



OceanTools

D7 DyeTector®

Advanced subsea dye detection system

The **D7 DyeTector** is state of the art subsea leak and cement dye detection system developed by **OceanTools** based on many years of experience detecting subsea dyes.



Overview

The ROV mounted **D7 DyeTector** may be used to detect leaks from subsea infrastructure such as manifolds, wellheads or pipelines if a suitable dye has been added to the infrastructure fluids, or during casing cementing operations to detect cement returns.

High intensity LED light is focused through lenses and filters to create a concentrated beam that is tuned to a specific wavelength to cause maximum molecular agitation and fluorescence of the dye. A sophisticated optical multiplier employs light amplification technology to detect even the smallest amounts of fluorescence from the agitated dye molecules. Advanced detection electronics convert the measurements to digital data.

The powerful **DyeTector** technology is capable of detecting single photons of light. It can detect down to single digit parts per billion of dye dissolved in water and is approximately one hundred times more sensitive than the human eye. This makes it ideal for detecting the very smallest of leaks or traces of dye dosed cement.

Detection can be carried out at a safe working distance, and the ROV's lights do not have to be turned off when the **DyeTector** is in operation.



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Operation

The ROV mounted **D7 DyeTector** is machined from aviation grade titanium and sapphire glass to give it a standard depth rating of 6000 metres. A lightweight aluminium housing (pictured right) is also available, rated to 1000 metres.

Simple and intuitive DyeTector software displays detection data at the surface, and data can be recorded for future analysis.



Detection Dyes

As well as offering the **DyeTector**, OceanTools has a dye that has been specifically developed by our friends at Offshore Environmental Oils to precisely match the characteristics of the **DyeTector**. In short, there is no system more capable of detecting dye subsea, nor is there a more detectable dye.

Versions of the **DyeTector** are designed to excite and detect specific types of dye in addition to OceanTools **C-Dye** and **C-Dye 370**, including:

- Rhodamine dyes such as B275, RX9022, Pelagic 100 Pink
- Fluorescein dyes such as HW443, HW540P, Oceanic Yellow LTF
- Ultraviolet dyes such as RX9026E, Pelagic 100, Champion Cleardye, Castrol HT2

Please contact OceanTools for advice on other dyes that may be detected by the **DyeTector**.

Key Features

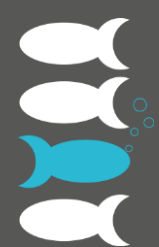
- Rhodamine, Fluorescein or Ultraviolet dye detection
- Focused beam and filtered high intensity LEDs
- Light amplification and photon detection technology
- 6000m standard depth rating or 1000m option

Related Products

D9 DyeTector diver held systems (pictured right) are self-contained dye detection units featuring ruggedised single switch operation, a built-in detection display and a depth rating in excess of 250m.

D10 DyeTector dual channel systems have been developed with two sets of optical components to detect two types of dye using a single compact ROV mounted device.





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Applications

The **DyeTector** may be used to detect leaks from subsea infrastructure such as manifolds, wellheads or pipelines if a suitable dye has been added to the infrastructure fluids. Pipeline or flow line pressure testing can be monitored by the **DyeTector** if dye impregnated fluids are used.

The **DyeTector** may also be used during casing cementing operations to detect cement returns. A tracer dye is added to either the seawater spacer or to the cement itself. Unlike pH meters which rely upon the cement passing over them, a **DyeTector** can detect cement from a distance of several metres depending on the dye concentration.

Specifications

	D7-R	D7-F	D7-U
Target dye	Rhodamine	Fluorescein	Ultraviolet
Excitation wavelength	520–530nm	450–460nm	360–370nm
Detection wavelength	570–590nm	510–520nm	410–450nm
Detection range	Up to 10m		
Input voltage	18–36VDC		
Maximum current	0.5A @ 24VDC		
Data communications	RS232/RS485		
Standard connector	Glenair G5507-1508		
Depth rating	1000m	6000m	
Housing material	Aluminium	Titanium	
Window material	Acrylic	Sapphire Glass	
Length (excl connector)	156mm	174mm	
Maximum diameter	98mm	98mm	
Weight in air	1.8kg	3.0kg	
Weight in water	0.8kg	1.9kg	

Product datasheets, GA drawings, case studies and other supporting documents are available to download from data.oceantools.co.uk

All specifications are subject to change without notice. E&OE.

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