

Laboratory & Field Instruments: Spectrophotometers & Colorimeters

Spectrophotometers & Colorimeters

See Inside!

- **DR Family of Spectrophotometers**
See pages 60-71.
- ***NEW!* DR 3800™ Benchtop Spectrophotometer**
See page 69.
- **TNTplus™ Reagents—Bar-coded vials provide automatic method detection and error elimination.**
See pages 72-73.

...and Much More!

GSA Pricing is available on select Hach products, call 800-227-4224 for more information.



Be Right™

Choosing Your Spectrophotometer

Genuine Hach:
Instruments, chemistries,
methods and expertise
from one source for
incomparable results.



DR 5000™

*Top-of-the-line benchtop
for advanced analysis,
including UV.*



DR 3800™

*Solid VIS benchtop with
high-speed scanning
plus many extras.*



FEATURES

UV spectrum analysis	✓	
Visible spectrum analysis	✓	✓
High-speed wavelength scanning for quality control and method development	✓	✓
Optional Sipper Sampler Module for high throughput analysis	✓	
On-screen Help Guide		✓
Easy-to-use, intuitive touch screen	✓	✓
Color touch screen		✓
Optional LINK2SC Software for comparison of lab and process data		✓
Automatic sample measurement and graphing at user-specified time intervals	✓	✓
Automatic method recognition with TNTplus	✓	✓
Error elimination with 10X measurement averaging when used with TNTplus	✓	✓
Reagent blank not required with TNTplus	✓	✓
Pre-programmed methods	over 250	240
Programmable custom methods	50	50
Automatically stored test data points	1000	1000
Multi-wavelength measurement	✓	✓
Optional Pour-Thru Cell for highly precise trace analysis	✓	✓
Easy USB data transfer to common PC applications—no special software needed	✓	✓
DR intersystem method transfer	✓	✓
Compatible with multiple sample cell sizes	✓	✓
Multiple languages available for worldwide use	✓	✓
Portable for field use with optional battery		
Water resistant with protective cover (IP42)		

KEY SPECIFICATIONS

Wavelength accuracy	±1.0nm	±1.5nm
Bandwidth	2nm	5nm
To order, see:	page 67	page 69

Choosing Your Spectrophotometer

DR 2800™

*Most popular portable
combines versatility
and ease of use.*



DR 2700™

*General use instrument
for basic, entry level
analysis.*



Spectrophotometers & Colorimeters



✓	✓
✓	✓
✓	
✓	
✓	
✓	
240	130
50	10
500	200
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
✓	✓
±1.5nm	±1.5nm
5nm	5nm
page 70	page 70

Choosing Your Colorimeter

Hach colorimeters are designed for the rigors of field use and provide consistently accurate measurements of over 100 different parameters.

Pocket Colorimeter™ II

- Measure one or two parameters quickly and easily.



DR/820 Colorimeter

- Rugged enough for field use with 20-parameter versatility
- Easy method selection with keypad interface
- One instrument measures the most popular parameters

DR/850 Colorimeter

- Rugged enough for field use with 50-parameter versatility
- Easy method selection with keypad interface
- One instrument measures a wide range of popular parameters



DR/890 Colorimeter

- Rugged enough for field use with 90-parameter versatility
- Easy method selection with keypad interface
- The industry's most versatile portable colorimeter for a wide range of applications

FEATURES

Number of Parameters	1 or 2 depending on model	20+	50+	90+
Factory Calibrated	Yes	Yes	Yes	Yes
Storage of User Calibration Curves	Yes (most models)	Yes	Yes	Yes
Wavelength Selection	Fixed wavelength	Auto-Select	Auto-Select	Auto-Select
Datalogging	most recent 10 points	up to 99 points	up to 99 points	up to 99 points
Readout Modes	Concentration, absorbance	Concentration, absorbance, %T	Concentration, absorbance, %T	Concentration, absorbance, %T
IP67 Rating (submersible 1 m for 30 mins)	Yes*	Yes	Yes	Yes
PC Interface Available	No	Yes	Yes	Yes
LCD Display	Backlit	Not Backlit	Not Backlit	Not Backlit
Battery Requirements (alkaline or rechargeable)	4 AAA	4 AA	4 AA	4 AA
Nominal Battery Life	2000 tests	6 months of average usage	6 months of average usage	6 months of average usage
LED Source Lamp	Yes	Yes	Yes	Yes
Dimensions	15.5 x 6.1 x 3.5 cm (6.2 x 2.5 x 1.4 in)	23.6 x 8.7 x 4.7 cm (9.3 x 3.4 x 1.9 in)	23.6 x 8.7 x 4.7 cm (9.3 x 3.4 x 1.9 in)	23.6 x 8.7 x 4.7 cm (9.3 x 3.4 x 1.9 in)
Weight	0.23 kg (0.5 lb)	0.45 kg (1 lb)	0.45 kg (1 lb)	0.45 kg (1 lb)
Full List of Parameters and Tests	See pages 63-65	See pages 63-65	See pages 63-65	See pages 63-65
Accessories	Belt Holster/Case	RS-232 Data Transfer Adapter (DTA), hard or soft-sided carrying cases	RS-232 Data Transfer Adapter (DTA), hard or soft-sided carrying cases	RS-232 Data Transfer Adapter (DTA), hard or soft-sided carrying cases

*Battery compartment excluded.

KEY SPECIFICATIONS

Wavelengths	Single wavelength model-specific	1 Fixed wavelength 520 nm	2 Fixed wavelengths 520, 610 nm	4 Fixed wavelengths 420, 520, 560, 610 nm
Wavelength Accuracy	±2 nm (typical)	±1 nm	±1 nm	±1 nm
Spectral Bandwidth	15 nm (typical)	10 nm nominal	10 nm nominal	10 nm nominal
Operating Temperature Range	0 to 50°C (32 to 122°F)	0 to 50°C (32 to 122°F)	0 to 50°C (32 to 122°F)	0 to 50°C (32 to 122°F)
Storage Temperature Range	-40 to 60°C (-40 to 140°F)	-40 to 60°C (-40 to 140°F)	-40 to 60°C (-40 to 140°F)	-40 to 60°C (-40 to 140°F)
To order, see:	pages 74-75	page 76		

Spectrophotometers and Colorimeters

Quick Reference Guide

The tables on the following 4 pages list test ranges, methods of analysis, and corresponding reagent set Product Numbers. The complete procedure for each test is included in the manual or CD supplied with the instrument. The ranges given are for the pre-calibrated instrument readout; higher ranges can be analyzed by sample dilution.

Parameters marked "EPA" are EPA-approved, accepted, or equivalent for reporting purposes; sample pretreatment may be required on some procedures. If no reagent set is listed for a parameter, order needed reagents and supplies separately.

See the Parameters Section, pages 123-198, for more information.

Test	EPA	Method	Number	DR 5000 Range	DR 5000	DR 3800 and DR 2800	DR 2700	DR 1890	DR 1850	DR 1820	Pocket Colorimeter II	Product Number
Alachlor in Water		Immunoassay	10202	0.1 to 0.5 ppb, threshold	•	•	•				•	2813000
Alkalinity, Total (TNTplus)		Colorimetric	10239	25 - 400 mg/L	•	•						TNT870
Aluminum		Aluminon	8012	0.008 - 0.800 mg/L	•	•	•	•	•	•	•	2242000
Aluminum		Eriochrome Cyanine R	8326	0.002 - 0.250 mg/L	•	•	•					2603700
Aluminum (TNTplus)		Chromazurol S	10215	0.02 - 0.50 mg/L	•	•						TNT848
Ammonia, Nitrogen		Salicylate	8155	0.01 - 0.50 mg/L	•	•	•	•	•		•	2668000
Ammonia, Nitrogen (TNTplus), ULR	•	Salicylate	10205	0.015 - 2.000 mg/L	•	•						TNT830
Ammonia, Nitrogen	•	Nessler	8038	0.02 - 2.50 mg/L	•	•	•					2458200
Ammonia, Nitrogen (Test 'N Tube), LR		Salicylate	10023	0.02 - 2.50 mg/L	•	•	•	•	•			2604545
Ammonia, Nitrogen (TNTplus), LR	•	Salicylate	10205	1-12 mg/L	•	•						TNT831
Ammonia, Nitrogen (Test 'N Tube), HR		Salicylate	10031	0.4 - 50.0 mg/L	•	•	•	•	•			2606945
Ammonia, Nitrogen (TNTplus), HR	•	Salicylate	10205	2 - 47 mg/L	•	•						TNT832
Ammonia, Free, Nitrogen		Indophenol	10200	0.01 - 0.50 mg/L	•	•	•	•	•		•	2879700
Arsenic	•	Silver Diethyldithiocarbamate	8013	0.020 - 0.200 mg/L	•	•	•					—
Atrazine		Immunoassay	10050	0.5 to 3.0 ppb, threshold	•	•	•				•	2762700
Barium		Turbidimetric	8014	2 - 100 mg/L	•	•	•					1206499
Benzotriazole		UV Photolysis	8079	1.0 - 16.0 mg/L	•	•	•	•				2141299
Boron		Carmine	8015	0.2 - 14.0 mg/L	•	•	•					—
Bromine		DPD	8016	0.05 - 4.50 mg/L	•	•	•	•	•	•	•	2105669
Bromine (AccuVac)		DPD	8016	0.05 - 4.50 mg/L	•	•	•	•	•	•	•	2503025
Cadmium		Dithizone	8017	0.7 - 80.0 µg/L	•	•	•					2242200
Cadmium (TNTplus) ¹		Cadion	10217	0.02 - 0.30 mg/L	•	•						TNT852
Carbohydrazide		Iron Reduction	8140	5 - 600 µg/L	•	•	•	•				2446600
Chloramine, Mono, LR		Indophenol	10171/10200	0.04 - 4.50 mg/L	•	•	•	•	•		•	2802246
Chloramine, Mono (Test 'N Tube), HR		Indophenol	10172	0.1 - 10.0 mg/L	•	•	•					2805145
Chloride		Mercuric Thiocyanate	8113	0.1 - 25.0 mg/L	•	•	•					2319800
Chlorine, Free		Indophenol	10241	0.04 - 4.50 mg/L	•	•	•	•	•		•	—
Chlorine, Free	•	DPD	8021	0.02 - 2.00 mg/L	•	•	•	•	•	•	•	2105569
Chlorine, Free (AccuVac)	•	DPD	8021	0.02 - 2.00 mg/L	•	•	•	•	•	•	•	2502025
Chlorine, Free (Pour-Thru Cell)		DPD Rapid Liquid	10059	0.02 - 2.00 mg/L	•	•	•					2556900
Chlorine, Free (TNTplus)	•	DPD	10231	0.05 - 2.00 mg/L	•	•						TNT866
Chlorine, Free (Test 'N Tube)		DPD	10102	0.09 - 5.00 mg/L	•	•	•	•	•	•		2105545
Chlorine, Free, HR	•	DPD	10069	0.1 - 10.0 mg/L	•	•	•	•	•	•	•	1407099
Chlorine, Free & Total (TNTplus)	•	DPD	10232	0.05 - 2.00 mg/L	•	•						TNT866T
Chlorine, Total (Pour-Thru Cell), ULR	•	DPD	8370/10014	2 - 500 µg/L	•	•	•					2563000
Chlorine, Total	•	DPD	8167	0.02 - 2.00 mg/L	•	•	•	•	•	•	•	2105669
Chlorine, Total (AccuVac)	•	DPD	8167	0.02 - 2.00 mg/L	•	•	•	•	•	•	•	2503025
Chlorine, Total (Pour-Thru Cell)		DPD Rapid Liquid	10060	0.02 - 2.00 mg/L	•	•	•					2557000
Chlorine, Total (Test 'N Tube)		DPD	10101	0.09 - 5.00 mg/L	•	•	•	•	•	•		2105645
Chlorine, Total, HR	•	DPD	10070	0.1 - 10.0 mg/L	•	•	•	•	•	•	•	1406499
Chlorine Demand/Requirement		DPD	10223	Multiple Ranges	•	•	•	•	•	•	•	—
Chlorine Dioxide, DPD	•	DPD/Glycine	10126	0.04 - 5.00 mg/L	•	•	•	•	•	•	•	2770900
Chlorine Dioxide, DPD (AccuVac)	•	DPD/Glycine	10126	0.04 - 5.00 mg/L	•	•	•	•	•	•	•	2771000
Chlorine Dioxide (Europe Only)		Amaranth		20 - 500 µg/L	•	•	•					—
Chlorine Dioxide, LR		Chlorophenol Red	8065	0.01 - 1.00 mg/L	•	•	•					2242300
Chlorine Dioxide, MR		Direct Reading	8345	1 - 50 mg/L	•	•	•	•				—
Chlorine Dioxide, HR		Direct Reading	8138	5 - 1000 mg/L	•	•	•					—

¹As listed, test determines soluble metal. Order Metals Prep Set TNT890 to determine total metal.

Spectrophotometers and Colorimeters

Quick Reference Guide

Test	EPA Method	Number	DR 5000 Range	DR 5000	DR 3800 and DR 2800	DR 2700	DR/880	DR/850	DR/820	Pocket Colorimeter II	Product Number
Chromium, Hexavalent	• 1,5 Diphenylcarbohydrazide	8023	0.010 - 0.700 mg/L	•	•	•	•			•	1271099
Chromium, Hexavalent (AccuVac)	• 1,5 Diphenylcarbohydrazide	8023	0.010 - 0.700 mg/L	•	•	•	•			•	2505025
Chromium, Hexavalent and Total (TNTplus)	• ¹ 1,5 Diphenylcarbohydrazide	10218/10219	0.03 - 1.00 mg/L	•	•						TNT854
Chromium, Total	Alkaline Hypobromite Oxidation	8024	0.01 - 0.70 mg/L	•	•	•	•				2242500
Cobalt	PAN	8078	0.01 - 2.00 mg/L	•	•	•					2651600
COD, ULR	Dichromate	8000	0.7 - 40.0 mg/L	•	•						2415825
COD, LR	• Dichromate	8000	3 - 150 mg/L	•	•	•	•				2125825
COD, HR	• Dichromate	8000	20 - 1500 mg/L	•	•	•	•	•			2125925
COD, HR+	Dichromate	8000	200 - 15,000 mg/L	•	•	•	•	•			2415925
COD	Manganese III	10067	30 - 1000 mg/L	•	•	•	•	•	•		2623425
COD, Mercury-Free (TNTplus), HR	Dichromate	10236	25-100mg/L	•	•						TNT825
COD (TNTplus), ULR	Dichromate	10211	1 - 60 mg/L	•	•						TNT820
COD (TNTplus), LR	• Dichromate	8000	3 - 150 mg/L	•	•						TNT821
COD (TNTplus), HR	• Dichromate	8000	20 - 1500 mg/L	•	•						TNT822
COD (TNTplus), UHR	Dichromate	10212	250 - 15,000 mg/L	•	•						TNT823
Color	ADMI Weighted Ordinate	10048	3 - 250 units	•							—
Color, True and Apparent	Platinum-Cobalt	8025	15 - 500 units	•	•	•	•				—
Color, True and Apparent, LR	Platinum-Cobalt	8025	3 - 200 units	•	•	•					—
Copper, LR	Porphyrin	8143	1 - 210 µg/L	•	•	•	•				2603300
Copper	• Bicinchoninate	8506	0.04 - 5.00 mg/L	•	•	•	•			•	2105869
Copper (AccuVac)	Bicinchoninate	8026	0.04 - 5.00 mg/L	•	•	•	•			•	2504025
Copper (TNTplus) ²	Bathocuproine	10238	0.1-8.0 mg/L	•	•						TNT860
Cyanide	Pyridine-Pyrazalone	8027	0.002 - 0.240 mg/L	•	•	•	•	•			2430200
Cyanuric Acid	Turbidimetric	8139	5 - 50 mg/L		•	•	•	•	•		246066
DEHA (Diethylhydroxylamine)	Iron Reduction	8140	3 - 450 µg/L	•	•	•	•				2446600
Detergents (Surfactants)	Crystal Violet	8028	0.002 - 0.275 mg/L	•	•	•	•	•			2446800
Dissolved Oxygen (AccuVac), LR	Indigo Carmine	8316	6 - 800 µg/L	•	•	•	•	•			2501025
Dissolved Oxygen (AccuVac), HR	HRDO	8166	0.3 - 15.0 mg/L	•	•	•	•	•	•	•	2515025
Dissolved Oxygen (AccuVac), UHR	Ultra High Range	8333	1.0 - 40.0 mg/L	•	•	•					2515025
Erythorbic Acid (Isoascorbic Acid)	Iron Reduction	8140	13 - 1500 µg/L	•	•	•	•				2446600
Fluoride, Arsenic Free	• ^{3,4} SPADNS 2	10225	0.02 - 2.00 mg/L	•	•	•	•	•		•	2947549
Fluoride, Arsenic Free (AccuVac)	• ^{3,4} SPADNS 2	10225	0.02 - 2.00 mg/L	•	•	•	•	•		•	2527025
Fluoride	• ⁴ SPADNS	8029	0.02 - 2.00 mg/L	•	•	•	•	•		•	44449
Fluoride (AccuVac)	• ⁴ SPADNS	8029	0.02 - 2.00 mg/L	•	•	•	•	•		•	2506025
Formaldehyde	MBTH	8110	3 - 500 µg/L	•	•	•					2257700
Hardness, Total, ULR	Chlorophosphonazo Colorimetric	8374	8 - 1000 µg/L	•	•	•					2603100
Hardness, Total, ULR (Pour-Thru Cell)	Chlorophosphonazo Rapid Liquid	8374	4 - 1000 µg/L	•	•	•					—
Hardness, Ca & Mg	Calmagite Colorimetric	8030	0.05 - 4.00 mg/L	•	•	•	•	•	•		2319900
Hydrazine	p-Dimethylaminobenzaldehyde	8141	4 - 600 µg/L	•	•	•	•				179032
Hydrazine (AccuVac)	p-Dimethylaminobenzaldehyde	8141	4 - 600 µg/L	•	•	•	•				2524025
Hydroquinone	Iron Reduction	8140	9 - 1000 µg/L	•	•	•	•				2446600
Iodine DPD	DPD	8031	0.07 - 7.00 mg/L	•	•	•					2105669
Iodine DPD (AccuVac)	DPD	8031	0.07 - 7.00 mg/L	•	•	•					2503025
Iron (TNTplus) ²	• Phenanthroline	10229	0.2 - 6.0 mg/L	•	•						TNT858
Iron	FerroZine	8147	0.009 - 1.400 mg/L	•	•	•	•				230166
Iron (Pour-Thru Cell)	FerroZine Rapid Liquid	8147	0.009 - 1.400 mg/L	•	•	•					230149
Iron, Ferrous	1,10 Phenanthroline	8146	0.02 - 3.00 mg/L	•	•	•	•	•	•		103769
Iron, Ferrous (AccuVac)	1,10 Phenanthroline	8146	0.02 - 3.00 mg/L	•	•	•	•	•	•		2514025
Iron, Total	FerroMo	8365	0.01 - 1.80 mg/L	•	•	•	•	•			2544800
Iron, Total	TPTZ	8112	0.012 - 1.800 mg/L	•	•	•	•	•		•	2608799
Iron, Total (AccuVac)	TPTZ	8112	0.012 - 1.800 mg/L	•	•	•	•	•		•	2510025
Iron, Total	• FerroVer	8008	0.02 - 3.00 mg/L	•	•	•	•	•	•	•	2105769

¹EPA approved for Cr⁶⁺ only. ²As listed, test determines soluble metal. Order Metals Prep Set TNT890 to determine total metal.

³Per 40 CFR 136.6 Method Modification and Flexibility. ⁴Not EPA accepted for drinking water using DR/800 Series colorimeters.

Spectrophotometers and Colorimeters

Quick Reference Guide

Test	EPA Method	Number	DR 5000 Range	DR 5000	DR 3800 and DR 2800	DR 2700	DR/890	DR/850	DR/820	Pocket Colorimeter II	Product Number
Iron, Total (AccuVac)	• FerroVer	8008	0.02 - 3.00 mg/L	•	•	•	•	•	•	•	2507025
Isoascorbic Acid (Erythorbic Acid) (ISA)	Iron Reduction	8140	13 - 1500 µg/L	•	•	•	•				2446600
Lead	LeadTrak Fast Column Extraction	8317	5 - 150 µg/L	•	•	•				•	2375000
Lead	• Dithizone	8033	3 - 300 µg/L	•	•	•					2243100
Lead (TNTplus)*	PAR	10216	0.1 - 2.0 mg/L	•	•						TNT850
Manganese, LR	PAN	8149	0.006 - 0.700 mg/L	•	•	•	•			•	2651700
Manganese, HR	• Periodate Oxidation	8034	0.1 - 20.0 mg/L	•	•	•	•	•	•	•	2430000
Mercury	Cold Vapor Mercury Concentration	10065	0.1 - 2.5 µg/L	•	•	•					2658300
Methylethylketoxime (MEKO)	Iron Reduction	8140	15 - 1000 µg/L	•	•	•	•				2446600
Molybdenum, Molybdate, LR	Ternary Complex	8169	0.02 - 3.00 mg/L	•	•	•	•	•		•	2449400
Molybdenum, Molybdate, HR	Mercaptoacetic Acid	8036	0.2 - 40.0 mg/L	•	•	•	•				2604100
Molybdenum, Molybdate (AccuVac), HR	Mercaptoacetic Acid	8036	0.2 - 40.0 mg/L	•	•	•	•				—
Nickel	PAN	8150	0.006 - 1.000 mg/L	•	•	•	3			•	2651600
Nickel	• Heptoxime	8037	0.02 - 1.80 mg/L	•	•	•					2243500
Nickel (TNTplus) ¹	Dimethylglyoxime	10220	0.1 - 6.0 mg/L	•	•						TNT856
Nitrate, Nitrogen, LR	Cadmium Reduction	8192	0.01 - 0.50 mg/L	•	•	•	•	•	•		2429800
Nitrate, Nitrogen (TNTplus), LR	Dimethylphenol	10206	0.23 - 13.5 mg/L	•	•						TNT835
Nitrate, Nitrogen, MR	Cadmium Reduction	8171	0.1 - 10.0 mg/L	•	•	•	•				2106169
Nitrate, Nitrogen (AccuVac), MR	Cadmium Reduction	8171	0.1 - 10.0 mg/L	•	•	•	•				2511025
Nitrate, Nitrogen	UV Screening	10049	0.1 - 10.0 mg/L	•							—
Nitrate, Nitrogen (Test 'N Tube), HR	Chromotropic Acid	10020	0.2 - 30.0 mg/L	•	•	•	•				2605345
Nitrate, Nitrogen, HR	Cadmium Reduction	8039	0.3 - 30.0 mg/L	•	•	•	•	•	•	•	2106169
Nitrate, Nitrogen (AccuVac), HR	Cadmium Reduction	8039	0.3 - 30.0 mg/L	•	•	•	•	•	•	•	2511025
Nitrate, Nitrogen (TNTplus), HR	Dimethylphenol	10206	5 - 35 mg/L	•	•						TNT836
Nitrite, Nitrogen, LR	• Diazotization	8507	0.002 - 0.300 mg/L	•	•	•	•	•	•		2107169
Nitrite, Nitrogen (AccuVac), LR	• Diazotization	8507	0.002 - 0.300 mg/L	•	•	•	•	•	•		2512025
Nitrite, Nitrogen (Test 'N Tube), LR	• Diazotization	10019	0.003 - 0.500 mg/L	•	•	•	•	•	•		2608345
Nitrite, Nitrogen (TNTplus), LR	• Diazotization	10207	0.015 - 0.600 mg/L	•	•						TNT839
Nitrite, Nitrogen (TNTplus), HR	Diazotization	10237	0.6-6.0 mg/L	•	•						TNT840
Nitrite, Nitrogen, HR	Ferrous Sulfate	8153	2 - 250 mg/L	•	•	•	•				2107569
Nitrogen, Ammonia (See Ammonia, Nitrogen)											
Nitrogen, Total (Test 'N Tube), LR	Persulfate Digestion	10071	0.5 - 25.0 mg/L	•	•	•	•				2672245
Nitrogen, Total (TNTplus), LR	Persulfate Digestion	10208	1 - 16 mg/L	•	•						TNT826
Nitrogen, Total (TNTplus), HR	Persulfate Digestion	10208	5 - 40 mg/L	•	•						TNT827
Nitrogen, Total (Test 'N Tube), HR	Persulfate Digestion	10072	2 - 150 mg/L	•	•	•	•				2714100
Nitrogen, Total (TNTplus), UHR	Persulfate Digestion	10208	20 - 100 mg/L	•	•						TNT828
Nitrogen, Total Inorganic (TIN) (Test 'N Tube)	Titanium Trichloride Reduction	10021	0.2 - 25.0 mg/L	•	•	•	•	•			2604945
Nitrogen, Total Kjeldahl (TKN)	Nessler		1 - 150 mg/L	•	•	•	•				2495300
Nitrogen, Simplified TKN (TNTplus)	s-TKN		0 - 16 mg/L	•	•						TNT880
Organic Carbon, Total (See TOC)											
Organic Constituents, UV-Absorbing (UV-254)	Direct Reading	10054	Varies-Units: Abs/cm	•							—
Oxygen Demand, Chemical (See COD)											
Oxygen, Dissolved (See Dissolved Oxygen)											
Oxygen Scavengers (See specific compounds)											
Ozone (AccuVac), LR	Indigo	8311	0.01 - 0.25 mg/L	•	•	•	•	•		•	2516025
Ozone (AccuVac), MR	Indigo	8311	0.01 - 0.75 mg/L	•	•	•	•	•		•	2517025
Ozone (AccuVac), HR	Indigo	8311	0.01 - 1.50 mg/L	•	•	•	•	•			2518025
PCB (Polychlorinated Biphenyls) in Soil ²	Immunoassay	10050	1 - 50 ppm, threshold	•	•	•				•	2773500
pH	Colorimetric Phenol Red	10076	6.5 - 8.5 units				•	•	•	•	2657512
Phenols	• 4-Aminoantipyrine	8047	0.002 - 0.200 mg/L	•	•	•					2243900

¹As listed, test determines soluble metal. Order Metals Prep Set TNT890 to determine total metal. ²Requires Soil Extraction Kit. Please order Prod. No. 2775100. (Included with Pocket Colorimeter II). ³Nickel PAN method reagent set for DR/890 is Prod. No. 2242600

Spectrophotometers & Colorimeters

Spectrophotometers and Colorimeters

Quick Reference Guide

Test	EPA Method	Number	DR 5000 Range	DR 5000	DR 3800 and DR 2800	DR 2700	DR 1890	DR 1850	DR 1820	Pocket Colorimeter II	Product Number
Phosphonates	Persulfate UV Oxidation	8007	0.02 - 125.0 mg/L	•	•	•	•	•	•	•	2429700
Phosphorus, Reactive	• PhosVer 3	8048	0.02 - 2.50 mg/L	•	•	•	•	•	•	•	2106069
Phosphorus, Reactive (AccuVac)	• PhosVer 3	8048	0.02 - 2.50 mg/L	•	•	•	•	•	•	•	2508025
Phosphorus, Reactive (Test 'N Tube)	• PhosVer 3	8048	0.06 - 5.00 mg/L	•	•	•	•	•	•	•	2742545
Phosphorus, Reactive	Amino Acid	8178	0.23 - 30.00 mg/L	•	•	•	•	•	•	•	2244100
Phosphorus, Reactive	Molybdovanadate	8114	0.3 - 45.0 mg/L	•	•	•	•	•	•	•	2076032
Phosphorus, Reactive (AccuVac)	Molybdovanadate	8114	0.3 - 45.0 mg/L	•	•	•	•	•	•	•	2525025
Phosphorus, Reactive (Test 'N Tube), HR	Molybdovanadate	8114	1.0 - 100.0 mg/L	•	•	•	•	•	•	•	2767345
Phosphorus, Reactive (Pour-Thru Cell), HR	Molybdovanadate Rapid Liquid	8114	0.3 - 45.0 mg/L	•	•	•	•	•	•	•	2076049
Phosphorus, Reactive (Pour-Thru Cell), LR	• Ascorbic Acid Rapid Liquid	10055	19 - 3000 µg/L	•	•	•	•	•	•	•	2678600
Phosphorus, Reactive (TNTplus)	Molybdovanadate	10214	5.0 - 90.0 mg/L	•	•	•	•	•	•	•	TNT846
Phosphorus, Acid Hydrolyzable (Test 'N Tube)	PhosVer 3 with Acid Hydrolysis	8180	0.06 - 3.50 mg/L	•	•	•	•	•	•	•	2742645
Phosphorus, Total (Test 'N Tube)	• PhosVer 3 with Acid Persulfate Digestion	8190	0.06 - 3.50 mg/L	•	•	•	•	•	•	•	2742645
Phosphorus, Total (Test 'N Tube), HR	Molybdovanadate with Acid Persulfate Digestion	10127	1.0 - 100.0 mg/L	•	•	•	•	•	•	•	2767245
Phosphorus, Reactive and Total (TNTplus), LR	• Ascorbic Acid	10209/10210	0.15 - 4.50 mg/L	•	•	•	•	•	•	•	TNT843
Phosphorus, Reactive and Total, (TNTplus), HR	• Ascorbic Acid	10209/10210	1.5 - 15.0 mg/L	•	•	•	•	•	•	•	TNT844
Phosphorus, Reactive and Total, (TNTplus), UHR	• Ascorbic Acid	10209/10210	6 - 60 mg/L	•	•	•	•	•	•	•	TNT845
Potassium	Tetraphenylborate	8049	0.1 - 7.0 mg/L	•	•	•	•	•	•	•	2459100
Quaternary Ammonium Compounds	Direct Binary Complex	8337	0.2 - 5.0 mg/L	•	•	•	•	•	•	•	2459200
Selenium	Diaminobenzidine	8194	0.01 - 1.00 mg/L	•	•	•	•	•	•	•	2244200
Silica (Pour-Thru Cell), ULR	Heteropoly Blue	8282	3 - 1000 µg/L	•	•	•	•	•	•	•	2553500
Silica (Pour-Thru Cell), ULR	Heteropoly Blue Rapid Liquid	8282	3 - 1000 µg/L	•	•	•	•	•	•	•	2678500
Silica, LR	Heteropoly Blue	8186	0.010 - 1.600 mg/L	•	•	•	•	•	•	•	2459300
Silica, HR	Silicomolybdate	8185	1 - 100 mg/L	•	•	•	•	•	•	•	2429600
Silver	Colorimetric	8120	0.02 - 0.70 mg/L	•	•	•	•	•	•	•	2296600
Sulfate	• SulfaVer 4	8051	2 - 70 mg/L	•	•	•	•	•	•	•	2106769
Sulfate (AccuVac)	• SulfaVer 4	8051	2 - 70 mg/L	•	•	•	•	•	•	•	2509025
Sulfate (TNTplus), LR	Turbidimetric	10227	40 - 150 mg/L	•	•	•	•	•	•	•	TNT864
Sulfate (TNTplus), HR	Turbidimetric	10227	150 - 900 mg/L	•	•	•	•	•	•	•	TNT865
Sulfide	• Methylene Blue	8131	5 - 800 µg/L	•	•	•	•	•	•	•	2244500
Sulfite (Europe only)	Colorimetric		0.10 - 5.00 mg/L	•	•	•	•	•	•	•	—
Surfactants (See Detergents)											
Suspended Solids	Photometric	8006	5 - 750 mg/L	•	•	•	•	•	•	•	—
Tannin & Lignin	Tyrosine	8193	0.1 - 9.0 mg/L	•	•	•	•	•	•	•	2244600
TOC (Total Organic Carbon), LR	Direct Method	10129	0.3 - 20.0 mg/L	•	•	•	•	•	•	•	2760345
TOC (Total Organic Carbon), MR	Direct Method	10173	15 - 150 mg/L	•	•	•	•	•	•	•	2815945
TOC (Total Organic Carbon), HR	Direct Method	10128	100 - 700 mg/L	•	•	•	•	•	•	•	2760445
Tolytriazole	UV Photolysis	8079	1.0 - 20.0 mg/L	•	•	•	•	•	•	•	2141299
Toxicity	ToxTrak	10017	0 - 100 % inhibition	•	•	•	•	•	•	•	2597200
TPH in Soil ¹	Immunoassay	10050	2 - 20 ppm, threshold	•	•	•	•	•	•	•	2774300
TPH in Water	Immunoassay	10050	2 - 20 ppm, threshold	•	•	•	•	•	•	•	2774300
Trihalomethanes (THM)	THM Plus	10132	10 - 600 µg/L	•	•	•	•	•	•	•	2790800
Trihalomethane Formation Potential (THMFP)	THM Plus	10224	10 - 600 µg/L	•	•	•	•	•	•	•	2790800
Volatile Acids	Esterification	8196	27 - 2800 mg/L	•	•	•	•	•	•	•	2244700
Volatile Acids (TNTplus)	Esterification	10240	50 - 2500 mg/L	•	•	•	•	•	•	•	TNT872
Zinc	• Zincon	8009	0.01 - 3.00 mg/L	•	•	•	•	•	•	•	2429300

¹Requires Soil Extraction Kit. Please order Prod. No. 2775100. (Included with Pocket Colorimeter II).

DR 5000™ UV-Vis Spectrophotometer

Top-of-the-line benchtop addresses immediate and future lab needs.

- Maximum analysis flexibility with high speed wavelength scanning across the UV and visible spectrum
- Accurate, drift-free measurement
- Built-in UV methods (organics/nitrate)
- Versatile measurement with more than 250 water analysis methods
- Easy-to-use touch screen with intuitive operation
- Most analysis flexibility with accessories designed to accommodate high-volume analysis and applications requiring greater sensitivity
- Time-saving automatic method detection and superior accuracy when using TNTplus reagents (see page 73)
- Genuine Hach: instruments, chemistries, methods and expertise from one source for incomparable results.



Spectrophotometers & Colorimeters

Most Commonly Tested Parameters Include:

Parameter	EPA COMPLIANT	Parameter	EPA COMPLIANT
Aluminum		Iron	■
Ammonia	■	Manganese	■
Chlorine	■	Monochloramine	
Chlorine Dioxide	■	Nitrate	
COD	■	Nitrite	■
Color		Oxygen Scavengers	
Copper	■	Ozone	
Dissolved Oxygen		Phosphorus	■
Fluoride	■	Silica	
Hardness		Zinc	■



Simply drop in the vial and get results immediately with automatic method detection.

Prod. No. Description

DR5000-03 DR 5000 UV-Vis Spectrophotometer

Includes multi-cell holder, dust cover, instrument manual, power cords (115V and 230V), procedures manual on CD, 1-in. matched glass sample cells, 1 cm matched quartz sample cells.

See next page for DR 5000 Accessories.

Specifications*

Operating Mode Transmittance (%), Absorbance and Concentration	Photometric Range ±3.0 Abs in the Wavelength Range 200-900 nm	User Interface Languages English, French, Spanish, German, Italian, Portuguese, Dutch, Swedish, Polish, Danish, Hungarian, Czech, Slovak and Romanian (Please contact your Hach representative for availability of additional languages.)
Source Lamp Tungsten (visible) and Deuterium (UV)	Photometric Accuracy 5 mAbs at 0.0-0.5 Abs; 1% at 0.50-2.0 Abs	Power Connection 100 - 120 V~; 200 - 240 V~; 50/60 Hz; automatic changeover
Wavelength Range 190 - 1100 nm	Photometric Linearity Deviation <0.5% up to 2 Abs Deviation ≤1% at 0.5 to 2.0 Abs	Interfaces USB 1.1
Wavelength Accuracy ±1 nm in Wavelength Range 200-900 nm	Stray Light KI-solution at 220 nm >3.3 Abs / <0.05%	Enclosure Rating IP 31
Wavelength Resolution 0.1 nm	Sample Cell Compatibility 1x1, 2x1, 5x1, 10x1 cm; 13 mm round and 16 mm round; AccuVac; 1-in. round; 1 cm, 5 cm, and 1-in. Pour Thru Cells; 1-in. square	Dimensions 450 x 200 x 500 mm (17.7 x 7.9 x 19.7) width, height, depth
Wavelength Calibration Automatic	Operating Conditions 10 to 40°C (50 to 104°F), max. 80% relative humidity (non-condensing)	Weight 15.5 kg (34.2 lbs)
Wavelength Selection Automatic—based on selected program Manual—in all modes except stored programs	Storage Conditions -25 to 60°C (-13 to 140 °F) max. 80% relative humidity (non-condensing)	
Scanning Speed 900 nm per minute in 1 nm steps		
Spectral Bandwidth 2 nm		

*Subject to change without notice.

Find it here... Buy it today on www.hach.com
U.S. customers only.



DR 5000™ UV-Vis Spectrophotometer



Pour-Thru Cell Kit



Sipper Module



Multi-Cell Holder



Carousel Sample Holder

Prod. No. Description

LZV485	Sipper Module The Sipper Module uses a peristaltic pump to aspirate samples into a flow cell (10 mm quartz cell included) for readings. After the reading is taken, the sample is either returned to the user or dumped to waste. The Sipper Module provides improved measurement accuracy and eliminates errors resulting from optical differences.
LZV513	Peltier Module NEW! Temperature Control Module: Ideal for analyses that require a stable, defined ambient temperature. The temperature of aqueous samples is held steady to within $\pm 0.5^\circ\text{C}$ in the range from 15 to 50°C .
LZV478	Carousel Sample Holder The rotating Carousel Holder allows the user to load up to seven 1-cm cells into the instrument at one time. The cells can contain various combinations of blanks and samples.
LZV479	Pour-Thru™ Cell Kit, 1 inch This Pour-Thru Cell Kit permits rapid colorimetric measurements without requiring individual glass sample cells. The Pour-Thru Cell (1-inch cell included) fits into the cell compartment, and solutions being analyzed are poured into the cell by means of a funnel and tubing. After measurement, solution from the cell flows through tubing to a drain. The kit provides improved measurement accuracy and eliminates errors resulting from optical differences.
LZV789	Pour-Thru Cell Kit, 1 cm
A23618	Multi-Cell Holder (included with DR 5000) The DR 5000 Spectrophotometer comes equipped with an adapter that can accommodate the following cuvette types: <ul style="list-style-type: none"> • 10 / 20 / 50 mm rectangular cells • 1-in. round cell / AccuVac® • 1-in. square cell
LZV567	USB Extension Cable Allows easy access to the USB port.
2946900	USB stick, 256 MB
LZV566	USB Barcode Scanner For fast entry of sample IDs.

Prod. No. Description

LZY421	10 cm Cell Adapter Adapter for 10 cm x 1 cm rectangular cells
2624401	10 cm Sample Cell, Rectangular Quartz
2629201	10 cm Sample Cell, Rectangular Glass
2960100	Citizen PD-24 Printer Package includes printer, universal power supply, 115V North American power cord, RS-232 cable, gender adapter, USB cable, battery pack, and one roll of thermal paper.
LZY274	DataTrans™ Software Hach DataTrans Software transfers measurement output from Hach DR 5000 spectrophotometer to a PC via USB port. This direct computer file input saves time and eliminates keying errors. Data can be transferred to Excel or to LIMS. The software also displays wavelength scan and time course graphs, and underlying raw data points can be easily exported to Excel. A powerful search function allows sorting by: Result (parameter), Date (range), Operator, Instrument (type, serial number), Program (name, type), and Sample Name. For recurring searches, users may create custom search programs and save under separate names.
LZV659	Brewery Methods Software The Brewery Analysis Software Package contains 12 brewery assays that conveniently upload via USB to a DR 5000. Assays are based on published and observed brewing methods and include procedures for: <ul style="list-style-type: none"> • Anthocyanogens • Iron • Steam volatile phenols • Beer color • Iso-alpha-acids • Total polyphenols • Bitterness units • Photometric iodine • Thiobarbituric acid number (TAN) • Free amino nitrogen • Reductones • Vicinal diketones
LZV537	Test Filter Set Consists of filters for checking the absorbance accuracy, stray light, and wavelength accuracy. Designed for use with the standard 10mm cell holder. The set is supplied in a sturdy wooden case. For identification purposes, the filter name, set number and part number are printed on each filter mount. The absorbance values and/or peak position wavelengths of each filter are quoted in the accompanying calibration certificate.
A23778	Tungsten (VIS) Lamp
A23792	Deuterium (UV) Lamp
A23766	Filter Pad

DR 3800™ Benchtop Spectrophotometer

Solid VIS benchtop offers high-speed wavelength scanning and many extras for simplified operation.

NEW!

- Accurate high-speed wavelength scanning across the visible spectrum
- Easy-to-use color touch screen with intuitive operation
- Fast access to working procedures via on-screen help guide
- Versatile measurement with more than 240 water analysis methods
- Easy comparison of lab and process measurement data through optional LINK2SC Software
- Time-saving automatic method detection and superior accuracy when using TNTplus reagents (see page 73)
- Genuine Hach: instruments, chemistries, methods and expertise from one source for incomparable results.



Prod. No. Description

DR3800-01 DR 3800 Benchtop Spectrophotometer
Includes: printed instrument manual, procedure manual on CD-ROM, universal power supply with exchangeable plug adapters for EU, GB, US, and China, adapters A, B, and C with adapter box, dust cover, 1-in. square matched glass sample cells, and Help Guide Software

ACCESSORIES

LZV774 LINK2SC Software
LZY274 DataTrans Software
LZV566 USB Barcode Scanner
For fast entry of sample IDs.
5940400 Pour-Thru Cell Kit
Permits rapid colorimetric measurements without requiring individual glass sample cells.
LZV537 Test Filter Set
Consists of six filters for checking the absorbance accuracy, stray light, and wavelength accuracy.
LZV565 Replacement tungsten lamp
2960100 Citizen PD-24 Printer Package includes printer, universal power supply, 115V North American power cord, RS-232 cable, gender adapter, USB cable, battery pack, and one roll of thermal paper.
A23766 Filter Pad



The color display allows instant identification of alerts and easy comparison of overlaid graphical data.

Specifications*

Operating Mode Transmittance (%), Absorbance, and Concentration	Enclosure Rating IP 32	Connections 1 x USB type A; 1 x USB type B
Source Lamp Tungsten	Operating Temperature 10 to 40°C (50 to 104°F)	Sample Cell Compatibility 1-in. square; 1-in. round; 1 cm square; 1 x 5 cm; 13 mm round; 16 mm round; Multipath 1-in. / 1 cm Pour-Thru™ with 1-in. / 1 cm path length; AccuVac® Ampules
Wavelength Range 320 to 1100 nm	Operating Humidity 80% relative humidity, non-condensing, maximum	Dimensions 368 x 144 x 359 mm (14.5 x 5.7 x 14.1-in.) width, height, depth
Wavelength Accuracy ±1.5 nm (wavelength range 340 to 900 nm)	Storage Requirements Temperature: -40 to 60°C (-40 to 140°F) Humidity: 80% relative humidity, non-condensing, maximum	Weight 6.4 kg (14.11 lb)
Wavelength Resolution 1 nm	Power Requirements External power supply: 100-240V/ 50-60Hz, automatic changeover	
Spectral Bandwidth 5 nm	Interface USB 1.1 (10 ft. (3 m) cable, maximum)	
Wavelength Calibration Automatic	User Interface Languages English, French, Spanish, Portuguese, Chinese, Japanese, Korean (please contact your Hach representative for availability of additional languages)	
Wavelength Selection Automatic: based on selected program method Automatic: based on barcode printed on TNTplus™ reagent vials Manual: from the touch screen in all modes except stored programs		

**Subject to change without notice.*

Find it here... Buy it today on www.hach.com
U.S. customers only.



Spectrophotometers & Colorimeters

DR 2800™ & DR 2700™ Spectrophotometers

DR 2800: Hach's most popular portable known for its versatility and ease of use. Take your analysis where you need it.



- Versatile measurement with more than 240 water analysis methods
- Easy-to-use touch screen with intuitive operation
- Time-saving automatic method detection and superior accuracy when using TNTplus reagents (see page 73)
- Genuine Hach: instruments, chemistries, methods and expertise from one source for incomparable results.

Prod. No. Description

DR2800-01B1 DR 2800 Spectrophotometer
Includes: 3 Adapters (A, B, C); for 10 mm square cells, multi-pathlength cell and Pour-Thru cell, and for 1-in. round cuvettes and AccuVac Ampules
Light Shield for 16 mm and 13 mm vials
Protective Cover for storing adapters
1 matched pair of 1-in. square glass sample cells
Universal power supply 100-240V, 47-63Hz with exchangeable plug adapters for EU, GB, US, China
Instrument Manual
Procedure Manual on CD
Dust Cover

DR2800-01 Same as above without lithium battery

DR 2700 Spectrophotometer

- Standard analysis with 130+ pre-programmed methods
- Not compatible with TNTplus
- Works with all other Hach chemistries



Prod. No. Description

DR2700-01B1 DR 2700 Spectrophotometer

DR2700-01 DR 2700 Spectrophotometer
Without lithium battery.



Specifications*

Wavelength Range
DR 2800: 340 to 900 nm; DR 2700: 400 to 900 nm

Spectral Bandwidth
5 nm

Wavelength Accuracy
±1.5 nm

Pre-programmed Water Analysis Methods
DR 2800: >240; DR 2700: >130

Data Logging
DR 2800: 500 points; DR 2700: 200 points

User-entered Calibrations
DR 2800: 50; DR 2700: 10

Scanning
No

Automatic Method Recognition
Yes, with TNTplus vials (DR 2800 only)

10-fold Measurement
Yes, with TNTplus vials (DR 2800 only)

Display
Backlit Grayscale LCD Touch Screen

External Outputs
USB

Power
Line/Battery (Optional)

Languages

English, French, Spanish, German, Italian, Portuguese, Dutch, Swedish, Polish, Danish, Hungarian, Czech, Slovak and Romanian (Please contact your Hach representative for availability of additional languages.)

Dimensions

220 x 137 x 332 mm (8.7 x 5.4 x 13.1 in.)
width, height, depth

Weight

4.06 kg (8.95 lbs) – without battery (DR 2800)
4.38 kg (9.65 lbs) – with battery (DR 2800)
4.0 kg (8.82 lbs) – without battery (DR 2700)
4.3 kg (9.52 lbs) – with battery (DR 2700)

**Subject to change without notice.*



DR 2800™ & DR 2700™ Spectrophotometers

Spectrophotometers & Colorimeters



**Pour-Thru
Cell Kit**

**DR 2800
Carrying Case**
Contents not included.

Your complete solution for water analysis.

Prod. No.	Description
5940400	Pour-Thru Cell Kit Permits rapid colorimetric measurements without requiring individual glass sample cells. The Pour-Thru Cell fits into the cell compartment, and solutions being analyzed are poured into the cell by means of a funnel and tubing. After measurement, solution from the cell flows through tubing to a drain. The Pour-Thru Cell Kit provides improved measurement accuracy and convenience.
LZY274	DataTrans Software Transfers measurement output from Hach DR 2800 and DR 2700 spectrophotometers to a PC via USB port. This direct computer file input saves time and eliminates keying errors. Data can be transferred to Excel or to LIMS. The software also displays time course graphs (DR 2800 only), and underlying raw data points can be easily exported to Excel. A powerful search function allows sorting by: Result (parameter), Date (range), Operator, Instrument (type, serial number), Program (name, type), and Sample Name. For recurring searches, users may create custom search programs.
2960100	Citizen PD-24 Printer Package includes printer, universal power supply, 115V North American power cord, RS-232 cable, gender adapter, USB cable, battery pack, and one roll of thermal paper.
5839700	Carrying Case Blue plastic case with handle. Designed to hold the DR 2800 or DR 2700, protective cover and adapters, 1-in. square sample cells, 2 pipets, and power supply. Contains extra space for adding your test reagents. Case size: 17.5 x 10.25 x 8.5" (W x D x H)

Prod. No.	Description
LZV537	Test Filter Set for DR 2800 Consists of six filters for checking the absorbance accuracy, stray light, and wavelength accuracy. Designed for use with the standard 10 mm cell holder. The set is supplied in a sturdy wooden case. For identification purposes, the filter name, set number and part number are printed on each filter mount. The absorbance values and/or peak position wavelengths of each filter are quoted in the accompanying calibration certificate.
LZV770	Test Filter Set for DR 2700 Same as above, but with four filters.
LZV566	USB Barcode Scanner For fast entry of sample IDs.

NOTE: Cell adapters A, B, and C, and Light Shield are all included with purchase of a DR 2800 or DR 2700 spectrophotometer.

LZV583	Cell Adapter A for 10 mm rectangular vials
LZV585	Cell Adapter B for Multi-pathlength cell and Pour-Thru cell Kit 59404-00
LZV584	Cell Adapter C for 1-in. round vials and AccuVacs
LZV646	Light Shield Required for use with TNT and TNTplus vials.
LZV551	Lithium Battery Operates instrument for 6-7 hours under normal conditions.
HYH019	Dust Cover (included with purchase of DR 2800)
LZV565	Replacement tungsten lamp

For DRB 200 reactors, see page 104.

Find it here... Buy it today on www.hach.com
U.S. customers only.





Benefits of TNTplus

Easy and safe
Dosi-Cap Zip—
freeze-dried
reagent integrated
into sealed cap

Narrow neck
minimizes
chance for
reagent spills

Optically
superior
glassware

Vials are
color-coded by
parameter and
range for easy
recognition and
error elimination

Barcode makes
testing hands-free
and fast—
instrument
automatically
detects and runs
the correct method

Flat bottom—
improves
handling,
vial stands
on its own

**TNTplus vials work exclusively with the
DR 5000, DR 3800, and DR 2800 Spectrophotometers.**

How TNTplus Works

1 Barcode Recognition

Simply drop in the vial and get results immediately with automatic method detection.

2 Reference Detector

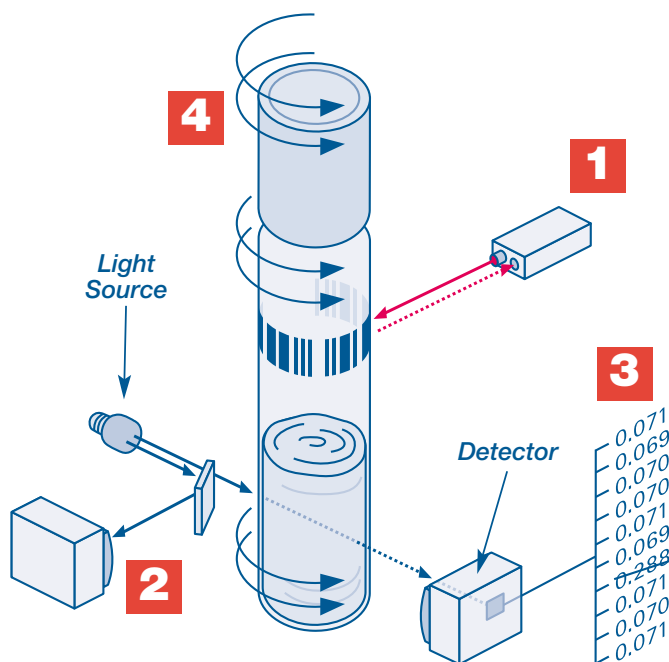
Monitors and compensates for optical fluctuations.

3 10X Measurement and Outlier Elimination

Dirty, scratched, or flawed glassware, including fingerprints, is no longer an issue—instrument averages 10 readings and rejects outliers.

4 Self-Contained Packaging— Reagents Inside Sealed Cap

Reduces exposure to chemicals—no need to open pillows or clean glassware.



See our TNTplus video at:
www.hach.com/tntplus

Bar-coded vials provide automatic method detection.

- Bar-coded vials—instrument automatically identifies test parameter, range and method
- New vial design with optically superior glassware, color-coded caps and flat bottom
- Dosi-Cap Zip reagent delivery provides ease of use and eliminates hazardous chemistry handling
- Color coded packaging, pictograms, and instructions in multiple languages simplify testing
- No blank necessary
- Many tests are EPA compliant—see table below

For use with Hach DR 5000, DR 3800, and DR 2800 Spectrophotometers only.

Description	Range	Instrument	EPA Compliant	Digestion Required	# Tests	Product Number
Alkalinity, Total TNTplus	NEW! 25-400 mg/L CaCO ₃	DR 5000, 3800, 2800			25	TNT870
Aluminum TNTplus, Chromazurol S Method	0.02-0.50 mg/L Al	DR 5000, 3800, 2800			24	TNT848
Ammonia TNTplus, ULR	0.015-2.00 mg/L NH ₃ -N	DR 5000, 3800, 2800	Yes		25	TNT830
Ammonia TNTplus, LR	1-12 mg/L NH ₃ -N	DR 5000, 3800, 2800	Yes		25	TNT831
Ammonia TNTplus, HR	2-47 mg/L NH ₃ -N	DR 5000, 3800, 2800	Yes		25	TNT832
Cadmium TNTplus [†] , Cadion Method	0.02-0.30 mg/L	DR 5000, 3800, 2800			25	TNT852
Chlorine, Free TNTplus	0.05-2.00 mg/L	DR 5000, 3800, 2800	Yes		39	TNT866
Chlorine, Free & Total TNTplus	NEW! 0.05-2.00 mg/L	DR 5000, 3800, 2800	Yes		39	TNT866T
Chromium, Hexavalent and Total TNTplus	0.03-1.00 mg/L Cr	DR 5000, 3800, 2800	Yes [‡]		25	TNT854
COD TNTplus, ULR PK/24	1-60 mg/L	DR 5000, 3800, 2800		Yes	24	TNT820
COD TNTplus, LR PK/25	3-150 mg/L	DR 5000, 3800, 2800	Yes	Yes	25	TNT821
COD TNTplus, LR PK/150	3-150 mg/L	DR 5000, 3800, 2800	Yes	Yes	150	TNT82106
COD TNTplus, HR PK/25	20-1,500 mg/L	DR 5000, 3800, 2800	Yes	Yes	25	TNT822
COD TNTplus, HR PK/150	20-1,500 mg/L	DR 5000, 3800, 2800	Yes	Yes	150	TNT82206
COD TNTplus, UHR PK/25	250-15,000 mg/L	DR 5000, 3800, 2800		Yes	25	TNT823
COD, Mercury-Free, TNTplus, HR	NEW! 25 to 1,000 mg/L	DR 5000, 3800, 2800		Yes	25	TNT825
Copper TNTplus*, Bathocuproine Method	NEW! 0.1 to 8.0 mg/L	DR 5000, 3800, 2800			25	TNT860
Iron TNTplus*	NEW! 0.2-6.0 mg/L	DR 5000, 3800, 2800	Yes		25	TNT858
Lead TNTplus*, PAR Method	0.1-2.0 mg/L Pb	DR 5000, 3800, 2800			25	TNT850
Nickel TNTplus*, Dimethylglyoxime Method	0.1-6.0 mg/L Ni	DR 5000, 3800, 2800			25	TNT856
Nitrate, Nitrogen TNTplus, LR	0.23-13.50 mg/L NO ₃ ⁻ -N	DR 5000, 3800, 2800			25	TNT835
Nitrate, Nitrogen TNTplus, HR	5-35 mg/L NO ₃ ⁻ -N	DR 5000, 3800, 2800			25	TNT836
Nitrite TNTplus, LR	0.015-0.600 mg/L NO ₂ ⁻ -N	DR 5000, 3800, 2800	Yes		25	TNT839
Nitrite TNTplus, HR	NEW! 0.6 to 6.0 mg/L NO ₂ ⁻ -N	DR 5000, 3800, 2800			25	TNT840
Nitrogen, Total TNTplus, LR	1-16 mg/L N	DR 5000, 3800, 2800		Yes	25	TNT826
Nitrogen, Total TNTplus, HR	5-40 mg/L N	DR 5000, 3800, 2800		Yes	25	TNT827
Nitrogen, Total TNTplus, UHR	20-100 mg/L N	DR 5000, 3800, 2800		Yes	25	TNT828
Nitrogen, Simplified TKN (s-TKN™) TNTplus	NEW! 0-16 mg/L N	DR 5000, 3800, 2800		Yes**	25	TNT880
Phosphorus, Reactive TNTplus	1.6-30 mg/L P (5.0 - 90.0 mg/L PO ₄)	DR 5000, 3800, 2800			25	TNT846
Phosphorus, Reactive and Total TNTplus, LR	0.05-1.5 mg/L P (0.15-4.5 mg/L PO ₄)	DR 5000, 3800, 2800	Yes	Yes for Total	25	TNT843
Phosphorus, Reactive and Total TNTplus, HR	0.5-5.0 mg/L P (1.5-15.0 mg/L PO ₄)	DR 5000, 3800, 2800	Yes	Yes for Total	25	TNT844
Phosphorus, Reactive and Total TNTplus, UHR	2-20 mg/L P (6-60 mg/L PO ₄)	DR 5000, 3800, 2800	Yes	Yes for Total	25	TNT845
Sulfate TNTplus, LR	NEW! 50 to 150 mg/L SO ₄	DR 5000, 3800, 2800			25	TNT864
Sulfate TNTplus, HR	150 to 900 mg/L SO ₄	DR 5000, 3800, 2800			25	TNT865
Volatile Acids TNTplus	NEW! 50-2500 mg/L Acetic Acid	DR 5000, 3800, 2800		Yes***	25	TNT872



TNTplus NUTRIENTS REAGENT SETS FOR USE WITH HACH DR 5000, DR 3800, AND DR 2800 SPECTROPHOTOMETERS

Nutrients Basic Reagent Set, TNTplus—includes 25 tests of each of the following:

2925000***

- Nitrogen, Total, LR • Phosphorus, Total and Reactive (ortho), LR

Nutrients Advanced Reagent Set, TNTplus—includes 25 tests of each of the following:

2925100***

- Nitrogen, Total, LR • Nitrogen, Ammonia, LR • Nitrogen, Nitrate, LR • Nitrogen, Nitrite, LR • Phosphorus, Total and Reactive (ortho), LR

* As listed, test determines soluble metal. Order Metals Prep Set TNT890 to determine total metal.

† Optional sample preparation: TNT 892 calcium preparation set for calcium removal

‡ EPA compliant for Cr⁶⁺ only.

** DRB200 Reactor with 20mm wells required.

***Requires Digestion. Use DRB200 Reactor with 13 mm vial wells or use TNTplus Adaptor Sleeves 16 mm to 13 mm (Prod. No. 2895805) to convert from a 16 mm reactor vial well to 13 mm vial well.

Pocket Colorimeter™ II



Portable, rugged, waterproof analysis.

- Measures one or two parameters
- Waterproof, IP67 rated
- Datalogs last 10 points with measurement time
- Rugged
- Backlit display
- Easier than ever to use



Rugged, portable, and convenient!



The optional soft-sided case/holster holds the Pocket Colorimeter, two vials, and reagents!



Each model comes as a test kit (shown above) with required sample cells, reagents, batteries, and manual.



Specifications*

Power Supply

4 AAA batteries, approximate life of 2000 tests (use of backlight reduces this number)

Lamp

Light Emitting Diode (LED)

Detector

Silicon detector

Wavelength

Fixed wavelength ± 2 nm, varies with model

Filter Bandwidth

15 nm

Absorbance Range

0 to 2.5 Abs

Dimensions

6.1 x 15.5 x 3.5 cm
(2.5 x 6.2 x 1.4 inch)

Net Weight

0.23 kg (0.5 lbs)

Operating Conditions

0 to 50° C; 0 to 90% relative humidity

Sample Cell Pathlength

1 cm and 25 mm

Compliance

European CE mark

Display

LCD, backlit

Warranty

2 years

Enclosure

IP67, waterproof at 1 meter for 30 minutes (excludes battery compartment)

**Subject to change without notice.*



How To Order Pocket Colorimeter™ II Standard Models

Each model comes as a test kit with required sample cells, reagents, batteries, and manual.

Description	Method	Range	Approx. No. of Tests	Product Number
Alachlor	Immunoassay	0.1, 0.5 ppb thresholds	18	2812900
Aluminum	Aluminon	0.02-0.80 mg/L Al	100	5870025
Ammonia	Salicylate	0.01-0.80 mg/L NH ₃ -N	100	5870040
Ammonia, Free Also tests for Monochloramine	Indophenol	0.02-0.50 mg/L NH ₃ -N	50	5870026
Atrazine	Immunoassay	0.1, 0.5, 3.0 ppb thresholds	18	2763500
Bromine	DPD	0.05-4.50/0.2-10.0 mg/L Br ₂	50-100	5870001
Chloramine, Mono Also tests for Free Ammonia	Indophenol	0.04-4.50 mg/L Cl ₂	100	5870026
Chlorine, F* & T**	DPD	0.02-2.00/0.1-8.0 mg/L Cl ₂	50-100	5870000
Chlorine, F & T & pH	DPD Phenol Red	0.1-10.0 mg/L Cl ₂ 6.0-8.5 pH [†]	100	5870012
Chlorine, SwifTest Dispenser				
Free Chlorine*	DPD	0.02-2.00/0.1-8.0 mg/L Cl ₂	125-250	5870023
Total Chlorine* **	DPD	0.02-2.00/0.1-8.0 mg/L Cl ₂	125-250	5870024
Chlorine Dioxide*	DPD/Glycine	0.05-5.00 mg/L ClO ₂	100	5870051
Chromium, Hexavalent**	1,5 Diphenylcarbohydrazide	0.01-0.70 mg/L Cr ⁶⁺	100	5870017
Copper**	Bicinchoninate	0.04-5.00 mg/L Cu	100	5870019
Dissolved Oxygen	HRDO	0.2-10.0 mg/L O ₂	25	5870003
Fluoride* **	SPADNS	0.1-2.0 mg/L ^{††} F ⁻	25-50	5870005
Fluoride* **	SPADNS2 (Arsenic-Free)	0.1-2.0 mg/L ^{††} F ⁻	25-50	2513100
Iron, FerroVer®	FerroVer®	0.02-5.00 mg/L Fe	100	5870022
Iron, TPTZ	TPTZ	0.01-1.70 mg/L Fe	100	5870016
Lead	LeadTrak™ Fast Column Extraction	5-150 µg/L Pb	20	5870021
Manganese, HR**	Periodate Oxidation	0.2-20.0 mg/L Mn	100	5870015
Manganese, LR	PAN	0.01-0.70 mg/L Mn	50	5870018
Molybdate	Ternary Complex	0.02-3.00/0.1-12.0 mg/L Mo ⁶⁺	100	5870010
Nickel & Cobalt	PAN	0.01-1.00 mg/L Ni 0.02-2.00 mg/L Co	100	5870020
Nitrate	Cadmium Reduction	0.4-30.0 mg/L NO ₃ -N	100	5870002
Ozone	Indigo Trisulfonate	0.01-0.25/0.01-0.75 mg/L O ₃	25-50	5870004
PCB in Soil	Immunoassay	1, 5, 10, 50 ppm thresholds	18	2773400
Phosphate* **	PhosVer® 3	0.02-3.00 mg/L PO ₄	100	5870006
Phosphonate	Persulfate UV Oxidation	0.1-2.5/1-125 mg/L PO ₄	100	5870007
Silica	Silicomolybdate	1-100 mg/L SiO ₂	100	5870034
Sulfate**	Turbidimetric	2-70 mg/L SO ₄	100	5870029
TPH in Soil	Immunoassay	20, 50, 100, 200 ppm thresholds	18	2775000
TPH in Water	Immunoassay	2, 5, 10, 20 ppm thresholds	18	2774200
Zinc**	Zincon	0.02-3.00 mg/L Zn	100	5870009

* Method is EPA compliant for drinking water (additional sample preparation steps may be required).

** Method is EPA compliant for wastewater (additional sample preparation steps may be required).

† Colorimetric pH is not approved for regulatory reporting.

†† Greater sensitivity (0.01 mg/L) is achieved by substituting bottled SPADNS reagent solution for the AccuVac® ampules provided in the kit.

Single-wavelength (generic) Pocket Colorimeter™ II instruments measure absorbance at a fixed wavelength. Create and store one or two calibrations for use in your own application.

How To Order Pocket Colorimeter™ II Generic Versions

Prod. No.	Description
5870042	Light Wavelength 420 nm
5870045	Light Wavelength 450 nm
5870050	Light Wavelength 500 nm
5870052	Light Wavelength 528 nm
5870055	Light Wavelength 550 nm
5870058	Light Wavelength 580 nm
5870060	Light Wavelength 600 nm
5870065	Light Wavelength 655 nm

Prod. No.	Description
ACCESSORIES	
5953100	Pocket Colorimeter™ II Soft-Sided Case/Holster
SPEC✓ SECONDARY STANDARDS	
2507500	Monochloramine/Free Ammonia, 0-4.50 mg/L as Cl ₂ ; 0-0.50 mg/L as NH ₃ -N
2635300	Chlorine, LR, 0-2.00 mg/L as Cl ₂
2893300	Chlorine, HR, 0-8.0 mg/L as Cl ₂
2708000	Ozone, MR, 0-.75 mg/L as O ₃
2712500	Fluoride, 0-2.0 mg/L as F ⁻

DR/800 Series Colorimeters

Multi-parameter analysis in the palm of your hand!



**Choose
the DR/800
Colorimeter
that's right
for you.
See
page 62.**

For a complete list of all the parameters
available on DR/800 models visit:
www.hach.com/dr800lc

- Easy-to-use software, pre-programmed methods, and prepared reagents
- Datalogging capabilities
- Rugged, waterproof, hand-held, multi-parameter analysis!

Choose from 3 Models:

DR/820

Engineered to test for **more than 20 parameters**, this colorimeter includes all the features identified above. Ideal for testing programs that focus on basic water quality constituents such as chlorine, iron, dissolved oxygen, and sulfate.

DR/850

This colorimeter tests for **more than 50 parameters** and includes all the advanced capabilities listed above.

DR/890

As the most complete, most capable of all the DR/800 Series, this colorimeter tests for **more than 90 parameters**, from aluminum to zinc. Use it for testing natural waters, industrial waters, and everything in between!



*The optional carrying case (shown above)
provides room for the instrument,
all accessories, and additional reagent sets.*



Each DR/800 Series Colorimeter comes with two 1-inch glass sample cells marked at 10, 20 and 25 mL, two 1 cm plastic sample cells, a 16-mm COD/Test 'N Tube™ adapter, 4 AA alkaline batteries, and illustrated instrument and procedure manuals. European CE mark.

Prod. No.	Description
4844000	DR/820 Colorimeter (approx. 20 parameters)
4845000	DR/850 Colorimeter (approx. 50 parameters)
4847000	DR/890 Colorimeter (approx. 90 parameters)

See pages 63-65 for more information on tests each model can run.

OPTIONAL ACCESSORIES

2763900	DR/Check Absorbance Standards
4942500	Instrument Carrying Case, hard-sided (shown)
2722000	Instrument Carrying Case, soft-sided
4849000	Data Transfer Adapter for RS-232 interface, includes cable

Accessories and Replacement Parts

For sample cells, see the Sample Cell Section, pages 85-91.

DR 5000

Prod. No. Description

OPTIONAL ACCESSORIES/REPLACEMENT PARTS

LZV485	Sipper Sampling Module
LZV513	Peltier Temperature Control Module
A23618	Multi-Cell Holder (included with DR 5000)
A23620	Carousel Sample Holder
LZV479	Pour-Thru Cell Kit, 1-in.
LZV789	Pour-Thru Cell Kit, 1 cm
LZY421	10 cm Cell Adapter Adapter for 10 cm x 1 cm rectangular cells
LZY274	DataTrans™ Software
LZV659	Brewery Methods
LZV537	Test Filter Set for DR 5000
2960100	Citizen PD-24 Printer Package
LZV567	USB Extension Cable
5924000	USB Interface Cable <i>Included with DataTrans Software.</i>
LZV566	USB Barcode Scanner
LZV582	USB Keyboard
LZV728	Dust Cover
A23778	Tungsten (VIS) Lamp
A23792	Deuterium (UV) Lamp
DR5000-45	Procedure Manual on CD-ROM <i>Included with purchase of DR 5000.</i>

DR 2700, DR 2800, and DR 3800

Prod. No. Description

OPTIONAL ACCESSORIES/REPLACEMENT PARTS

5940400	Pour-Thru Cell Kit
LZV774	LINK2SC Software for DR 3800
LZY274	DataTrans Software
LZV537	Test Filter Set for DR 2800 and DR 3800
LZV770	Test Filter Set for DR 2700
2960100	Citizen PD-24 Printer Package
5839700	Carrying Case
LZV551	Lithium Battery Operates instrument for 6-7 hours under normal conditions.
LZV567	USB Extension Cable
5924000	USB Interface Cable <i>Included with DataTrans Software.</i>
LZV566	USB Barcode Scanner
LZV582	USB Keyboard
HYH019	Dust Cover for DR 2800 and DR 2700 <i>Included with purchase of DR 2800.</i>
HYH020	Dust Cover for DR 3800 <i>Included with purchase of DR 3800.</i>
LZV565	Replacement lamp
<i>NOTE: Cell adapters A, B, and C, and Light Shield are all included with purchase of a DR 3800, DR 2800, or DR 2700 spectrophotometer.</i>	
LZV583	Cell Adapter A for 10 mm rectangular vials
LZV585	Cell Adapter B for Multi-pathlength cell and Pour-Thru Cell Kit Prod. No. 5940400
LZV584	Cell Adapter C for 1-in. round vials and AccuVacs
LZV646	Light Shield for use with TNT and TNTplus vials
DR2800-45	Procedure Manual on CD-ROM <i>Included with purchase of DR 2800 or DR 2700.</i>

DR/4000

Prod. No. Description

MODULES

4809003	Sipper Module, 1-in. quartz sample cell
4809006	Sipper Module, 1 cm quartz sample cell
4809007	Sipper Module, 2 mL, Micro, 1 cm 50 µL quartz sample cell
4807004	Flow-Cell Module, 1-in. quartz sample cell
4807005	Flow-Cell Module, 1 cm quartz sample cell
4807002	Carousel Module Kit with adapters
4807001	Single Cell Module Kit with 1-in. and 1 cm adapters (Replacement Module)
4807008	Temperature Control Module, 1 cm quartz sample cell

ADAPTERS

4827400	COD/Test 'N Tube (16 mm) Carousel Adapter, 5-position
4810500	1-in. Carousel Adapter, four position
4811500	1 cm Carousel Adapter, six position
4818600	5 cm Cell Adapter
4811800	10 cm Cell Adapter
4858800	1 cm Microcell Adapter
4819000	1-in. Cell Adapter
4858400	1 cm Cell Adapter
4818700	AccuVac®, 1-in. round Cell Adapter
4818900	COD/Test 'N Tube 16 mm round Cell Adapter

OPTIONAL ACCESSORIES/REPLACEMENT PARTS

4956800	CD-ROM of manuals
4951600	Tungsten (VIS) Lamp Replacement Kit
4951300	Deuterium (UV) Lamp Replacement Kit
4812900	Computer Interface Cable, 1.8 m (6 ft)
4950300	Printer Interface Cable, 9 pin to 25 pin
4966500	HachLink™ Software Package (to download data)

DR/2500

Prod. No. Description

OPTIONAL ACCESSORIES/REPLACEMENT PARTS

5912200	Pour Thru Cell Kit, 1-in. cell
5906200	1-in. square cell adapter
5906500	1 cm square cell adapter
5906700	5 cm square cell adapter
5910600	Round cell adapter
5905900	Illuminator module
5909100	Dust Cover
4812900	Computer Interface Cable, 1.8 m (6 ft)
4950300	Printer Interface Cable, 9 pin to 25 pin
4966500	HachLink Software Package (to download data)

pH ACCESSORIES

5191000	Platinum Series pH electrode
5193500	Gel-Filled pH pH electrode
5194000	Refillable pH electrode
4530000	Electrode Stand

Continued on next page.

Accessories and Replacement Parts

For sample cells, see the Sample Cell Section, pages 85-91.

DR/2400

Prod. No. Description

OPTIONAL ACCESSORIES/REPLACEMENT PARTS	
5946600	Adapter for multi-path length and Pour Thru cells
5945700	Adapter for COD/Test 'N Tube 16 mm tubes
5945900	Adapter for 1 cm square sample cell
5940400	Pour-Thru Cell Kit
4751500	Instrument case, hard-sided with inserts
5940045	CD-ROM of manuals
4812900	Computer Interface Cable, 1.8 m (6 ft)
4950300	Printer Interface Cable, 9 pin to 25 pin
4966500	HachLink™ Software Package (to download data)
5964800	Lamp Module For serial numbers 030900002600 and higher.
5945600	Lamp Module For serial numbers less than 030900002600.

DR/800

Prod. No. Description

OPTIONAL ACCESSORIES/REPLACEMENT PARTS	
4849000	Data Transfer Adapter, for RS-232 interface, includes cable
4942500	Instrument Carrying Case, hard-sided, style G See page 310.
2722000	Instrument Carrying Case, soft-sided with shoulder strap
4846400	COD/Test 'N Tube Adapter <i>Included with purchase of DR/800.</i>
1938004	AA Batteries, Alkaline, pk/4
4847077	Documentation package, DR/890
4845077	Documentation package, DR/850
4844077	Documentation package, DR/820
4812900	Computer Interface Cable, 1.8 m (6 ft)
4950300	Printer Interface Cable, 9 pin to 25 pin

Pocket Colorimeter™ II

Prod. No. Description

OPTIONAL ACCESSORIES/REPLACEMENT PARTS	
5953100	Pocket Colorimeter II Soft-Sided Case/Holster
4674300	AAA Batteries, Alkaline, pk/4

Secondary Standards

Prod. No. Description

2763900	DR/Check™ Absorbance Standards (used to verify instrument absorbance response)
---------	--

SPEC✓ SECONDARY STANDARDS

2507500	Monochloramine/Free Ammonia, 0-4.50 mg/L as Cl ₂ ; 0-0.50 mg/L as NH ₃ -N
2635300	Chlorine, LR, 0-2.00 mg/L as Cl ₂
2893300	Chlorine, HR, 0-8.0 mg/L as Cl ₂
2708000	Ozone, MR, 0-.75 mg/L as O ₃
2712500	Fluoride, 0-2.0 mg/L as F ⁻

Hach ServicePlus Extended Warranty

Prod. No. Description

BSPEWDR5000	DR 5000 Partnership Ex War Plus
BSPEWDR3800	DR 3800 Partnership Ex War Plus
BSPEWDR2800	DR 2800 Partnership Ex War Plus
BSPEWDR800	DR/800 Partnership Ex War Plus

Hach ServicePlus Extended Warranty programs double the term of your standard warranty period and additionally provide your covered product with factory recommended depot preventative maintenance services, calibration services and NIST backed certificates. For additional information about ServicePlus Programs please contact us at: (800) 227-4224, #6178.

