



Tactical Diving

SPECIAL OPERATIONS

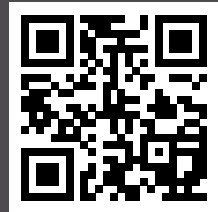
jfdglobal.com

ABOUT JFD

JFD is the world leading underwater capability provider facilitating the commercial and defence diving industries by offering innovative diving, submarine rescue and subsea technical solutions.

JFD's products and services have been delivered to a large number of countries across all continents and continue to set the industry standard for capability, quality and reliability.

Operating worldwide, JFD has in its portfolio a comprehensive range of products, services and through-life support solutions for the full spectrum of government agencies that include maritime special operations forces, law enforcement, para-military, coastguard, maritime interdiction and mine countermeasures organisations.



MORE INFORMATION

Using the camera or an app on a mobile device, scan this QR code to direct you to brochures, videos and datasheets relating to our Special Ops capability.



WHY JFD?

As a result of the sustained engagement with militaries worldwide, JFD has identified numerous effective and sustainable in-service support models specific to customer requirements. This service is managed and delivered by a dedicated defence Integrated Logistics Support (ILS) department.

JFD offers through-life support for all equipment up to, and including, full safety case management and associated activities.

JFD is currently under contract with a number of government defence departments worldwide providing a full ILS capability resulting in exceptionally high rates of equipment availability.

Project Managers
Technical Authors
Training Officers
Commodities Management
Engineering Support



TAILORED TRAINING

Specialist training is a key area of JFD's expertise. Our instructional staff draw upon extensive operational defence diving experience to deliver bespoke training packages for equipment operators and maintenance technicians.

This tailored training can be delivered at the customers own facilities or at JFD training facilities throughout the world.

VEHICLE OPERATIONS

If required, JFD can provide vehicle operations training for pilots, navigators and passengers. The training can be delivered either at our production facility in Vaxholm, Sweden, or at a location of the customer's choosing.

LIFE SUPPORT SYSTEMS OPERATION & MAINTENANCE

JFD offers practical courses in the operation and maintenance of its range of life support systems.

SUBMARINE LOCK-IN LOCK-OUT

JFD is able to provide detailed bespoke studies, theoretical and practical training in the safe conduct of submarine lock-in lock-out operations.

SUBMARINE DRY DECK SHELTER OPERATIONS

JFD is able to provide detailed feasibility studies specific to customer Dry Deck Shelter (DDS) requirements. JFD's special operations teams offer training focused on the safe operational use and maintenance of DDS facilities.



DEMONSTRATIONS

JFD can arrange product demonstrations, please contact us for more information.

TAILORED TRAINING

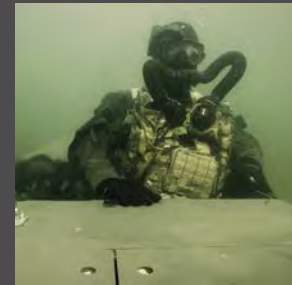


TACTICAL DIVING VEHICLES

JFD offers a range of highly innovative Tactical Diving Vehicles (TDVs).

The primary function of these vehicles is to facilitate the insertion and extraction of tactical diving teams and their equipment. Each of our vehicles is optimised for a particular deployment method, mission profile and operational environment. This offers tactical divers enhanced operational capability so they arrive at their objective with minimum fatigue and in a high state of mission readiness.

Development, testing and trials of JFD TDVs has taken place in the Stockholm archipelago, Baltic Sea, Portland Harbour and the waters off the west coast of Scotland. The vehicles combine the Swedish commitment to safety-led design and the ship-building heritage of the Clyde; all underpinned by a unique operational pedigree with operator input at all stages of this process.



JFD Tactical Diving Vehicles are surface or sub-sea craft, each optimised for a particular deployment method or mission profile. These include specialist maritime operations, mine countermeasures, counter-terrorism, counter-narcotics, counter-piracy and maritime protection operations.

TACTICAL DIVING VEHICLES



TORPEDO SEAL



SHADOW SEAL



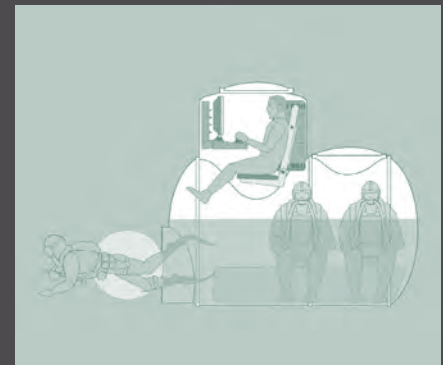
WET SUB SEAL



DRY SUB SEAL



CARRIER SEAL



DRY CARRIER SEAL

	PERSONNEL	SPEED (knots)		RANGE (nm)	
		SUB SURFACE	SURFACE	SUB SURFACE	SURFACE
Torpedo Seal	2	3.5	-	10	-
Shadow Seal	4	max: 4.5 cruise: 3.5	max: 5.5 cruise: 4.5	25	80
Wet Sub Seal	8	9	-	70	-
Dry Sub Seal	8	7	-	60	-
Carrier Seal	8	5	30	15	150
Dry Carrier Seal	12	6	35	25	250

TORPEDO SEAL

The Torpedo Seal is a free flooding Tactical Diving Vehicle capable of operating in both semi-submerged and fully submerged modes for covert insertion and extraction of two tactical divers. Its advanced on-board systems provide a precision navigation capability that optimises mission efficiency and effectiveness.

To accommodate two tactical divers within a protected hull, Torpedo Seal is extended for operational use. During storage and transportation, this extendible hull design reduces the vehicle's 'footprint'.



PERSONNEL	2
SUB SURFACE SPEED (knots)	3.5
SURFACE SPEED (knots)	-
SUB SURFACE RANGE (nm)	10
SURFACE RANGE (nm)	-

MISSION PROFILE

- Extend the operating range of a tactical diving team
- Underwater survey and reconnaissance
- Delivery of very shallow water mine countermeasures divers
- Counter-narcotics and covert maritime interdiction

TACTICAL DIVING VEHICLES

SHADOW SEAL

The Shadow Seal is a unique Tactical Diving Vehicle design enabling the transportation of four tactical divers within near shore, riverine, lake and delta environments.

Two personnel are transported in each of the two compartments, offering flexible command and control options and optimised use of available space.

The vehicle may be piloted by a single operator located either in the front or rear compartment, enabling the pilot's role to alternate between forward and aft located operators as required. This enables the delivery of either three tactical divers or alternatively, the vehicle may be bottomed out in shallow water, shut-down and secured, enabling the deployment of four tactical divers.



PERSONNEL	4
SUB SURFACE SPEED (knots)	max: 4.5 cruise: 3.5
SURFACE SPEED (knots)	max: 5.5 cruise: 4.5
SUB SURFACE RANGE (nm)	25
SURFACE RANGE (nm)	80

MISSION PROFILE

- **ISTAR (Intelligence, Surveillance, Target Acquisition & Reconnaissance)**
- **Maritime counter-terrorism, counter-piracy, counter-narcotics**
- **Discrete maritime standing patrol**
- **Very shallow water mine countermeasures and amphibious landing reconnaissance**

WET SUB SEAL

Wet Sub Seal is a Tactical Diving Vehicle built by JFD to support a series of customer funded studies. The platform is primarily designed for subsurface range and speed and may be launched from a dry deck shelter, surface vessel, rotary wing aircraft, trailer or quayside crane.

Crewed by a pilot and navigator, the modular nature of the vehicle allows for a broad range of equipment and instrumentation to be fitted allowing for rapid re-rolling such as the infiltration and extraction of up to six tactical divers or deployment of autonomous underwater vehicles for littoral survey and reconnaissance.



PERSONNEL	8
SUB SURFACE SPEED (knots)	9
SURFACE SPEED (knots)	-
SUB SURFACE RANGE (nm)	70
SURFACE RANGE (nm)	-

MISSION PROFILE

- ISTAR (Intelligence, Surveillance, Target Acquisition & Reconnaissance)
- Ship, port and harbour installation survey
- Maritime counter-terrorism, counter-piracy, counter-narcotics
- Un-manned underwater vehicle deployment and recovery

TACTICAL DIVING VEHICLES

DRY SUB SEAL

Dry Sub Seal is a free-swimming Tactical Diving Vehicle with a dry one-atmosphere compartment for pilot and navigator and a second dry but floodable lock-in/lock-out compartment for tactical diver exit and re-entry.

The vehicle is designed to be compatible with a large dry deck shelter equipped submarine or can be surface launched and recovered from a floating platform or ship with an appropriate handling system.



PERSONNEL	8
SUB SURFACE SPEED (knots)	7
SURFACE SPEED (knots)	-
SUB SURFACE RANGE (nm)	60
SURFACE RANGE (nm)	-

MISSION PROFILE

- **ISTAR (Intelligence, Surveillance, Target Acquisition & Reconnaissance)**
- **Ship, port and harbour installation sub-surface reconnaissance**
- **Maritime interdiction (counter-terrorism, counter-piracy, counter-narcotics)**

CARRIER SEAL

Carrier Seal is an eight-man Tactical Diving Vehicle designed for over the horizon, long-range, discrete and covert insertion of a tactical diving team.

With the ability to operate in surface, semi-submerged and submerged mode, Carrier Seal offers maritime special operations an exceptional operational capability.

Able to be inserted from a surface ship, heavy lift rotary wing aircraft or by parachute deployment, Carrier Seal transits on the surface at speeds of up to 30 knots. When required for tactical reasons, Carrier Seal rapidly transits from surface to semi-submerged mode or direct to submerged mode for a final covert approach.



PERSONNEL	8
SUB SURFACE SPEED (knots)	5
SURFACE SPEED (knots)	30
SUB SURFACE RANGE (nm)	15
SURFACE RANGE (nm)	150

MISSION PROFILE

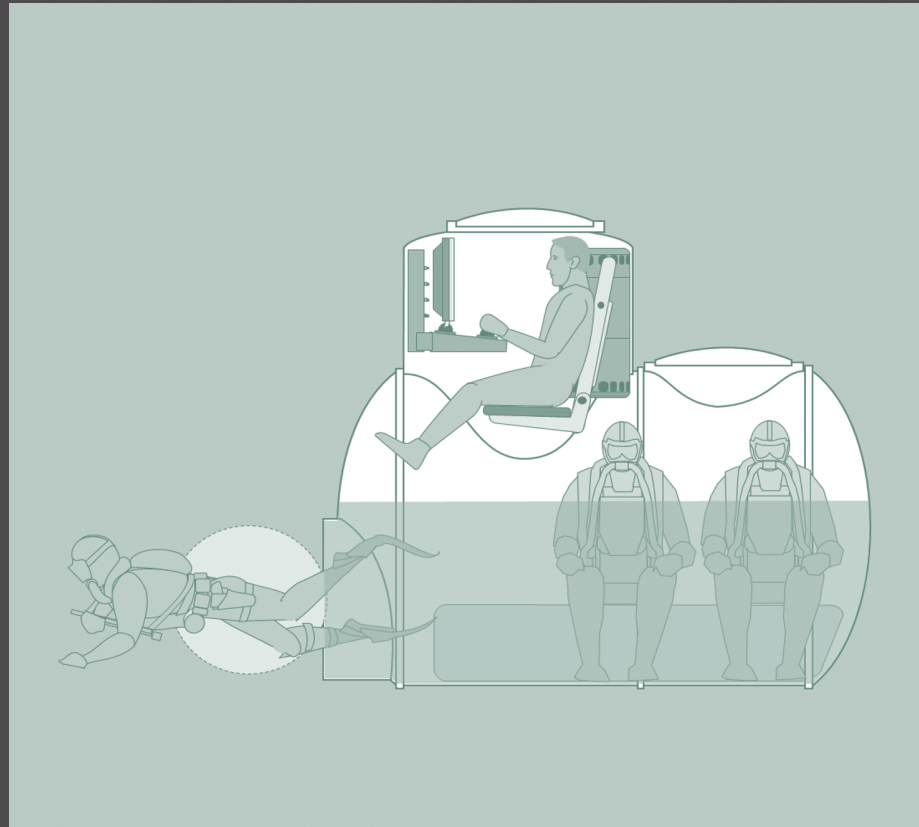
- Maritime interdiction (counter-terrorism, counter-piracy, counter-narcotics)
- ISTAR (Intelligence, Surveillance, Target Acquisition & Reconnaissance)
- Littoral strike
- Static maritime target covert boarding operations
- Deployment and recovery of un-manned underwater vehicles and sub-surface sensor systems

TACTICAL DIVING VEHICLES

DRY CARRIER SEAL

Dry Carrier Seal is a rapid insertion over the horizon Tactical Diving Vehicle operated by two crew enabling the transportation of up to ten tactical divers.

With consideration to evolving underwater manoeuvre operational requirements and the challenges of operating discretely and covertly in the expanding littoral battle space, the Dry Carrier Seal concept uniquely combines the capabilities of a long-range insertion craft with a small submarine.



PERSONNEL	12
SUB SURFACE SPEED (knots)	6
SURFACE SPEED (knots)	35
SUB SURFACE RANGE (nm)	25
SURFACE RANGE (nm)	250

MISSION PROFILE

- Maritime interdiction (counter-terrorism, counter-piracy, counter-narcotics)
- ISTAR (Intelligence, Surveillance, Target Acquisition & Reconnaissance)
- Littoral strike
- Deployment and recovery of un-manned underwater vehicles and sub-surface sensor systems

RELATED EQUIPMENT

DRY DECK SHELTER INTEGRATION

The integration of Tactical Diving Vehicles with either a new build or existing Dry Deck Shelter (DDS) greatly increases the overall range and effectiveness of maritime Special Operations Forces.

JFD has a broad experience in DDS support and is able to undertake engineering feasibility studies to access the DDS requirements of a particular customer.



TACTICAL DIVING VEHICLES

ANCILLARY EQUIPMENT

- Tactical diving drysuits
- Electrically heated diver undersuits
- Diver through water communications
- Mask mounted navigation systems
- Low magnetic fins
- Buoyancy jackets
- Waterproof equipment bags
- Divers knives
- Compasses and gauges
- Boarding equipment



LIFE SUPPORT SYSTEMS

JFD has a long and well established history in the development of life support systems across the defence and commercial diving sectors.

Offering unparalleled levels of mission flexibility, Shadow has established itself as the industry leader in operational capability and performance.

Continual design evolution in response to customer specific requirements ensures our life support systems continue to offer unparalleled levels of safety, performance and capability across a broad mission spectrum and remain the underwater life support system choice for Special Operations and MCM divers around the world.

Since its launch in 2003, the unique features and advanced design of Shadow has played an instrumental role in the development of Special Operations underwater capability. With its recent war fighting up-grade enabling its interface with a range of ballistic protection and load carry vest systems, the JFD range of tactical diving life support systems continue to offer exceptional operational performance.

For deeper diving applications, the JFD Stealth Life Support System offers a proven means of extending underwater capability. Principally designed for Mine Countermeasures (MCM) and Explosive Ordnance Disposal (EOD), Stealth is available as a semi closed circuit mechanical system for 60m

diving operations or as a closed circuit electronically controlled system for up to 100m diving operations. In-service globally and operationally proven in the full range of extreme environments from the Arctic to tropics, Stealth offers extreme levels of robustness and reliability.

JFD Life Support Systems have been designed to seamlessly integrate with our range of Tactical Diving Vehicles.



Offering unparalleled levels of mission flexibility, Shadow has established itself as the industry leader in operational capability and performance.

LIFE SUPPORT SYSTEMS



SHADOW



EXCURSION



SHADOW BACK MOUNT



ENFORCER



**STEALTH CLOSED CIRCUIT
(Electronic)**



**STEALTH SEMI CLOSED
(Mechanical)**

	DEPTH (m)	CANISTER DURATION (hrs)
Shadow	15*	4 - 6**
Enforcer	15*	2 - 3**
Excursion	30***	4 - 6**
Stealth CC	100	3 - 4**
Stealth SC	60*	3 - 4**

* Dependent upon local oxygen exposure limitations

** Dependent upon diver work-rate and water temperature

*** Dependent upon nitrox gas selected

SHADOW

Offering unparalleled levels of mission flexibility, Shadow has established itself as the industry leader in operational capability and performance.

Latest developments include a systems approach to integrating life support with mission critical equipment. This includes a rapid clip-on/clip-off interface with ballistic protection vest, use of nitrox for diving below the safe depth of oxygen and a back mount option optimised for use with Tactical Diving Vehicles.



SHADOW DEPTH (m)	15*
EXCURSION DEPTH (m)	30***
CANISTER DURATION (hrs)	4 - 6**

* Dependent upon local oxygen exposure limitations

** Dependent upon diver work-rate and water temperature

*** Dependent upon nitrox gas selected

MISSION PROFILE

- Submarine exit/entry
- Very Shallow Water (VSW) Mine Countermeasures (MCM)
- Amphibious beach reconnaissance
- Direct action below safe depth of oxygen
- Free flooding submersible operations

LIFE SUPPORT SYSTEMS

SHADOW CONFIGURATIONS



EXCURSION

For diving operations beyond the safe depth of oxygen, Shadow may be quickly upgraded to Excursion. The Excursion upgrade enables the UBA to perform as a semi closed circuit nitrox UBA, or as a combined oxygen/nitrox UBA.



SHADOW BACK MOUNT

The back mount kit enables the standard front mount Shadow to be back worn providing ready access to mission critical equipment located on the front of the diver. Suitable for a range of mission profiles, the reconfiguration to back mount is readily undertaken by the user prior to mission deployment.

ENFORCER

The compact, lightweight design of Enforcer lends itself to rapid deployment, high tempo shallow water, short duration mission profiles.

Designed to meet the evolving operational roles of maritime law enforcement and special operations, its unique design offers unparalleled performance and mission flexibility whilst minimising size and weight.

The use of ExtendAir® solid cartridge ensures consistent CO₂ scrubbing performance, simplified and accelerated equipment preparation whilst reducing breathing resistance/work of breathing.



DEPTH (m)

15*

CANISTER DURATION (hrs)

2 - 3**

* Dependent upon local oxygen exposure limitations

** Dependent upon diver work-rate and water temperature

MISSION PROFILE

- Maritime interdiction (counter-terrorism, counter-piracy, counter narcotics)
- Covert law enforcement surveillance
- Tactical Diving Vehicle short duration passenger operations

LIFE SUPPORT SYSTEMS

STEALTH CLOSED CIRCUIT

Considered to be the benchmark in state-of-the-art Mine Countermeasures Explosive Ordnance Disposal (MCM EOD) underwater life support technology, Stealth Closed Circuit (CC) offers increased levels of diver safety, equipment reliability, maintainability and availability together with operational capability and mission versatility.

Being electronically controlled, Stealth CC may be used for MCM-EOD operations to a depth of 54msw using an air diluent gas or to a depth of 100msw using a heliox or trimix diluent. Stealth CC has an extensive track record in a range of operational and environmental conditions globally from the Arctic to the tropics.



DEPTH (m)	100*
CANISTER DURATION (hrs)	3 - 4**

* Dependent upon local oxygen exposure limitations

** Dependent upon diver work-rate and water temperature

MISSION PROFILE

- Mine countermeasures
- Very shallow water mine countermeasures
- Light salvage and engineering
- Tactical Diving Vehicles

STEALTH SEMI CLOSED

Stealth Semi Closed (SC) is a back-worn, mechanical life support system for MCM EOD diving operations. Gas is stored in a twin two litre cylinder assembly and delivered to the breathing circuit via an adjustable constant mass flow metering valve. A separate demand valve automatically provides gas on descent and also serves as a manual gas bypass.

The system may be used to a depths of up to 54msw using a range of nitrox gases or to 60msw using trimix or heliox gases.

Stealth SC is the ideal, cost-effective solution for a range of shorter duration diving operations where simplicity,ease of use and durability are a necessity.



DEPTH (m)

60*

CANISTER DURATION (hrs)

3 - 4**

* Dependent upon local oxygen exposure limitations

** Dependent upon diver work-rate and water temperature

MISSION PROFILE

- Mine countermeasures
- Very shallow water mine countermeasures

LIFE SUPPORT SYSTEMS

RELATED EQUIPMENT

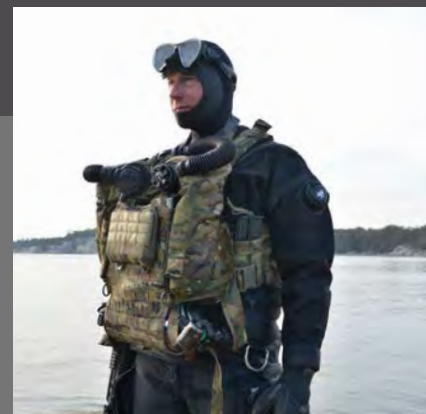
DIVER THROUGH WATER COMMUNICATIONS

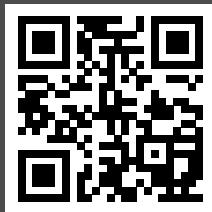
All JFD special operations Life Support Systems have been designed to be interfaced with the JFD Digicom Diver Through Water Communications (DTWC) system that enables a diver to diver and/or diver to surface communications up to a range of 3000m. The JFD Digicom DTWC system has been designed and built to UK Ministry of Defence requirements and is fully NATO codified.

ANCILLARIES

JFD Life Support Systems can be further enhanced to suit customer specific requirements through the use of the following ancillaries:

- Shadow NAV
- Full face dual mode mask
- Dual mode bite mouthpiece assembly
- Dry suit inflation system
- Low pressure cylinder alarm system
- Diver and maintainer tool and test equipment
- Transport case
- Spares package





MORE INFORMATION

Using the camera or an app on a mobile device, scan this QR code to direct you to brochures, videos and datasheets relating to our Special Ops capability.



Aberdeen | Bremen | Cape Town | Enschede | Glasgow | Perth
Portsmouth | Rome | Singapore | Sydney | Vaxholm | Virginia | Wuhu



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