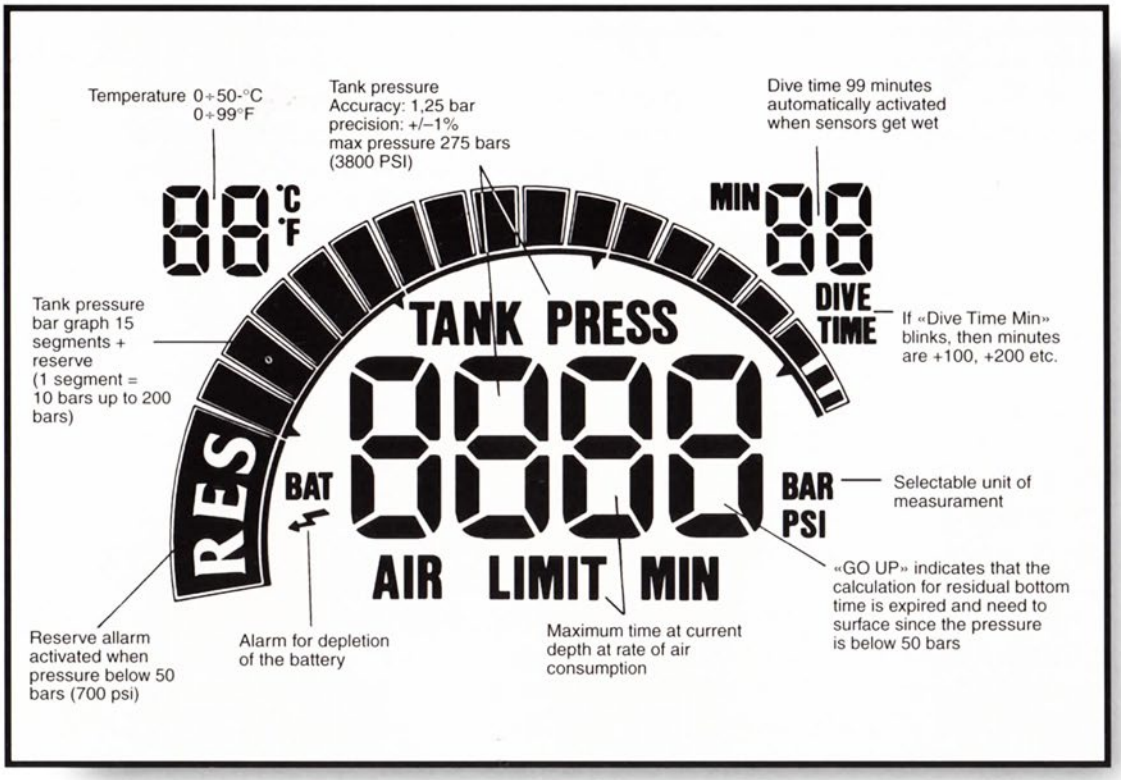
AIR LIMIT MANOMETER

This electronic instrument is a dive computer providing information during the dive such as consumption at various depths, and cylinder pressure regardless of the capacity of the cylinder itself. The functions of this instrument are controlled by a special and exclusive algorithm which displays the remaining dive time. This is NOT affected by consumption peaks whether they be frequent or not, by the diving drysuit or any other accessories which may influence other instruments of this type.



Technical specifications:

- Operating pressure 250 bar - 3600 Pi (EC EN250)
- Measurement precision +/- 1% on depth gauge, measurement accuracy 1.25 bar.
- Range of temperature measurements from 0° to 50° (99° F)
- Operating temperature from -10° a +55° C

Data displayed on surface:

- Cylinder pressure: digital and analogical format.
- "RES" alarm message displayed when pressure is less than 50 bar.
- Temperature, battery low warning "bat", BAR or PSI.

Data displayed underwater:

- Digital and analogical cylinder pressure data.
- lashing "RES" and "GO UP" alarms triggered at pressure below 50 bar.
- Ambient temperature.
- Total dive time, remaining air supply timer (can be disabled by the diver).
- "AIR LIMIT MIN" remaining dive time before reserve supply is activated. This function indicates how much time remains before a pressure of 50 bar is reached, depending on current consumption. The warning message is displayed alternately with the pressure value for 2.5 seconds every 10 seconds. When the reserve supply is activated the GO UP warning message is displayed.

A.L.M.

W400030

- Air-flow surfaces in stainless steel with protective cover in polyurethane and/or special reinforced polymer (patented).
- Polyurethane membrane integrated in the protective cap and secured to the pressure reduction mechanism (patented).
- Constant thickness sintered semi-spherical micron filter in stainless steel thread.
- O-rings in Viton and pellets in polyurethane for nitrox and/or various mixtures (on request).
- 4 low pressure couplings (3/8UNF) + 2 high pressure couplings (7/16UNF).

First stage functioning:

- Balanced piston assisted by protective polyurethane membrane (patented).
- Delivery guaranteed by the "normally open" system. It is the pressure in the system which stops air delivery. Therefore if there is not enough pressure to shut OFF the system, the system will remain open allowing transfer of remaining air.
- Performance improves with depth, +12% approx., beyond balancing pressure (1.12 atmospheres approximately for every 10 m of depth).
- Performance improves as air tank pressure is decreased.
- Intermediate pressure calibration: 10.5 bar (hp 200 bar), 11.5 bar (hp 50 bar) (+/- 3%) (patented).
- Sealed mechanism, anti-freeze, non-polluting, royal oxygen (on request).
- Very low pressure fall during inhalation, approximately 1 bar.
- The quantity of air delivered depends on the taps.

The excess pressure valve automatically expels any excess pressure from the first stage. It can be removed when using the Octopus OW.

JOKE 230 bar

W500230

SECOND STAGE

Given that a tired diver uses 70% of inhaled oxygen to supply respiration muscles, the flow regulator, and in particular the second stage, are the key to the system.
The delivery system is made up of a first stage, a hose and a second stage. It controls and regulates the flow of air from the tank to be then used in respiration. Ideally this system should not cause problems of fatigue. To simplify, if the mechanism is not perfect, the whole system makes respiration tiring. The more tiring respiration is, the more air is consumed and the more air is required.
Given the above, it is easy to understand the need for a perfect system allowing either low or abundant air delivery as necessary. A good distribution system must spontaneously supply the necessary amount of air under all diving conditions.

The market offers three different types of second stage mechanisms:

1. A simple valve mechanism with mechanical opening.
2. A servo-assisted valve mechanism with mechanical opening.
3. A balanced servo-assisted valve mechanism with pneumatic opening.

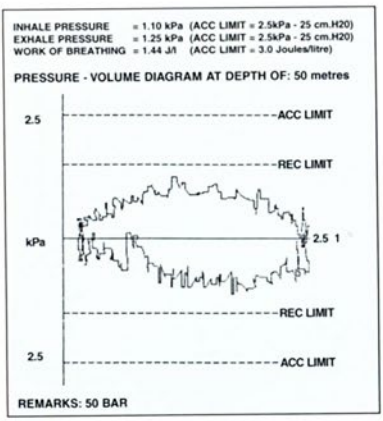
To simplify, the main features are as follows:

- In the first case distribution is inhibited by a "plug" pushed by a steel spring. The force contrasts with the air pressure and/or push coming from the first stage. If the respiration system is to remain open and/or in distribution, it requires a force greater than that exerted by the spring which is further compressed. It is the most widely used and economical flow regulator available on the market.
- In the second case, given that the steel spring offers the main resistance to inhalation, the valve uses a special "piston" pushed by a "spring" which is approximately 50% weaker than the previous one. This spring is "servo-assisted" (when closed) by the pressure coming from the first stage.

The air passes through the piston and exerts a force on the piston which when added to that of the spring shuts OFF the air supply. If the respiration system is to remain open it requires a force greater than that exerted by the spring alone which as we have seen is weaker in this case. This system is known as servo-assisted and is even used by professional divers during deep and/or extreme dives. (OW, K50 and octopus).

- In the third case the valve does not use steel springs but an "elastic lung". This uses the pressure from the first stage to dilate and/or elongate itself. This action closes the air passage.

As pressure decreases due to the effect of inhalation, the "elastic lung" returns to its normal and/or natural size. If the respiration system is to remain open it only requires the force needed to control the "elastic lung".



This "balanced and servo-assisted" system belongs to the group of flow regulators offering the best performance. It is much appreciated for delivery flow and sensitivity during deep and/or extreme dives (2nd stage WIND and OXYGEN).

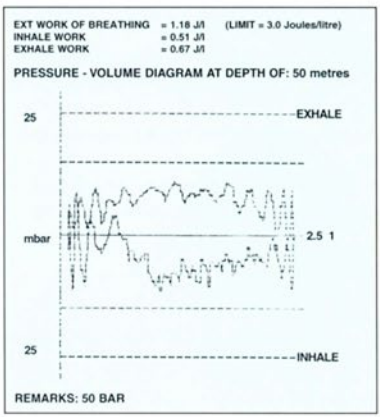
There is more market diversification when considering the system used to expel exhaled air. Remember that the larger the exhaust valve membrane the less tiring exhalation is.
The two most common systems are as follows:

a. The most widely used system sees the exhaust valve positioned on the second stage box and protected by special "whiskers".
b. The exhaust valve is at the front and is integrated in the inhale membrane to enable a larger size to be used. It is usually protected by a rubber cap.

The advantages offered by the two systems can be attributed to the different positions.

The main **technical features** of our second stages are as follows:

- Balanced servo-assisted piston valve, pneumatic movement with silicon lung (patented), mechanical.
- Venturi effect controlled by a deflector with humidifying effect.
- Dive+ and predive- command.
- Body mechanism in special carbon fibre reinforced polymer.
- Special mechanism components in self-lubricating waterproof Delrin.
- Second stage body in special fibreglass and carbon reinforced polymer.
- Inhale and exhaust membrane in special medicine-safe silicone.
- Membrane lever and disk in stainless steel.
- Viton and/or polyurethane o-rings for mixtures (on request).
- Mouthpiece in shaped silicon.
- Hose with large internal diameter, length 800 mm, tested to 35 bar.
- Working pressure from 3 to 16 bar, standard 10-11.5 bar (hp 250-50 bar).
- Air flow 1.2 to 2.8 litres depending on first stage calibration.



OXYGEN in TITANIUM and CARBON

Main characteristics of 2nd STAGE in Carbon

- Pneumatic balanced servo-assisted piston (system patented).
- Venturi effect controlled by deflector with humidifying effect, Dive + PreDive command.
- Single larger size inhale/exhaust membrane in special medical silicone
- Soft rubber cap (55 shore), hydrodynamic design
- Silicone mouthpiece
- Operating pressure from 8 to 15 bar
- Capacity from 900 to 4,000 litres/minute

Materials and specifications:

- Moving parts and valve body in Carbon.
- The high heat conductance of Carbon makes the valve functional in very cold waters (patented)
- The exceptional mechanical resistance characteristics of Carbon are as follows:

Enervation load in traction = 270 MN/m2 (45 is the value for good polymer).
Enervation load in flexing = 400 MN/m2 (68 is the value for good polymer).
Elasticity module in flexing = 21000 MN/m2 (2150 is the value for good polymer).

- O-Rings in Viton for nitrox (royal oxigen on request)
- Stainless steel lever and membrane discharge support
- Special rich rubber hose with increased internal diameter, length 800 mm
- Weight without hose, 150 grams
- Intermediate pressure: 10.5 bar
- Silicone membrane for pneumatic movements (patented)

Main features of 1st STAGE in TITANIUM

- 1st stage of the new generation with body in 100% TITANIUM (with certificate of origin)
- The first choice for use in catering and medicine, etc.,(non-toxic and non-magnetic)
- The most resistant metal against all types of damage and rust
- Exceptional mechanical resistance and very light, only 240 grams
- Main mechanical component (piston) in fibreglass reinforced polymer (patented)
- Balanced piston functioning, assisted and guaranteed by membrane (patented)
- Air-flow surfaces in stainless steel, and TITANIUM (patented)
- Antifreeze, non-polluting, self lubricating, acid-proof
- Increased performance as a function of depth and decrease in tank pressure
- 4 low pressure couplings (3/8 UNF), 2 high pressure couplings (7/16 UNF)
- Automatic excess pressure valve.
- Special O-Rings in Viton for oxygen and/or other mixtures
- Polyurethane membrane integrated in protective thermal/shock resistant cap (patented)
- Adjustable pre-calibrated balanced pressure reduction mechanism (patented)
- Stainless steel sintered filter with constant thickness hemisphere
- Distribution guaranteed by the "normally open" and/or dry circuit system

OXIGEN INOX e CARBONIO

The first stage body is in AISI 304 stainless steel. The surface is treated to further improve the already excellent rust-proof properties of this metal.
The fact that air arrives at the mouth means that this valve has been manufactured according to "food-safe standards". It is the only valve of its type in the world.
This is an indestructible flow regulator that has been tried and tested in extreme conditions. It provides excellent performance and is designed for professionals who earn their living from diving.
The INOX valve is proof of OCEANways design "philosophy": it is preferable to use stainless steel regardless of cost rather than gadgets that only appear to offer a better price/performance ratio.

Main features:

- 1st stage in AISI 304 stainless steel with balanced piston, assisted by a polyurethane membrane, dry functioning, antifreeze, non-polluting, DIN 200 coupling, first stage weight 380 g.
- DIN/Yoke 230 stirrup coupling and/or DIN300 coupling (optional)
- Weight of valve with hose 700 g

SHUTTLE 840

A traditional air surround buoyancy compensator of which we have already manufactured thousands in various styles. This buoyancy compensator has been given an updated look with buckles in special resin, all of which are now 50 mm.
The single bag structure in 840 dn Nylon is certainly among the most resistant available. The meshed pockets provide easy water drainage, the hydrodynamic design allows for easy movement in the water and comfort is guaranteed by the waist strap, and the quilted shoulder and back pads with non-abrasive plush.

Main features:

- Single-bag design in 840 dn Nylon
- Rigid back support with tank-holder strap
- 50 mm quick-release buckles in special resin
- Available Colours: Black - Blue - Yellow - Fuchsia
- Available Sizes: 0/XS - 1/SM - 2/ML - 3/XL
- Thrust: 9-11-14-17 kg (on request 19 and 23 kg).
- CE-EN 250

W160101

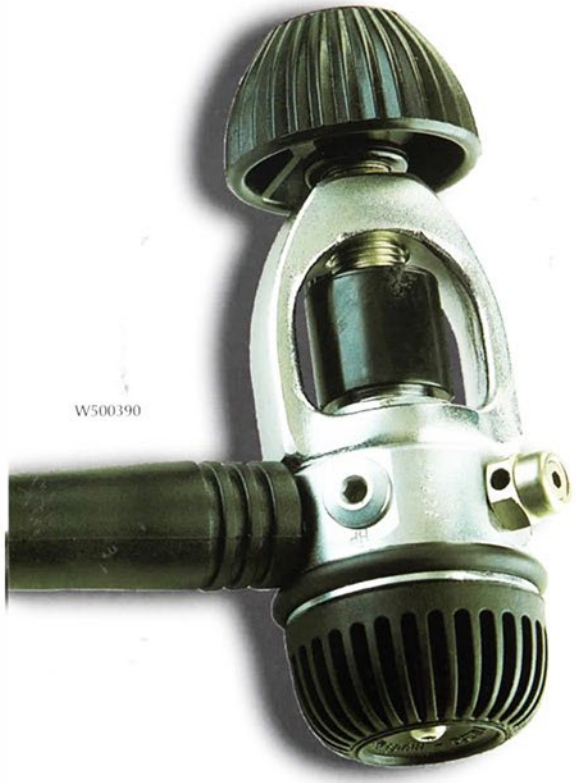
OW 910

This uses the same first stage as the Wind flow regulator. The second balanced servo-assisted stage consists of a front inhale membrane and a back increased diameter membrane exhaust valve. Exceptional performance during the technical tests (CE - EN 250) places this valve among the elite. The certificate states that the work and/or force needed for breathing, "ext work of breathing", calculated using an impartial mechanical test, is only 1.18 Joules/litre whilst the limit stipulated by the CE EN250 standard is 3.0 J/lt. and that of the US Navy is 1.45 J/lt.
This data is even more exceptional considering it was recorded under the most extreme conditions at a depth of 50 metres with 50 bar in the tank.

Main characteristics:

- 1st stage as Wind and Ocean
- 2nd OW stage, body and cap in technical polymer reinforced with fibre glass
- Balanced servo-assisted piston system.
- Rear discharge membrane, front ingress membrane
- Valve Weight with hose is 750 grams

W4000043



W500390

W50910A

OCTOPUS OW

This 2nd stage OW, weighing only 123 grams, is of the servo-assisted piston type with mechanical opening. The technical characteristics and unmatched performance of the Octopus will ensure that it is not simply used as a second flow regulator or emergency valve.

Technical Features:

- Servo-assisted piston system with mechanical opening
- Standard working pressure from 8 to 12 bar
- Air flow, that allowed by first stage calibration
- Total octopus weight with 900-mm hose, 285 g
- Yellow cap, royal on request

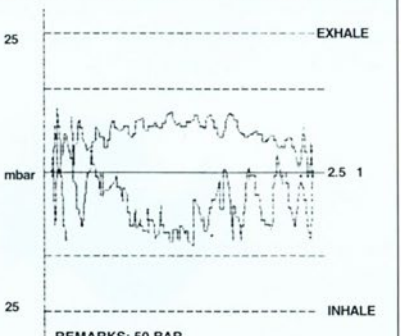
W52000W

W50910C

OCTOPUS

EXT WORK OF BREATHING	= 1.30 J/l	(LIMIT = 3.0 Joules/litre)
INHALE WORK	= 0.59 J/l	
EXHALE WORK	= 0.72 J/l	

PRESSURE - VOLUME DIAGRAM AT DEPTH OF: 50 metres



REMARKS: 50 BAR

OCEAN Project

This buoyancy compensator is certainly the most innovative model to date. It is the right balance between traditional buoyancy compensators and "technical" ones.
It comes in the form of a comfortable belt and includes a special bag at the rear with a wrap-around strap. The design facilitates vertical self-centring.
The single bag design in indestructible Cordura and the choice of the materials and accessories confirm that OCEANProject is capable of satisfying all needs. The chest area is kept free making it ideal for use with a dry suit, for those operating cameras and video cameras, for professional diving etc.
There are two large pockets with zips on the upper side and weight-holders with quick-release buckles and velcro straps on the lower side making the compensator even more functional and unique.

Main Features:

- Single-bag structure in Cordura 700/1000 dn
- Lower back support with twin air tank straps (on request)
- Back support with air tank strap (standard)
- Waist strap and adjustable shoulder pads quilted with non-abrasive plush
- Waxed buckles and stainless steel rings
- Support thrust: standard 19 kg (on request 23, Mod. Black Mount).
- Sizes available: 1/SM - 2/ML - 3/XL
- CE-EN 250

W120101

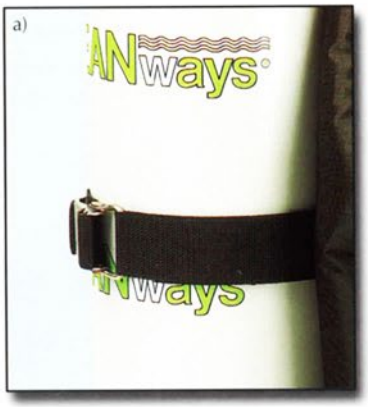
To make the correct choice an assumption must also be made here. We are sure that there is no longer any doubt as to what is best: the older "twin-bag" design, i.e. an internal air chamber and an external sewn protective chamber, or the "single-bag" design, i.e. a fabric support, usually in very strong 840 dn Nylon and/or 700/1000 dn Cordura, coated in a thick layer of polyurethane then sealed using the radio-frequency technique and seamed. The latter is both lighter and smaller both in the water and out.

The choice is limited to two technical features:

1. Surrounding air volume single-bag design.
2. Rear air volume single-bag design.

The surrounding air volume buoyancy compensator, undoubtedly the favourite of amateur divers is suggested for use with single air tanks. It has the advantage that the air volume is attached to the diver around the waist thus assisting vertical set-up under all conditions.

The rear air volume buoyancy compensator also known as "technical" and/or "all at the back" was specifically designed to compensate for negative thrust caused by heavy twin or triple sets of air tanks when the entire weight is supported on the diver's back.



As manufacturers of buoyancy compensators we are able to offer a further choice depending on intended use:

a. a buoyancy compensator with a rigid back support secured with stainless steel screws and bolts, a tank holder strap with quick-adjustment buckle.
b. a buoyancy compensator with a lower back support, two tank holder straps with quick-adjustment buckles, lighter and smaller.

The highly proved rapid inflating system "direct system" is made with a cable running inside the corrugated hose and the "rapid exhaust" system is fitted in the upper exhaust valve. Use to use even with large neoprene gloves"

FRONTIER CORDURA

A surrounding air volume type buoyancy compensator. The "**integrated ballast**" is held in the "slide" pockets positioned at the front under the traditional zipped pockets.
The single compartment structure is in **Cordura** and/or nylon 840.
It is the most up-to-date and functional buoyancy compensator. The "slide" pockets containing the weights can be easily offloaded by pulling on the special handles. The handles in easy to identify fluorescent orange open the special Velcro fasteners.
The position of the ballast pockets on the buoyancy compensator ensure a very comfortable dive given the absence of the irritating lead weights around the waist. The several stainless steel rings and the four plastic ones, enable many accessories to be used.

Main features:

- Single compartment structure in Cordura 700/1000 + non-abrasive plush
- Lower back support with twin tank-stop bands (on request)
- Rigid back support with twin tank-stop bands
- 50 mm waxed buckles and stainless steel rings
- Support thrust: standard 19 kg (on request 23)
- Available sizes: 1/SM - 2/ML - 3/XL
- CE-EN 250

W150101

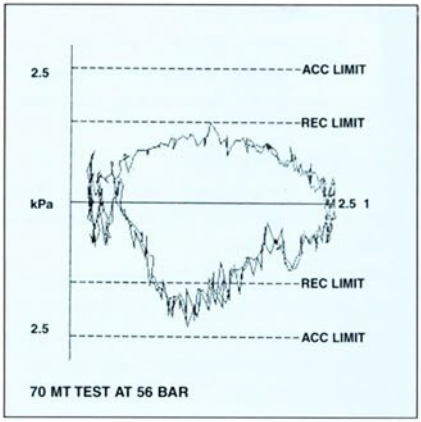
It is not easy to chose a flow regulator when they all seem the same and it is assumed they are all able to offer the same level of performance. The reality is very different.

The CE EN250 European standard and US NAVY standards stipulate a minimum performance to which all flow regulators must conform.

The most significant operating condition, to be used as an assessment parameter, is the test conducted at a depth of 50 m with tank pressure at 50 bar and a 2.5 litre breath frequency of 25 breaths a minute.

To ensure this minimum performance level, we also tested our flow regulators at far greater depths and achieved excellent results.

To better understand why our flow regulators offer better performance, it is useful to examine the design features differentiating them from others on the market:



FIRST STAGE

Air tank pressure can vary during a dive from 300 to 20 atmospheres. The function of the first stage is to reduce this pressure to a constant flow and pressure (approximately 10 atmospheres) so that the second stage can function correctly regardless of tank pressure and/or depth.

Excluding unbalanced first stages, as the various teaching techniques advise, the market offers two different concepts even though they are not yet widely available:

- A balanced "piston" first stage.
- A balanced "membrane" first stage.

To simplify, the positive features of both concepts are as follows:

- The simplicity and reliability of the "piston".
- The performance and versatility provided by the dry functioning "membrane".

OCEANWays first stages, with their exclusive "balanced piston assisted by a membrane" system, are a combination of the two concepts.

The special technical features of our first stages (covered by various international patents) are as follows:

- The main mechanism components are in special carbon fibre and stainless steel reinforced polymer (patented).
- Pre-calibrated and adjustable balanced pressure reduction mechanism (patented).

DIN 300 bar

DIN 200 bar