but generally the inflation valve is fitted on the chest area where it can easily be reached. When positioning the valve try to ensure that it won't be covered by other pieces of diving equipment, affecting access to the valve.

Rubber Backing Patch

It is highly recommended that a rubber backing patch is bonded to the outside of the suit with a suitable adhesive, where both inflation and dump valves are to be positioned. If the hole for the valve has not been cut previously then carefully cut out the suit in the centre of the rubber backing patch. If a backing patch is not fitted, this could result in a leak.

VALVE FITTING PROCEDURE

Low Profile Auto Dump Valve Fitting

When the rubber backing patch has been bonded to the suit and the hole cut out, the valve is ready to be fitted. Place the thread of the valve through the hole in the suit, ensuring the retaining ring of the dump valve is located correctly around the cap (fig 1.)

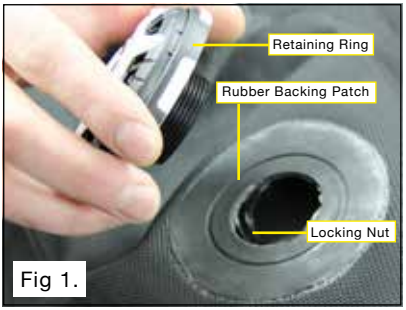


Fig 1.

IMPORTANT
Press down the cap while tightening the locking nut


Fig 2.

Screw the locking ring onto the dump valve until the valve is lightly held in the suit.

VERY IMPORTANT: Before any torque is applied to the locking nut or dump valve it is critical that the adjusting cap of the dump valve is pressed down to lock the valve mechanism. (Fig 2.) Failure to press the cap during tightening or loosening of the above could cause damage to the mechanism.

The valve should be tightened into the suit to approx. 4 lbs/ft (5.4 Nm) or as tight as possible by hand. Apply the torque to the backing nut and you will find the dump valve will tend not to rotate due to the friction on the rubber backing patch. After a few days or before you dive re-check the tightness of the backing nut.

VALVE FITTING PROCEDURE CONT.

Fitting all other suit valves.

Including: standard dump valve, cuff dump valve and all inflation valves.

All other suit valves are fitted in the same way as the low profile dump valves shown previously, but without the need to press down on the front of the valves.

You will find with the swivel inflation valve, that it rotates through approximately 350 degrees and then stops, this stop is to enable the valve to be tightened into the suit. When the valve is tight in the suit, you should ensure that the stop is not in the area you wish the valve to swivel.

Periodically check all the valves to ensure they are still tight in the suit.

INFLATION VALVE CONNECTIONS

There are three types of Inflation Valve connections used. Fig 3. shows the Cjen fitting, Fig 4. shows the Standard fitting and Fig 5. shows the V-Tech fitting. The Standard fitting is the same fitting found on buoyancy device direct feeds and tends to be more widely used.



Fig 3. (Above)



Fig 4. (Above)



Fig 5. (Above)

HOSE CONNECTIONS

There are three types of hose coupling to go with the inflation valve connections. Again these are Cjen couplings (fig 6.), Standard couplings (fig 7.) and V-Tech couplings (fig 8.)

The difference in fitting is, the Cjen coupling will just push straight onto the inflation valve connection, but the Standard coupling needs to have the collar on the coupling pulled back while pushing it onto the valve connection.



Fig 6. (Above)



Fig 7. (Above)



Fig 8. (Above)

The hoses come with a standard 3/8” UNF male thread so they can be fitted to the medium pressure port of any 1st stage regulator, ensure the O-ring is lightly lubricated and tighten.

SUIT VALVE OPERATION

Inflation and Auto Dump Valves
Including: standard dump valve and low profile dump valve

Before each dive, it is advisable to check the tightness of the suit valves in the suit to ensure leak free diving.

1. Do not dive over-weighted. Choose a safe shallow place to test your buoyancy.

2. Always enter the water with the dump valve approximately half closed, in the event of an emergency; you may need immediate positive buoyancy.

3. Once in the water, on the surface, blow sufficient air into your suit, by depressing the button on the suit inflation valve, to provide strong positive buoyancy.

4. Fully deflate your buoyancy jacket. If you cannot maintain positive buoyancy with the dump valve approximately half closed, you are probably over weighted.

5. To submerge, firmly press the adjustable cap of the dump valve to operate the manual dump system. If you cannot submerge easily after venting all the air from the suit, you are under weighted.

6. Settle yourself comfortably on the bottom, in an upright position. Wind open the dump valve cap completely, blow air into your suit until it vents from the dump valve, close the dump valve cap one or two clicks at a time and press the inflator again. Repeat until sufficient buoyancy can be achieved to maintain a controlled rate of ascent without any assistance. As you ascend, expanding air within the suit will be automatically vented. You may stop or slow down your ascent at any time by operating the manual push dump system. You should practise this procedure several times in progressively deeper water until you are thoroughly familiar with the valves' capabilities.

SUIT VALVE OPERATION CONT...

Cuff dump valves.

When using cuff dump valves, venting of the air is done simply by raising the arm and allowing the air to rise venting through the cuff dump valve. This type of valve is similar than the auto dump valve, but does not offer the same control of buoyancy.

CARE AND MAINTENANCE

Suit Inflation Valves

The suit inflation valve should be rinsed in fresh water after use; it should then be connected to the air supply and blown through to clear any residual water.
The valve should be stripped down, cleaned and the O-rings changed annually to guarantee trouble free operation.

All Dump Valves

The dump valve should be rinsed in fresh water after use and then the residual water gently shaken off.
Check the operation of the valves before each dive.

VERY IMPORTANT: When removing the low profile auto dump valve ensure the adjusting cap is depressed while loosening as described on page 5. Failure to depress the cap could cause damage to the valve mechanism.

Any work carried out on the suit valves should always be done by a competent technician.

NORTHERN DIVER DRYSUIT VALVE RANGE



V-Tech Exhaust Valve



Double Mushroom
Shoulder Dump



V-Tech Inflation Valve



Commercial
Inflation Valve



Cuff Dump Valve

OUR GUARANTEE

As with all Northern Diver valves, our range of drysuit valves come with a lifetime guarantee to the original owner, against defects in materials and workmanship.

This guarantee does not cover damage to abuse, neglect, improper usage, lack of maintenance or normal wear and tear.

If after inspection by Northern Diver, we are satisfied that the product is defective, the product will be repaired or replaced free of charge.

CAUTION!

Diving is a potentially hazardous sport.
Before using any diving equipment you should be properly trained in the use of the equipment by a recognised club or organisation.

Tel : +44 (0) 1257 25 69 37
Email : testing@ndiver.com
Website : www.ndiver.com



Northern Diver International Limited. East Quarry Appley Lane North, Appley Bridge, Wigan, WN6 9AE, UK