

**VIKING**  
THE WORLDWIDE  
DIVING STANDARD



## VIKING HDS 1000 - HAZMAT DIVING SUIT

**Viking HDS sets the new standard among vulcanized rubber dry suits. HDS suits are made of NITECS, a new and US patent pending rubber material developed by the Trelleborg Group. NITECS provides unsurpassed protection against chemical permeation along with extreme durability against wear and tear. The suit is fitted with rotating inlet and exhaust valves and a heavy-duty zip, equipped with integrated reinforcements from the foot over the knee to the seat. As an option, the Viking HDS 1000 can be equipped with cargo pocket, cylinder pocket and/or knife pocket and a relief zip.**

### **NITECS – EXTREMELY DURABLE GARMENT MATERIAL (US PATENT PENDING)**

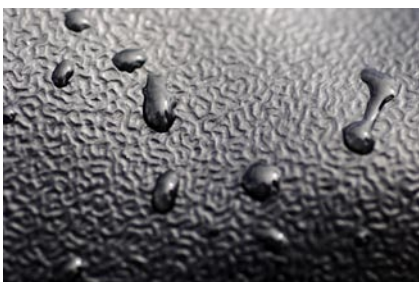
NITECS is developed with the sole purpose of providing never before seen protection against chemical permeation along with extreme durability against abrasion damages. Demanding diving applications and diving in heavily contaminated and polluted waters have never been safer. NITECS offers not only a higher protection index against aggressive chemicals and contaminants like petroleum, diesel and aviation fuels but is doing so while keeping the material weight very low. HDS suits are all made of 1050 g/m<sup>2</sup> NITECS material and thus very comfortable and easy to work in.

### **VULCANIZED DRY SUITS**

Stitched seams from the tailoring are covered on the outside with rubber tape of the same rubber blend as the suit material. When all seams are covered, the suit is vulcanised in order to make the seams sealed and watertight. In fact, it can be stated that the vulcanisation process makes the suit seamless. The chemical reaction occurring during vulcanisation connects and binds the rubber coated garment material and the rubber tape and hence creates one seamless material.

### **GLUED SEAMS**

All glued seams, e.g. attachment of sleeve rings, cuffs, hood and safety boots, are covered and glued with vulcanised NITECS tape.



**CLOSE-UP OF THE NITECS MATERIAL**

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#### **FOOTWEAR**

Heavy-duty NITECS soles are stitched to the legs of the suit to form the boots. The seam is covered with a double layer of NITECS tape for abrasion resistance. The sole has a rough "anti-slip" surface. As an alternative to the NITECS boots, the suit can be delivered with rubber coated neoprene boots or steel-toed safety boots.

#### **ZIPPER**

A 90 cm long heavy-duty zipper is placed across the shoulders. The zipper is gas and watertight.

#### **REINFORCEMENTS**

The Viking HDS 1000 has an extra layer of NITECS reinforcement rubber with anti-slip surface vulcanised to the suit. This protects the suit from abrasion damage in certain areas, e.g. over the boots, knees and rear of trousers, around the zipper and over the shoulders.

#### **SUSPENDERS**

Elastic heavy-duty braces can be attached to the inside of the suit for ease of wear and crutch adjustment.

#### **VALVES**

The Viking HDS is equipped with valves for serious diving scenarios. The Viking Hazmat inlet valve has an extra slide valve to make it possible to shut off the airflow in emergency situations. As all Viking inlet valves it is 360° swivelling and positioned centrally on the chest. The Viking X2 outlet valve is positioned on the upper left arm and equipped with double check valves to minimise the risk of micro leakage. Both valves can be positioned according to custom demand. The valve plate used when mounting the valves is made of the same strong HNBR rubber as the NITECS material.



**VIKING HAZMAT INLET VALVE**



**VIKING X2 OUTLET VALVE**

#### **HOOD AND NECKSEAL**

The Viking HDS 1000 can be equipped with all standard Viking hoods. For diving in contaminated conditions, the recommendation is to configure the suit with the new Magnum HDS hood. This hood is made of the same rubber

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**VIKING BAYONET RING SYSTEM**



**VIKING REPAIR KIT**



**5-FINGER LATEX GLOVE**

material as the rest of the suit in order to give the same protection against chemicals as well as puncture and abrasion damage. The neckseal is either integrated in the hood or glued to the suit underneath the hood.

#### **CUFF RINGS AND CUFFS**

Cuff rings can be attached to the suit either permanently or as detachable and make it possible to use dry gloves/chemical protective gloves. Latex cuffs are easily attached by mounting them to the inside of the cuff rings, or (when not using cuff rings) permanently glued to the sleeves. Cuff ring options range from the new NITECS sleeve rings to the Bayonet Ring System.

#### **STANDARD SUIT SIZE RANGE**

The Viking HDS 1000 suit follows the same standard sizing as the Viking Pro 1000 and is available in ten standard sizes:

00 - 05 (Small - XXXL)

01 Wide - 04 Wide (Medium Wide - XXL Wide)

For detailed size measurements along with boot sizing, please see the Viking size chart.

Vulcanised rubber suits are not custom built due to dependency of aluminum mannequins for vulcanisation. Extension and shortening of arm and leg length is possible and offered separately.

#### **INCLUDED WITH EACH DELIVERY**

Each suit is delivered in a bag including:

- User's Manual
- Repair Kit
- Inflator Hose
- Zip Care Tools
- Suspenders

#### **ACCESSORIES**

All standard Viking accessories, hoods, cuffs, neck seals etc. can be used on the Viking HDS 1000.

#### **STANDARDS**

The Viking HDS 1000 is tested and CE-type approved by the notified body FIOH (Finnish Institute of Occupational Health) in Finland, in accordance with EN 14225-2, optional chemical protection requirements included.

**CHEMICAL RESISTANCE**

Viking HDS made with NITECS offers truly exceptional chemical protection when operated in heavily contaminated and polluted water. NITECS considerably raises permeation breakthrough times for aggressive chemicals like petroleum, diesel and aviation fuel. Complete permeation results according to the chemical protection requirements of EN 14225-2 are also available for download at [www.vikingdiving.com](http://www.vikingdiving.com).

CHEMICAL	PERMEATION BT TIME, MINUTES*		EN 14225-2 PROTECTION INDEX
	Material	Seam	
Sulphuric acid, H <sub>2</sub> SO <sub>4</sub> 50% (aqueous)	> 480	> 480	High
Sodium hydroxide, NaOH 50% (aqueous)	> 480	> 480	High
Isopropanol	> 480	> 480	High
Toluene 0.05% (aqueous)	> 480	> 480	High
Liquid B	127	126	High
Liquid F	> 480	> 480	High

**ABRASION RESISTANCE**

Abrasion resistance qualities and/or requirements are not included in the above dry suit standard but still a very important element of the overall protection of the diver. Viking HDS made with NITECS by far outperforms the NR/EPDM materials of Viking Pro 1000 and HD 1500. NITECS material offers approximately 5x the abrasion resistance of Viking Pro 1000 and 4x the resistance of HD 1500.

**REFERENCES**

The Viking rubber dry diving suits are in world-wide use by leading hazmat, rescue and fire teams, military armed forces, law enforcement agencies as well as in the commercial diving industry. Some of our well-known Viking customers include:

New York City Fire Department • Brandweer Amsterdam • Madrid Council • Hong Kong Fire Services Department • National Fire and Rescue Administration (BOMBA) Malaysia • US Navy EOD • Royal Dutch Navy • French Navy • Swedish Navy Clearance Divers • KNM Tordenskjold, Military Dive School Norway • South Korean Navy • Taiwan Navy Rescue Team • New York Police Department • Detroit Police Underwater Recovery Team • FBI • The National Counter Terrorist Unit Sweden • Japan Police Headquarters • Australian Police Rescue Divers • Royal Canadian Mounted Police • Swedish Coast Guard • Environmental Protection Agency (US) • National Oceanic and Atmospheric Administration (US) • Skanska AS, Norway

