

# OceanTools

## D7 DyeTector®

### Advanced subsea dye detection system

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



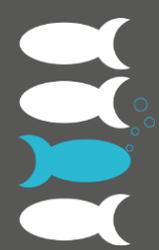
## Overview

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 **D7 DyeTector** uses technology 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.



# OceanTools

## D7 DyeTector®

### Advanced subsea dye detection system

#### Options

The ROV mounted **D7 DyeTector** is machined from aviation grade titanium and sapphire glass to give it a standard depth rating of 6000 metres. Simple and intuitive DyeTector software displays detection data at the surface, and data can be recorded for future analysis.

A diver held **D9 DyeTector** (pictured right) is currently in development. The self-contained unit with a built-in display can be powered by an external battery pack. It has an ergonomic handle and simple diver-operated controls, with a depth rating of 400 metres.



#### 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.

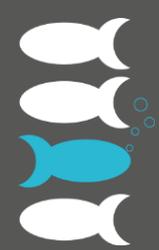
Versions of the **DyeTector** are designed to excite and detect specific types of dye in addition to OceanTools **C-Dye** and **C-Dye 370**, including:

- 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

- ROV mounted **D7**, with diver held **D9** in development
- Rhodamine, Fluorescein or Ultraviolet dye detection
- Focused beam and filtered high intensity LEDs
- Light amplification and photon detection technology
- 6000m depth rating as standard



# OceanTools

## D7 DyeTector®

### Advanced subsea dye detection system

## 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
<b>Target dye</b>	Rhodamine	Fluorescein	Ultraviolet
<b>Excitation wavelength</b>	520–530nm	450–460nm	360–370nm
<b>Detection wavelength</b>	570–590nm	510–520nm	410–450nm
<b>Detection range</b>	Up to 10m		
<b>Input voltage</b>	18–36VDC		
<b>Maximum current</b>	0.5A @ 24VDC		
<b>Data communications</b>	RS232/RS485		
<b>Depth rating</b>	6000m		
<b>Housing materials</b>	Titanium and Sapphire Glass		
<b>Length (excl connector)</b>	174mm		
<b>Maximum diameter</b>	98mm		
<b>Weight in air</b>	3.0kg		
<b>Weight in water</b>	1.9kg		

## Related Products

**D3 and D5 DyeLighter** systems are a modern replacement for old-fashioned “black lights” that agitate fluorescing dye to allow larger leaks to be detected visually by diver or ROV camera.

**C-Dye** and **C-Dye 370** have been developed to work with **DyeLighter** and **DyeTector** systems.

Product datasheets, GA drawings, case studies and other supporting documents are available to download from [data.oceantools.co.uk](http://data.oceantools.co.uk)

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

Version 7(09.04.2020)



OceanTools Ltd  
OceanTools House Claymore Drive Aberdeen AB23 8GD  
t: +44 1224 709 606 e: sales@oceantools.co.uk  
[www.oceantools.co.uk](http://www.oceantools.co.uk)