

EXPERTS IN MARITIME AND DEFENCE

Your Creative Engineering Partner





We are proud to be a part of the Circor group, a global manufacturer specialising in highly engineered, complex and severe environment products that serve long-term, high growth infrastructure markets, including oil & gas, power generation, industrial and aerospace & defence.

Circor's strong global presence serves over 7,000 customers in 100+ countries. With primary manufacturing facilities in the United States, Canada, Western Europe, Morocco and India, Circor serves an ever-increasing range of markets on a local, national and global level.

The Circor Mission

Delivering smart, reliable flow and motion control solutions for mission-critical applications.



Customer Intimacy



Team Before Self



Commitment and Accountability



Speed, Excellence and Innovation

WHO WE ARE

Since 1947, we have been developing fluid control solutions for process and safety critical systems in a range of demanding applications.

In meeting our clients' needs, we utilise a range of pressure and flow control technologies with the scope of our supply ranging from individual valves to fully integrated fluid control systems.

Supporting growth in our chosen markets is a dedicated team of engineers, application specialists and sales/after-sales support staff committed to delivering the solutions and customer support you demand.

For pressure or flow control application where quality matters, visit www.circor.com or contact us via your local sales office.

CUSTOMER FOCUS

We take pride in our customer focus, believing that building relationships is the key to better service. While we're our own independent company, we have the privilege to access Circor's wealth of expertise, technology and support. This means we can explore solutions in sectors such as aerospace, energy and cryogenics alongside our core offering.

Together, we can deliver the solution and support your need to prosper.

OUR SERVICES INCLUDE

COLLABORATIVE SOLUTION DEVELOPMENT

We develop innovative fluid control solutions to meet the needs of our clients.

PROJECT MANAGEMENT

We have a full project management service, encompassing all aspects of supply while maintaining close contact with customers to ensure all projects are delivered on time and within budget.

PROJECT DELIVERY

From initial design through to final commissioning and training, we ensure successful project delivery and handover to our clients' satisfaction.

AFTER SALES SUPPORT

Our Aftermarket team is focused on ensuring complete after-sales care from supply of spares, valve repair and ad hoc field service to full maintenance contracts and remote online support for those systems fitted with health monitoring.

YOUR CREATIVE ENGINEERING PARTNER

Our team of Applications Experts, Engineers and Project Managers have a broad range of experience in delivering cost-effective solutions with projects delivered to specification, time and cost.

All projects are delivered with a view to delivering great aftersales support.

SOLUTION DEVELOPMENT

- > Valve/pressure control technology related projects delivered in partnership with our client through design & prototyping to qualification and in-field testing
- > System level projects delivered as 'Turnkey', i.e. from concept to fully commissioned solution

RESEARCH AND DEVELOPMENT

- > Development of valve and pressure control technologies supporting high pressure applications in the Defence market place
- > Client specific R&D activities undertaken to meet specific project requirements

QUALIFICATION TESTING

- > Our qualification test programmes are written around specific project requirements, typical in safety & process critical situations
- > Mechanical shock, adiabatic shock, vibration, cycle testing, extreme temperature testing, etc

QUALITY ASSURANCE SYSTEM

- > ISO 9001: 2015 (audited by Lloyds Register)
- > PED modules H & H1
- > TPED – EC certificate of authorisation
- > ATEX – QA system audited by Intertek
- > ISO 18001: 2015 – Health & Safety and ISO 45001:2018 Environmental Management
- > Rolls Royce SABRe2 and GS3001
- > BAE Systems Standard Submarine Quality Assurance Clauses (SSQAC17)

CONTINUOUS IMPROVEMENT

- > Lean-Kaizen methodology
- > Formal problem solving techniques deployed



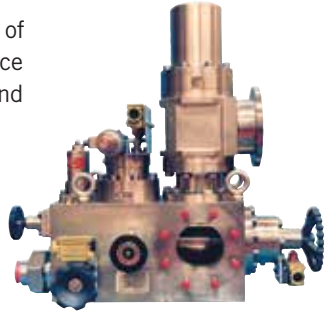
WHAT WE DO

INTEGRATED SYSTEM SOLUTIONS

REDUCING STATIONS

This high-functioning system of control valves is used to reduce pressure in applications around the boat such as the Main Engine Start. It is built using the Dreadnought Design Approach thereby meeting higher pressure, flow and shock levels.

It also has a long-duration flow testing implemented for qualification. The common valve inserts ensure a reduced cost and spares with improved pressure control (dynamic piloting / external sensing).



AUTOCHARGE

Our extensive experience designing industrial cylinder filling plants has been refined in this product which consistently allows safe and efficient bottle charging; removing the dangers of over-pressurising and over-heating. Autocharge provides reliable automatic cylinder filling for naval firefighting, damage control and air requirements.



PNEUMATIC AND HYDRAULIC SYSTEMS

A dependable and innovative range of products and systems for weapons handling, torpedo and general weapons discharge.

Shear Seal pilot operated Hydraulic selector valve used on a wide range of submarine platforms. Maximum working 207 barg.



HOOD INFLATION SYSTEMS

The heart of this visionary safety system is the HIS pressure controller. This valve, mounted in a submarine's escape tower, fulfils the vital role of tracking rising pressure from flooding with unparalleled accuracy. This responds to the changing tower pressure, meeting the needs of the submarine escape immersion suit, and ensuring a positive air supply is provided to the escaping submariner.



BUILT-IN BREATHING SYSTEM

This dependable system is comprised of expertly engineered valves which are essential to the success of planned submarine escapes. The product supplies a dedicated flow of clean breathing air to the submariners as they make their escape, ensuring their safety.



LAND APPLICATIONS

We supply essential equipment for height and suspension systems in military vehicles.

We are an established supplier on the BAE Systems Ultra Light-weight Field Howitzer gun.

PORTABLE CHARGING UNITS

We provide two versions; the nitrogen version, essential for aircraft tyre inflation and suspension strut charging, and the oxygen version which innovatively enables the filling of on-board bottles. Both units are self-contained, easy to use, lightweight and robust.



HULL AND BLOW VALVES

These market leading valves enable the safe transfer of fluids through the submarine pressure hull. They can be custom engineered to suit any length and bore size requirement.

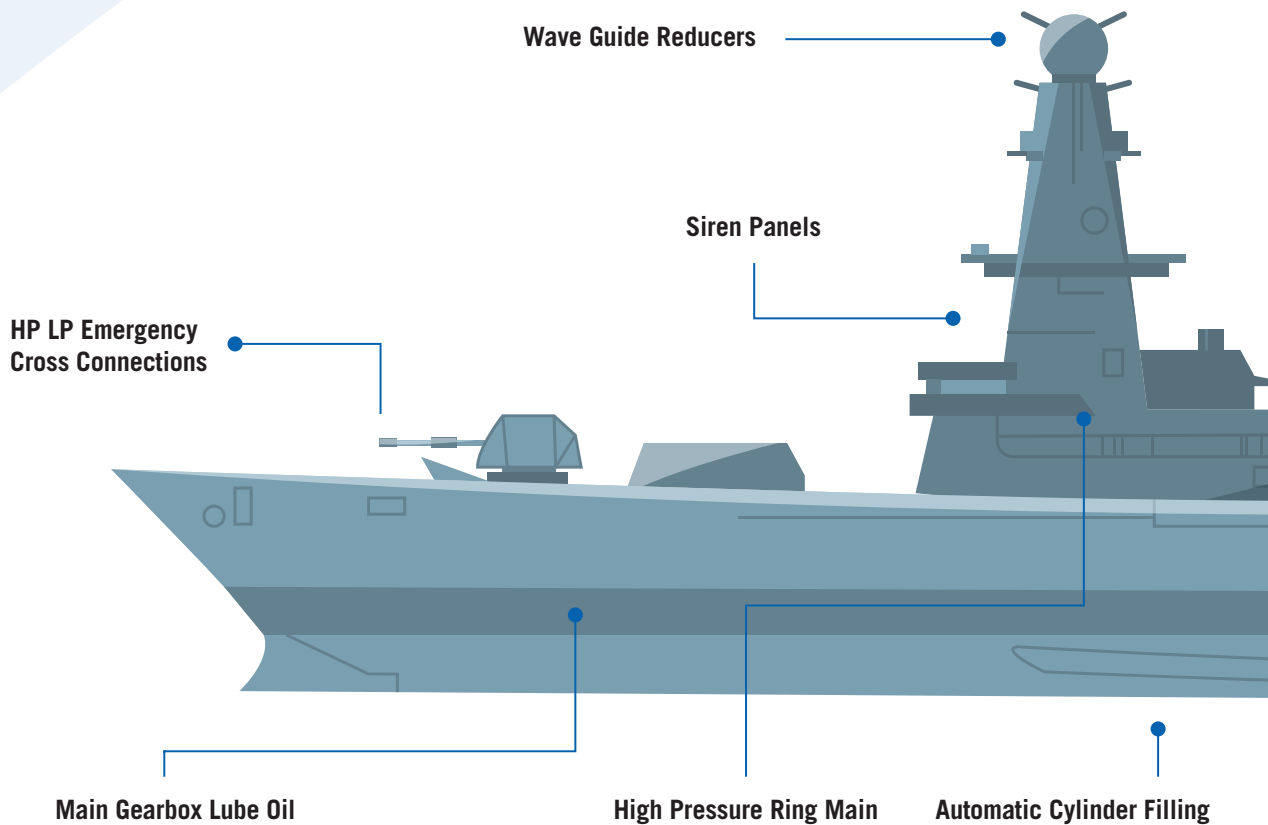
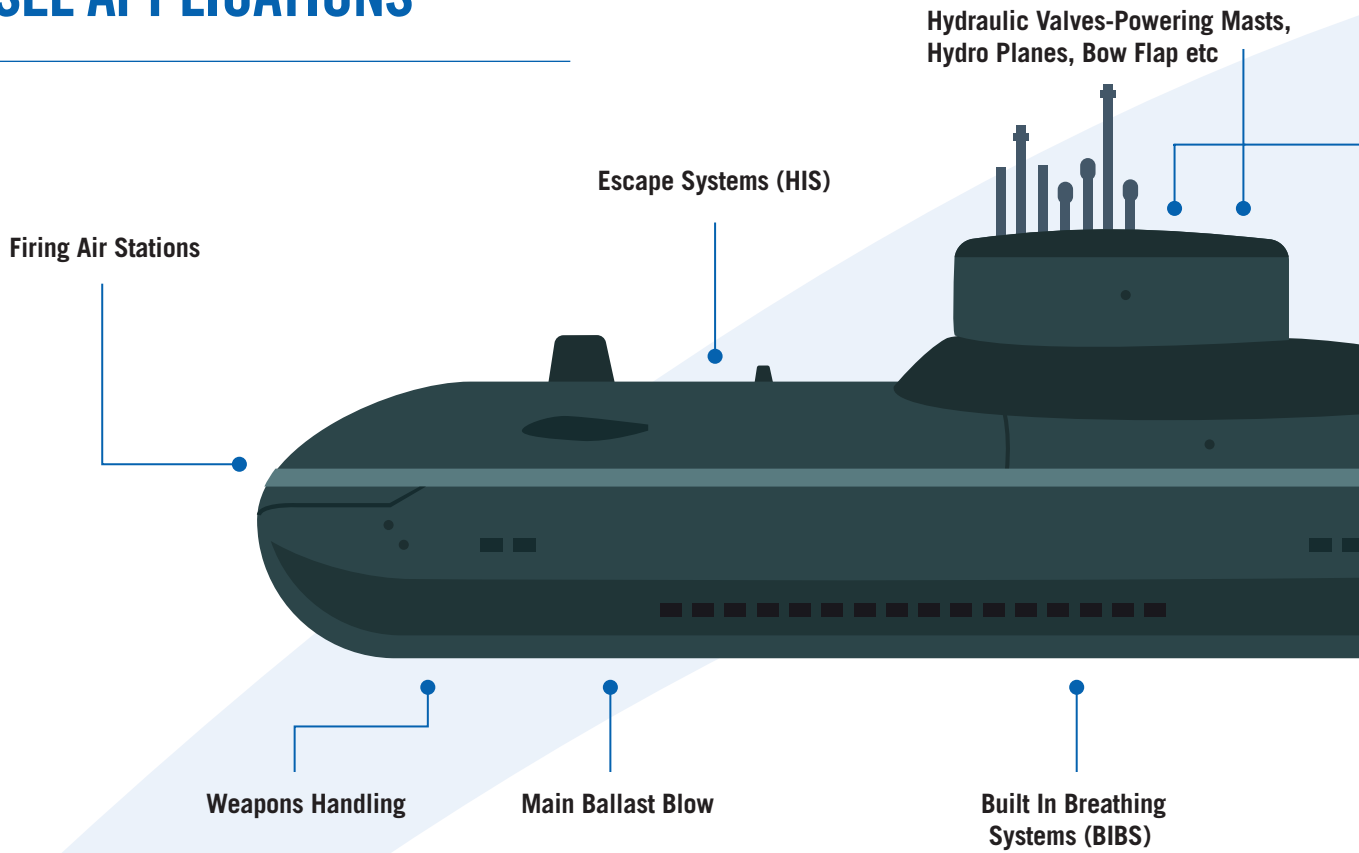


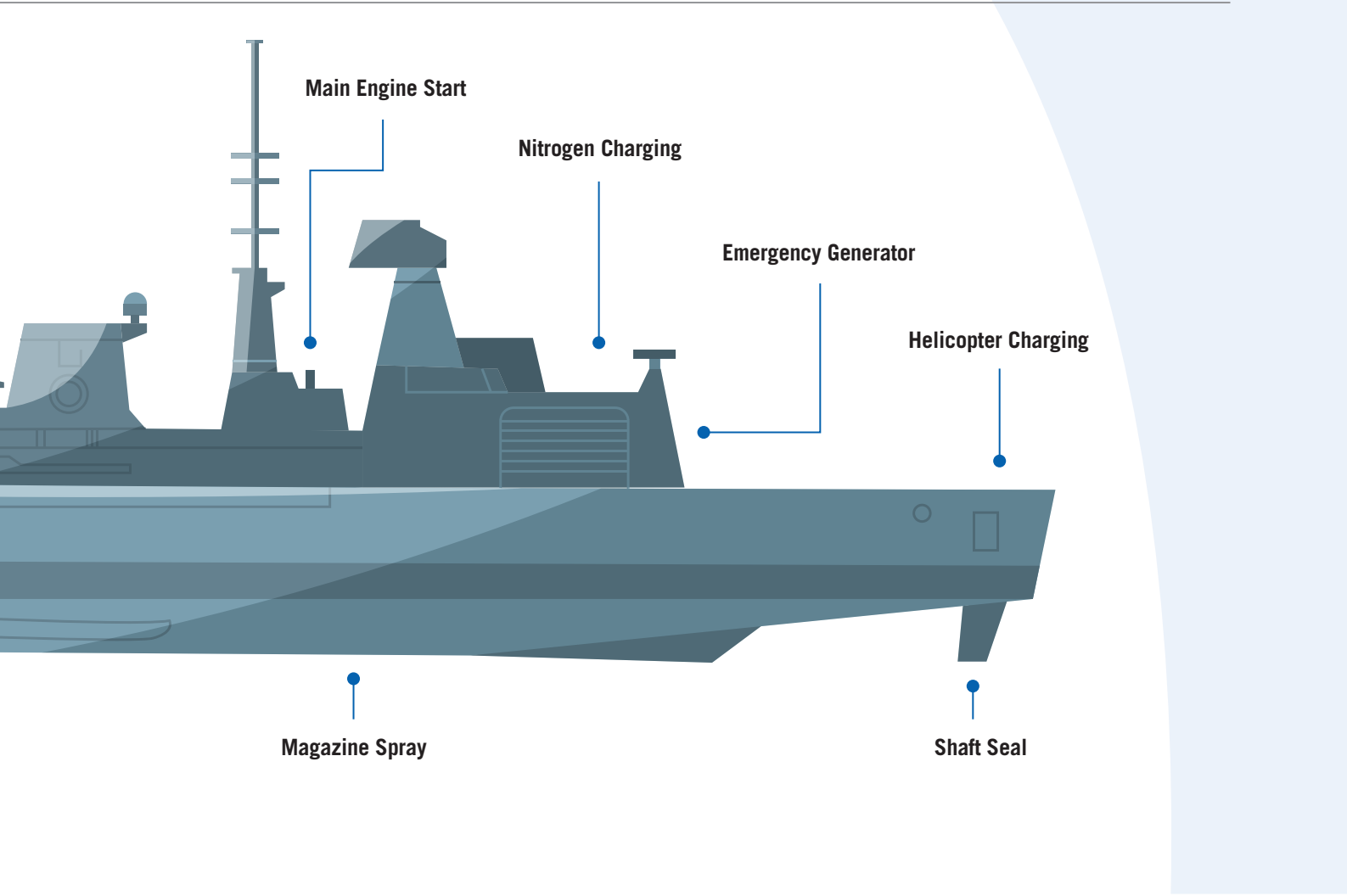
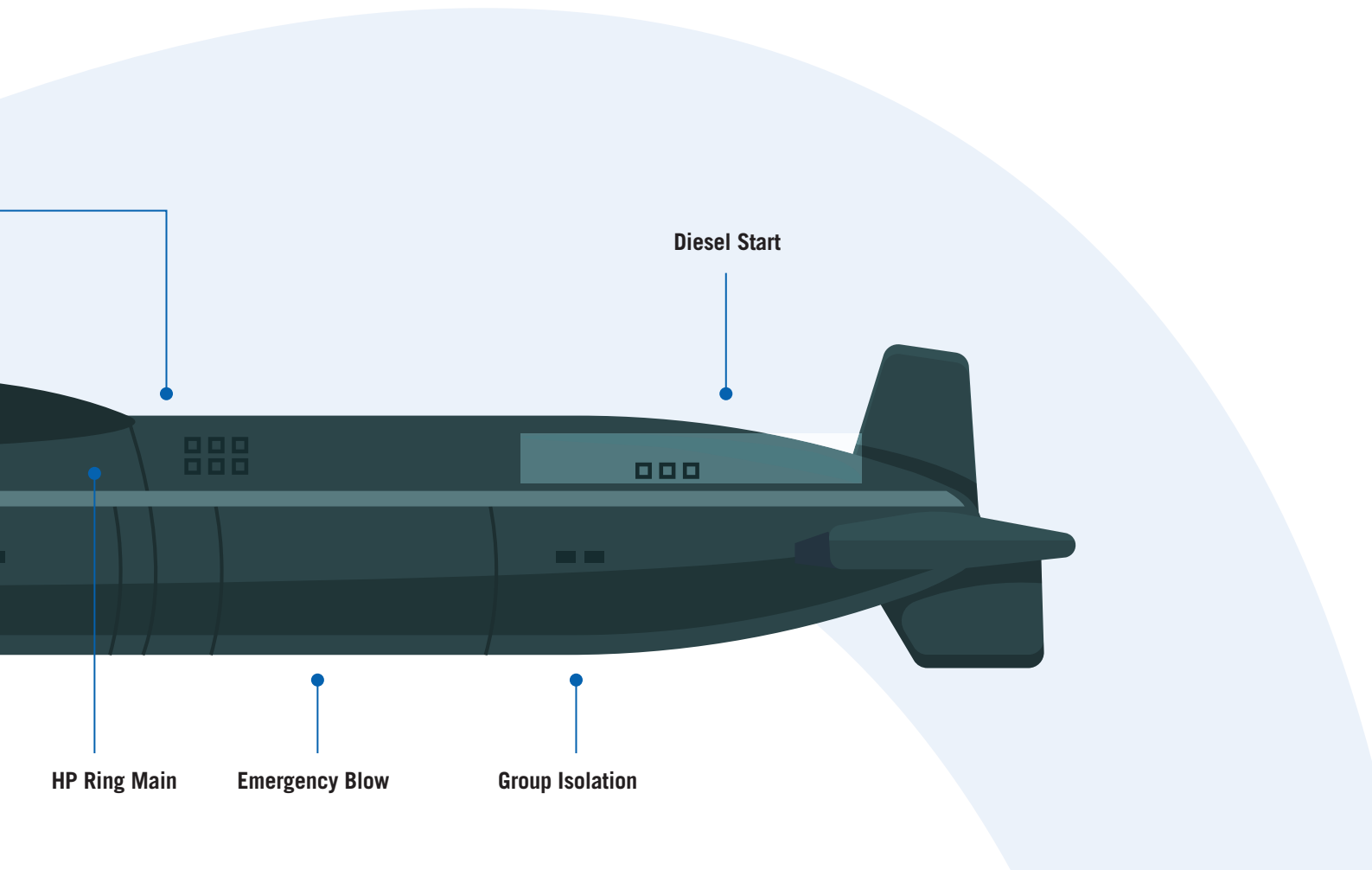
KEY PLATFORMS

MARITIME DEFENCE - SUBMARINE & SURFACE VESSEL PLATFORMS



SUBMARINE AND SURFACE VESSEL APPLICATIONS





PORTABLE CHARGING UNITS

Our range of Portable Charging Units are used by both commercial and military customers around the world, in support of all types of aircraft that include commercial airliners, business jets, fighter jets, helicopter transport planes and unmanned aerial vehicles. Portable Charging units are used for inflating tyres, charging suspension struts and many other nitrogen gas applications.

FEATURES & PRODUCT SPECIFICATION

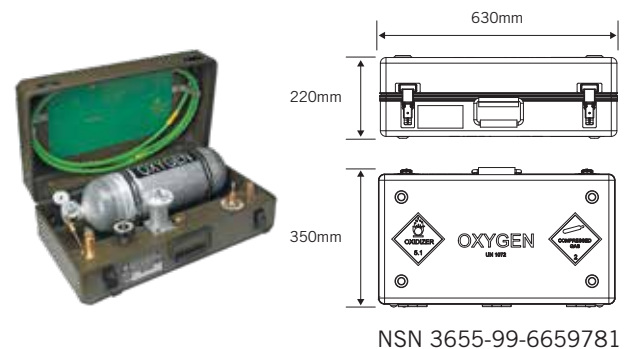
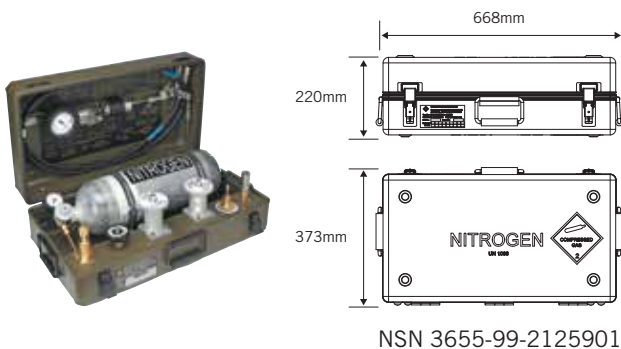
1. Charge Connection
2. Shut-off Valve
3. Pressure Regulator (HP)
 - > Range: 0 to 207 barg (0 to 3000 psig)
4. Outlet Connection (HP)
5. Pressure Regulator (LP)
 - > Range: 0 to 35 barg (0 to 500 psig)
6. Outlet Connection (LP)
7. Flexible Hose
 - > Fitted with hose end Schrader
 - > Valve to facilitate charging
8. Polyethylene Case
 - > UV Resistant & Antistatic
 - > Waterproof, Fireproof, Dustproof, Fungus-Proof & Moisture-Proof

Series PCU	Dual Outlet HP & LP	Single Outlet HP	Single Outlet LP
Inlet Pressure	300 barg (4350 psig)		
Outlet Pressure	HP: 207 barg (3000 psig) LP: 35 barg (500 psig)	207 barg (3000 psig)	35 barg (500 psig)
Temperature Range	-34 to +60°C (-29 to +140°F)		
Inlet Connection	G 1/4" (Male)		
Hose End Connection	Quick Connector G1/4" (Male) Valve Plug. Inflating Connectors		
Hose Length	3 or 5 Meter		
Drop Test	Compiled with MIL-STD-810G		
Handle Option	With or Without Wheels		
Medium Type	Nitrogen		

Note: The Nitrogen PCU comes in a range of configurations including, Dual Outlet satisfying both high-pressure and low-pressure requirements, single high-pressure outlet and single low-pressure outlet.



NATO CODIFIED VERSIONS



NITROGEN UNIT – DUAL RANGE

- > Outlet pressure ranges: 0 to 34.5bar and 0 to 2bar
- > Valve body material: Brass except regulator bodies which are aluminium to reduce weight
- > A 3m outlet hose, tyre inflator and special tyre adaptor are stowed in the case lid. These items have quick fit connectors for easy assembly.
- > The tyre inflator is fitted with an automatic shut off device to prevent over inflation
- > Weight: 19kg (uncharged), 21.5kg (charged)
- > Additional handles are fitted to allow for two-man lifting

OXYGEN UNIT – SINGLE RANGE

- > Outlet pressure range: 0 to 220bar
- > Valve body material: Brass
- > A 5m outlet hose is stowed in the case lid
- > Weight: 16.5kg (uncharged), 19kg (charged).

HOOD INFLATION SYSTEMS (HIS)

A highly sensitive tracking pressure regulator that maintains the specified pressure differential.

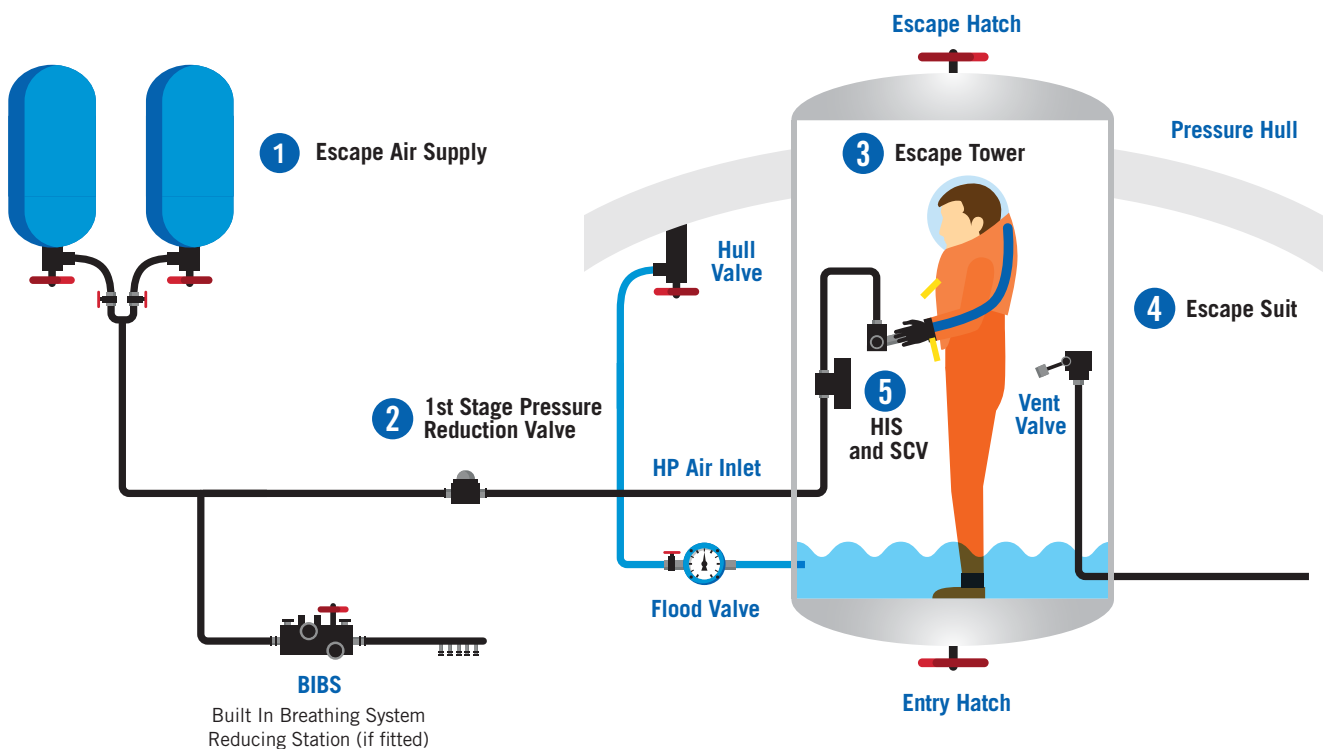
18 different models supplied to navies worldwide.

Three basic families:

- > Original HIS
- > Extended Life HIS
- > Reduced Flow HIS

Five key elements:

- 1 Escape Air Supply
- 2 1st Stage Pressure Reduction Valve
- 3 Escape Tower
- 4 Escape Suit
- 5 Hood Inflation System (HIS) and SCV



Recommended practise

- > Once valves installed, static tests undertaken using HIS Test Set
- > Test repeated six months later
- > After 12 months' service, valves returned to base for re-calibration

Current factory acceptance test at Hale Hamilton

- > Automated simulation of pressurisation cycle on single man escape tower
- > Full dynamic test to exercise valve across entire pressure and flow range
- > Normal in-service test of valve health involves HIS test set with orifice meter

3 year service interval

- > Synchronisation with typical 3 year intermediate docking schedule
- > Extended Operational availability
- > Reduced through-life costs

ERGONOMIC STOLE CHARGING VALVE (ESCV)

The ESCV is designed to make the process of escaping a submarine easier and safer by reducing the chances of a submariner accidentally disconnecting from the stole charging valve as the tower is flooded.

The push fit connector on the submariner's sleeve is held in place via a mechanism leaving their hand free to hold on to the handles built into the ESCV, this improves their ability to resist the upwards force caused by the buoyancy of the suit. Once ready to escape the submariner lets go of the ESCV handles and the mechanism releases the push fit connector.

Current system relies on the submariner manually holding the push-fit connector into the stole charging valve while also trying to hold themselves underwater with their remaining free hand. Questions are being raised about the effects of buoyancy, turbulence, submarine inclination, injury or lack of strength.

The basic requirement is to provide a reliable means of connection that is less dependent on physical strength and provides means of support against disturbing forces.



The ESCV enhances the safety of the escaping submariner that they will always be connected to air until they are ready to release and surface safely.

- > **Ergonomic design allows for ease of installation by customer.**
- > **Secure connection to air supply.**
- > **Provides an anchor point to resist buoyancy & turbulence forces.**
- > **Mechanism is adjustable to provide the optimum orientation in inclined escape.**



AFTERMARKET SUPPORT

We provide outstanding global Aftermarket care with our regional through-life servicing. Our combined expertise, 24/7 support and customer-focus makes us the right partner to build the confidence you need to prosper.

Being a solutions provider and helping our clients maintain high productivity is at the core of what we do. A critical element is the Maintenance, Repair and Overhaul of our products.

In our core industry, operational and support costs can run extremely high and budgets are always under pressure. That's why it's important to have through-life support solutions tailored to each individual system, product and situation.

Our technicians provide a bespoke service based on the individual company's or authorities' requirements from provision of OEM spares kits through to full on-site operational support contracts.

OUR SERVICES INCLUDE



REPAIRS

Focused MRO support so products are always in 'as new' condition.



MAINTENANCE & SERVICE CONTRACTS

To maintain optimum operational up time and performance we provide a range of on-site service support contracts including preventative maintenance inspection and service schedules plus remote performance monitoring capability on our system solutions.



SPARE PARTS

Our spare component parts are genuine OEM-approved products.



FIELD SERVICE

We supply fully-qualified technicians in controlled environments to carry out your essential on-site repairs, maintenance and product training programmes.



YOUR CREATIVE ENGINEERING PARTNER

The trusted choice for inspired innovation that you can depend on.

We don't believe in a one-size-fits-all approach. Acting as an extension of your team, we quickly get to the heart of your challenge, bringing our unique perspective to everything we do.



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