VIS / UV-VIS Spectrophotometer XD 7000 / XD 7500



Please see pages 88 onwards for reagents (order codes)



The Tintometer® Group has a decade-long heritage of standing for in-house produced high quality reagents and instruments. With the XD series, the portfolio is supplemented by an equally first-class spectrophotometer that fulfils even the highest demands in water analysis.

The Lovibond® UV-VIS and VIS spectrophotometers XD 7500 and XD 7000 combine the latest reference beam technology with high user-friendliness and flexibility.

All from one provider

The XD instruments. offer over 150 preprogrammed methods, which are based on the proven Lovibond® reagents. The combination of Photometer and Lovibond® reagents gives the user a complete system for immediate work input. There are no issues concerning with the implementation of reagent and instrument.
This means that the user not only gets uncomplicated equipment for the working area at all times but also competence in after-sales service.

Quality at an affordable price

The outstanding price/performance ratio of the total systems XD 7000 and XD 7500 is maintained with the diverse range of Lovibond® reagents. So the user can be sure when purchasing the instrument to also have a low-priced solution for consumables in future.

Method selection made simple

The barcoded cuvette tests allow the user an immediate access to the respective method: the insertion of the 16 mm cuvettes into the light-shielded duct is sufficient.

Likewise for any other of the more than 150 parameters, the external barcode reader provides direct method selection. By adopting these barcodes into customer documents, such as work instructions, the correct operation is significantly streamlined.

Global deployment desirable

With its 24-language instrument software, a 27-language user manual and a methodology handbook written in 8 languages, the XD 7000/7500 series qualifies for global applicability.

Through the self-explanatory pictograms the methodology handbook gives the user a quick and reliable overview of the path to the measurement result.

Straightforward user guidance

The bright colour display and the easy-to-use menu navigation allow every user fast access to the instrument and its functions.

Diversity assured

In addition to the pre-installed Lovibond® methods the user also benefits from the various cuvette sizes of 16 and 24 mm round cuvettes, as well as 10, 20 and 50 mm rectangular cuvettes.
These are all automatically recognised, without exception, and the user acquires a wide variety of methods.

The possibility of using a 13 mm cuvette by use of an adapter further enhances the method portfolio.

Always up to date

The latest software updates are always available for registration-free download on our website www.lovibond.com.

This allows users to keep their own XD instrument at the cutting edge with new methods, functions or languages.

Extensive features inclusive

The XD 7000/7500 series offers a comprehensive set of features for versatile use in the analysis of water-based solutions:

- Preprogrammed Lovibond® methods
- The creation of user-defined methods using multiple wavelengths.
- Measurement of transmission and absorption
- Spectral scan
- kinetic analysis

Well secured

Backup of own data is becoming increasingly important, not just for the maintenance of Good Laboratory Practice (**GLP**). For this purpose, the user can set up to 3 user levels: Administrator, user and guest (sometimes with password protection).

Guidelines and quality standards that call for such security will be handled in accordance with respective requirements.





Analytical quality assurance

In many application areas, beyond the GLP guidelines, reliable assurance of correct and precise measurement results is both a requirement and a challenge.

The XD 7000 and XD 7500 instruments meet this requirement with 3 selectable functions:

PCheck

The complete photometer is checked by means of the Verification Standard Kit, which can be ordered separately.

MCheck

The photometer is checked in conjunction with the method.

The required standards are called application-related ValidCheck® multistandards and ValidCheck® single parameter standard solutions offered.

SCheck

The SCheck checks whether the photometric determination of other ingredients in the sample have been disturbed.

Each of the mentioned check options includes the capability to define inspection time intervals, indicating verified results and issuing a test report.

Spectrophotometer XD 7000
Order Code: 71307000

Spectrophotometer XD 7500
Order Code: 71307500

Delivery Content

- Spectrophotometer
- Set of 4 round vials with lid + zero vial XD7x00 (24mm)
- zero via 16 mm for XD 7000 / XD 7500
- 4 batteries AA
- Power supply unit 100 - 240 V / 50-60 Hz / 12 V DC Output
- Power cable
- Quickstart-Guide in 27 languages
- Full User-Manual in 8 languages (digital)
- Handbook of Methods (digital)
- Calibration record in shipping box

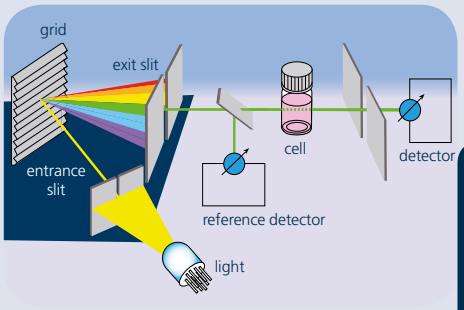
Technical data	XD 7000	XD 7500
Wavelength range	320 – 1100 nm (scan range)	190 – 1100 nm (scan range)
Light source	Tungsten-halogen-lamp	Xenon flash lamp (500 millionen flashes possible)
Optical system	grid monochromator with reference beam and beam splitter after exit slit	
Measurement	grid monochromator with reference beam and beam splitter after exit slit	
Suitable Vials	round: 13, 16 and 24 mm, rectangle: 10, 20 and 50 mm	
Automatic Tube Recognition	automatic recognition of 16 and 24 mm round tubes, 10,20,50 mm rectangular tubes	
Test recognition	via internal or external barcode reader (depending on the method)	
Dimensions (W x H x D)	422 x 195 x 323 mm	
Weight	approx. 4,5 kg	
Power supply	100 – 240 V, 50 / 60 Hz	
Display	7" high contrast colour graphic-dislay	
Protection class	IP30	
Keyboard	membrane keyboard	
Interfaces	1 x ethernet RJ45, 1 x USB A for external memory, keyboard, mouse, barcode-scanner and 1x USB B for PC and PCL compatible printer	
Spectral scope	4 nm	
Wavelength accuracy	± 1 nm on all Holmium peaks	
Wavelength reproducibility	better than 0,5 nm	
Photometric range	-3,3 - +3,3 Abs	
Photometric resolution	Abs.: 0,001 Transmission: 0,1%	
Photometric accuracy	0,003 Abs below 0,6 Abs / 0,5 % from 0.6 bis 2,0 Abs	
Photometric reproducibility	0,003 Abs below 0,6 Abs / 0,5 % from 0,6 bis 2,0 Abs	
Photometric linearity	<1% up to 2.0 Abs between 340 to 900 nm	
Scattered light at 340 and 408 nm	< 0,1% transmission	< 0,05% transmission
Drift	< 0.005 Abs per hour after 15 minutes heat up time	
Internal storage	approx. 5000 data sets (method, user ID, date, result), autostorage function / manual storage function	
Programmability	up to 100 user programs, 20 user profiles	



The Handbook of Methods

The 900 pages contain more than 160 Lovibond® test methods. Each method can also be selected directly by the XD instrument via barcode with the scanner. With basic chapters on water analysis, source and literature references, references to standards and explanations for possible errors, it is also a compact reference book for photometry - printed or digital.

The methods manual is currently available in eight languages.



The optical system

Using reference beam technology, the spectrophotometers achieve maximum accuracy in the visual and non-visual wavelength range.

The light source according to the model and consists of a tungsten-halogen lamp in the XD 7000, while the XD 7500 is equipped with a xenon flash lamp.
With an output of up to 500 million flashes, the UV light source is designed to last the life of the instrument and is a cost-effective replaceable part as opposed to the usual deuterium lamps.

By means of a grating monochromator and beam splitter behind the exit slit, the respective required wavelength is precisely demarcated and allows a wave length accuracy of +/- 1 nm.

The principle in detail

The light emitted by the light source falls through the entrance slit on the monochromator and is deflected by the grating situated towards the exit slit. This mechanism, along with the limitation after the exit slip, enables the selected wavelength to be accurately reproduced.
The semi-transparent mirror deflects the reference beam while allowing the light beam to pass through to the sample in the cuvette.
The photodiodes act as detectors and transmit these signals to the microprocessor. The result is calculated and issued as a value in the display.

Accessories

Item	Code
Replacement lamp for XD 7000	71310000
Transport case for XD Spectrophotometer	71310010
12 Volt Connection cable for XD Spectrophotometer	71310020
Barcode Scanner USB	71310030
Cleaning cloth for tubes	197635
USB-cable for PC-Connection, 3 m length	2444482
Batteries (AA), 4er pack	1950025
Round tube with lid, 12er-pack height 48 mm; diameter 24 mm	197620
Round tube with lid, 5er-pack height 48 mm; diameter 24 mm	197629
Round tube with lid, 10er-pack, 12er-pack height 90 mm; diameter 16 mm	197665
Tube stand for 6 vials 24 mm acrylic glass with laser engraving Lovibond	418951
Tube stand for 10 vials 16 mm acrylic glass with laser engraving Lovibond	418957
W100/OG/10 mm rectangle tube opt. glass	601040
W100/OG/20 mm rectangle tube opt. glass	601050
W100/OG/50 mm rectangle tube opt. glass	601070
W110/UV/10 mm rectangle tube quartz UV	661130
W110/UV/20 mm rectangle tube quartz UV	661140
W110/UV/50 mm rectangle tube quartz UV	661160
Secondary standard set VIS with DAkkS calibration	711160
Secondary standard set VIS with UV mit DAkkS calibration	711161
Automatic pipette 1-5 ml with stepless volume adjustment (digital)	419076
Pipette tips 1-5 ml, white (Pckg with 100 pc)	419066
Automatic pipette 0,1-1 ml with stepless volume adjustment (digital)	419077
Pipette tips 0,1-1 ml , blue (Pckg with 100 pc)	419073
Zero vial 16 mm for XD 7000/XD 7500	215661
Zero vial 24 mm for XD 7000/XD 7500	215662
Handbook of Methods, german	003864401
Handbook of Methods, english	003864402
Manuel des Méthodes, french	003864403
Manuale di Metodi, italian	003864404
Handbook de Métodos, spanish	003864405
Manual de Métodos, portuguese	003864406
Metotlar el Kitabi, turkish	003864407
Handbook of Methods, chinese (simplified)	003864408


XD Spectrophotometer in carrying case

ValidCheck Standard Solutions

Single standards

Item	Analyte	Analyte concentration
ValidCheck Chlorine	Cl_2	1,5 mg/l Cl_2
ValidCheck Fluoride	F-	0,3 mg/l
ValidCheck Fluoride	F-	1 mg/l
ValidCheck Sulfate	SO_4^{2-}	75 mg/l
ValidCheck Sulfate	SO_4^{2-}	500 mg/l
ValidCheck Copper	Cu	0,5 mg/l
ValidCheck Copper	Cu	2 mg/l
ValidCheck Manganese	Mn	0,3 mg/l
ValidCheck Potassium	K	10 mg/l
ValidCheck Nitrate	NO^{3-}	10 mg/l NO^{3-}
ValidCheck Nitrate	NO^{3-}	50 mg/l NO^{3-}
ValidCheck Nitrite	NO^{2-} -N	0,1 mg/l
ValidCheck Nitrite	NO^{2-} -N	0,4 mg/l
ValidCheck Total Nitrogen	N	50 mg/l
ValidCheck Phosphate	PO_4^{3-} - P	0,3 mg/l
ValidCheck Phosphate	PO_4^{3-}- P	1 mg/l
ValidCheck COD	COD / TOC	40 mg/l COD
ValidCheck COD	COD / TOC	120 mg/l COD
ValidCheck COD	COD / TOC	500 mg/l COD
ValidCheck COD	COD / TOC	5000 mg/l COD

Multistandards inclusive Stocking Solution

Item	Analyte	Analyte concentration of the standards
ValidCheck DW Anions	Cl^- NO^{3-} PO_4^{3-} SO_4^{2-}	250 mg/l 50 mg/l 2 mg/l 500 mg/l
ValidCheck WW Influent Multi-Standard COD/TOC/NO_3-N/PO_4-P/TP	CSB/COD/ TOC NO^{3-} -N PO_4^{3-} -P	500 mg/l O_2 2 mg/l 10 mg/l
ValidCheck WW Effluent Multi-Standard COD/TOC/NO_3-N/PO_4-P/TP	CSB/COD/ TOC NO^{3-} -N P (total)	40 mg/l O_2 10 mg/l 1 mg/l



ValidCheck Standard solutions

Quality management of analytical methods is a fundamental prerequisite for reliable water analysis. With the new ValidCheck standard solutions, ready-to-use solutions are available to the user. The precisely adjusted concentrations are modified to each particular application case. The dilution is omitted.

With the ValidCheck Multistandards, the user can immediately check all important analysis methods of an application with one product: Anions and metals in the drinking water analysis or in the analysis of the wastewater treatment plant inflow and outflow. In addition, the Multistandards contain a stocking solution, which enables the reliable determination of the influences of the sample matrix on the results.

	Container sizes	Code
	98,5 +1,5 ml	**48105510**
	250 ml	**48321225**
	250 ml	**48321325**
	250 ml	**48311325**
	250 ml	**48311825**
	250 ml	**48141325**
	250 ml	**48141525**
	250 ml	**48161425**
	250 ml	**48191325**
	250 ml	**48211325**
	250 ml	**48211625**
	250 ml	**48221225**
	250 ml	**48221425**
	250 ml	**48231725**
	250 ml	**48241225**
	250 ml	**48241425**
	250 ml	**48371225**
	250 ml	**48371425**
	250 ml	**48371625**
	250 ml	**48371825**

new!

available in Q 4 !



Analyte concentration Stocking Solution	Container sizes	Code
1500 mg/l 250 mg/l NO^{3-} 10 mg/l 3000 mg/l	102 ml Stocking solution + 21 ml Stocking solution	48399312
2500 mg/l O_2 10 mg/l 50 mg/l	102 ml Stocking solution + 21 ml Stocking solution	48399712
200 mg/l O_2 50 mg/l 5 mg/l	102 ml Stocking solution + 21 ml Stocking solution	48399612