

VEE GEE

GLASSWARE & ACCESSORIES

VEE GEE Scientific
Laboratory Equipment & Supplies



GLASSWARE

SIBATA Scientific Technology LTD. is a highly respected manufacturer of Laboratory Glassware. This Japanese company was established and started producing glassware in 1921. They have been producing borosilicate glassware since 1940. VEE GEE sells SIBATA glassware due to its high quality and affordable price.

VEE GEE branded glassware is an economical choice made to ASTM standards.

Glass Beakers

These low-form Griffin beakers feature easy-pour spouts and permanent white graduations

- Uniform wall thickness - ideal for heating applications
- Made from high-quality borosilicate tubing with a low coefficient of expansion
- Graduation accuracy $\pm 5\%$ of full capacity

SIBATA Beakers

SIBATA BEAKERS						
Cat. No.	Capacity (mL)	Graduation Range (mL)	Graduation Interval (mL)	Approx. O.D. x Height (in)	Approx. O.D. x Height (mm)	Pack Qty.
10020-50A	50	20 to 50	10	1.8 x 2.4	46 x 60	10
10020-100A	100	20 to 100	10	2.2 x 2.8	55 x 70	10
10020-200A	200	50 to 200	25	2.6 x 3.5	67 x 89	10
10020-300A	300	50 to 300	50	3 x 4	78 x 103	10
10020-500A	500	100 to 500	50	3.5 x 4.3	90 x 120	10
10020-1000A	1000	200 to 1000	100	4.3 x 5.9	110 x 150	6
10020-2000	2000	250 to 2000	250	5.3 x 7.9	135 x 200	1
10020-3000	3000	500 to 3000	250	6. x 8.9	153 x 225	1



VEE GEE Beakers

- Beakers are double-graduated metric
- Meet ASTM E-960 Type I Specifications for Classification, Design, Capacity & Dimensions and Markings

VEE GEE BEAKERS							
Cat. No.	Capacity (mL)	Graduation Range (mL)	Graduation Interval (mL)	Approx. O.D. x Height (in)	Approx. O.D. x Height (mm)	Pack Qty.	Case Qty.
20229-20	20	5 to 15	5	1.7 x 1.8	32 x 45	12	48
20229-3000	3000	250 to 2500	125	5.9 x 8.3	149 x 212	1	6

Glass Burets

Used to accurately dispense a liquid, for example in a manual titration

- Designed "To Deliver"
- Made from high-quality borosilicate tubing with a low coefficient of expansion
- Feature durable, permanent markings; fine, sharp lines; and large easy-to-read numbers
- Supplied with PTFE stopcocks to eliminate freezing and lubricant contamination
- Meet ASTM E-287 Class A Specifications



Durable, permanent markings



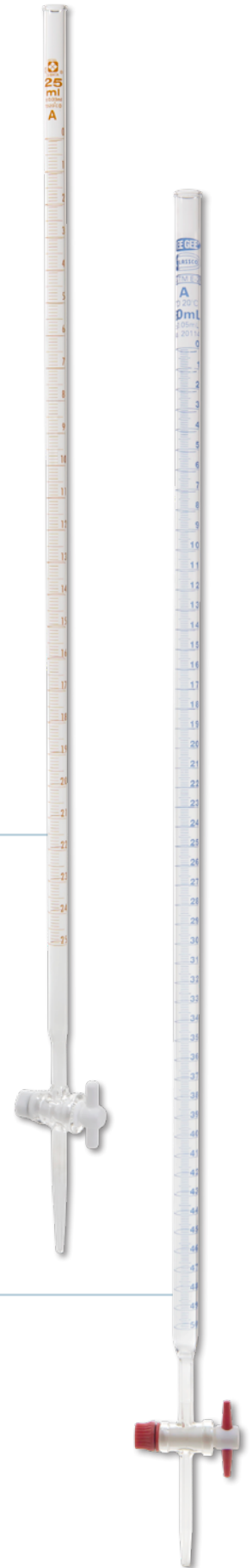
PTFE stopcock

SIBATA Burets

SIBATA BURETS								
Cat. No.	Capacity (mL)	Graduation Interval (mL)	Tolerance (\pm mL)	Stopcock Bore (in/mm)	Approx. O.D. x Height (in)	Approx. O.D. x Height (mm)	Pack Qty.	Case Qty.
21310-10	10	0.05	0.02	0.2 / 4	0.4 x 20	9.1 x 570	1	20
21310-25	25	0.10	0.03	0.2 / 4	0.4 x 25.2	11 x 640	1	20
21310-50	50	0.10	0.05	0.2 / 4	0.5 x 33	12.6 x 840	1	25

VEE GEE Burets

VEE GEE BURETS								
Cat. No.	Capacity (mL)	Graduation Interval (mL)	Tolerance (\pm mL)	Stopcock Bore (in/mm)	Approx. O.D. x Height (in)	Approx. O.D. x Height (mm)	Pack Qty.	Case Qty.
20114-50	50	0.10	0.05	0.08 / 2	0.5 x 30	13 x 758	1	24
20114-100	100	0.20	0.10	0.08 / 2	0.7 x 30.5	17 x 775	1	24



Separatory Funnels

Feature smooth tooled tips, large white block letters, and large marking squares

- Supplied with PTFE stopcocks to eliminate freezing and lubricant contamination
- Made from high-quality borosilicate tubing with a low coefficient of expansion

SIBATA Separatory Funnels with Stopper - Squibb Style

SIBATA SEPARATORY FUNNELS WITH STOPPERS - SQUIBB STYLE								
Cat. No.	Capacity (mL)	Stopper No.	Stopcock Plug Size	Approx. O.D. x Stem Length (in)	Approx. O.D. x Stem Length (mm)	Approx. Total Length (in/mm)	Pack Qty.	Case Qty.
1426T-300	300	24/40	4	0.4 x 2.8	10 x 70	15.4 / 390	1	6
1426T-500	500	24/40	4	0.4 x 2.8	10 x 70	17 / 430	1	6
1426T-1000	1000	29/42	6	0.5 x 3.1	12 x 80	19.3 / 490	1	4
1426T-2000	2000	29/42	6	0.5 x 3.1	12 x 80	20 / 510	1	2



VEE GEE Separatory Funnels with Stopper - Squibb Style

- All sizes supplied with a polyethylene standard taper stopper
- Meet ASTM E-1096 Type 4 Specifications for Classification, Design, and Markings

VEE GEE SEPARATORY FUNNELS WITH STOPPERS - SQUIBB STYLE								
Cat. No.	Capacity (mL)	Stopper No.	Stopcock Plug Size	Approx. O.D. x Stem Length (in)	Approx. O.D. x Stem Length (mm)	Approx. Total Length (in/mm)	Pack Qty.	Case Qty.
20149-250	250	22	2	0.4 x 2.6	10 x 65	13.6 / 345	1	24
20149-500	500	27	4	0.4 x 2.6	10 x 65	15.4 / 392	1	24



Filtration

Filter Holders

Glass Microanalysis, 47 mm

SIBATA 6168-Series Filter Holders are offered with a wide variety of components for different applications. Available with fritted glass support base for general and biological applications, or with removable stainless steel screen support base and PTFE gasket for ultraclean filtrate or proteinaceous solutions. The borosilicate glass funnels are available in 100 and 300 mL.

Specifications

- Effective Filtration Area: 9.6 cm² (filter dia. 47 mm, not included)
- Maximum Capacity: 100 mL Funnel: 150 mL; 300 mL Funnel: 350 mL
- Graduated Volume: 100 mL Funnel: 100 mL; 300 mL Funnel: 300 mL
- Connection: Silicone Stopper (No. 8)
- Sterilization: Autoclavable, except PTFE Gasket (at 121°C / 250 °F for 20 minutes)

FILTRATION KITS		
Cat No.	Kit Includes	
6168-0001	6168-4711	Funnel, 300 mL
	6168-4722	Fritted Glass Support Base
	6168-4751	Silicone Stopper No. 8
	6168-4762	Aluminum Anodized Clamp
6168-0002	6168-4711	Funnel, 300 mL
	6168-4721	Glass Support Base
	6168-4731	Stainless Steel Screen
	6168-4741	PTFE Gaskets (10 pk)
	6168-4751	Silicone Stopper No. 8
	6168-4762	Aluminum Anodized Clamp
6168-0003	6168-47100	Funnel, 100 mL
	6168-4722	Fritted Glass Support Base
	6168-4751	Silicone Stopper No. 8
	6168-4762	Aluminum Anodized Clamp
6168-0004	6168-47100	Funnel, 100 mL
	6168-4721	Glass Support Base
	6168-4731	Stainless Steel Screen
	6168-4741	PTFE Gaskets (10 pk)
	6168-4751	Silicone Stopper No. 8
	6168-4762	Aluminum Anodized Clamp

6168-0001 Kit



6168-47100
Funnel
100 mL



6168-4711
Funnel
300 mL



6168-4762
Aluminum
Anodized Clamp



6168-4731
Stainless Steel
Screen



6168-4741
PTFE Gaskets
(10 pk)



6168-4721
Glass Support
Base



6168-4751
Silicone
Stopper No. 8



6168-4722
Fritted Glass
Support Base

SIBATA Erlenmeyer Flasks

- Made from high-quality borosilicate tubing with a low coefficient of expansion
- Uniform wall thickness - ideal for heating applications
- Graduation accuracy is $\pm 5\%$ of full capacity

SIBATA ERLERMAYER FLASKS								
Cat. No.	Capacity (mL)	Graduation Range (mL)	Graduation Interval (mL)	Approx. O.D. x Height (in)	Approx. O.D. x Height (mm)	Approx. O.D. of Neck (in/mm)	Rubber Stopper No.	Pack Qty.
10530-100A	100	40 to 100	10	2.5 x 4.1	64 x 105	0.9 / 22	2	10
10530-300A	300	100 to 300	25	3.4 x 6.1	87 x 156	1.3 / 34	6	10
10530-500A	500	200 to 500	50	4.1 x 7.1	105 x 180	1.3 / 34	6	10
10530-1000A	1000	400 to 1000	50	5.2 x 8.7	131 x 220	1.7 / 42	8	10
10530-2000	2000	800 to 2000	200	6.5 x 11	166 x 280	2.0 / 50	10	1



SIBATA Filtering Flasks

Constructed of heavy wall borosilicate glass to withstand high vacuum

- Used in conjunction with vacuum filter systems, these filtering flasks feature heavy-duty rims to reduce chipping
- Feature white permanent graduations and large marking square
- Port for tubulation has an outside diameter of 10 mm

SIBATA FILTERING FLASKS						
Cat. No.	Capacity (mL)	Approx. O.D. x Height (in)	Approx. O.D. x Height (mm)	Rubber Stopper No.	Pack Qty.	Case Qty.
1780T-300	300	3.4 x 5.5	86 x 140	8	1	12
1780T-500	500	4.1 x 6.7	105 x 170	8	1	12
1780T-1000	1000	5.2 x 8.7	131 x 220	8	1	8
1780T-2000	2000	6.5 x 10.6	166 x 270	8	1	4



Lead Rings

Stabilize vessels and labware on the bench or in water baths

- Vinyl-coated lead rings will not mark or scratch benchtops and labware
- C-shape format allows some manual size variation for a customized fit

LEAD RINGS								
Cat No.	Shape	Color	Flask Sizes (mL)	ID (in)	ID (cm)	OD (in)	OD (cm)	Weight* (g)
20335-1	C	Blue ■	125–500	1.9	4.2	3	7.5	215
20335-2	O	Blue ■	125–500	1.9	4.8	3	7.7	210
20335-3	C	Blue ■	250–1000	2	5.1	3.5	9	465
20335-4	O	Blue ■	250–1000	2	5.1	3.5	9	490
20335-5	C	Blue ■	500–2000	2.1	5.4	3.9	9.8	595
20335-6	O	Blue ■	500–2000	2.2	5.7	3.9	9.8	610
20335-7	C	Blue ■	1000–4000	2.6	6.6	4.4	11.3	890
20335-8	O	Blue ■	1000–4000	2.8	7	4.5	11.5	935

**Weights may vary by +/- 3%*



Preserve your solutions with
Parafilm® M self-sealing film *pg. 14*



VEE GEE Amber Media Bottles

Commonly used to contain chemicals in liquid or powder form in laboratories

- Constructed of borosilicate glass in compliance with ASTM 438 Type 1
- Amber glass is ideal for light sensitive chemical compounds
- Blue plastic caps have GL-45 DIN threads, include a pouring ring, and are autoclavable
- Sharp white markings include a large marking square for labeling

VEE GEE Amber Media Bottles

VEE GEE AMBER MEDIA BOTTLES						
Cat. No.	Capacity (mL)	Graduation Range (mL)	Graduation Interval (mL)	Diameter (in/mm)	Height (in/mm)	Pack Qty.
20275-100	100	20 to 80	20	2.2 / 56	3.9 / 100	10
20275-250	250	50 to 200	50	2.8 / 70	5.4 / 138	10
20275-500	500	100 to 400	100	3.4 / 86	6.9 / 176	10



SIBATA Class A Graduated Cylinders

Class A, Double-Metric Scale, Graduated, To Contain, Calibration Temperature 20°C/68°F

- Graduated Cylinders feature hexagonal bases for added stability
- All sizes, except the 2000 mL size, come with a protective, polyethylene hexagonal bumper guard
- Constructed of borosilicate glass with durable white enamel markings
- Exceeds ASTM E-1272 Class A, Style I Specifications for Classifications and Tolerances

SIBATA CLASS A GRADUATED CYLINDERS

Cat. No.	Capacity (mL)	Graduation Range (mL)	Graduation Interval (mL)	Tolerance (\pm mL)	Approx. O.D. x Height (in)	Approx. O.D. x Height (mm)	Pack Qty.	Case Qty.
2351A-5	5	0.5 to 5.0	0.1	0.05	0.5 x 5	12 x 126	4	48
2351A-10	10	0.7 to 10.0	0.1	0.05	0.5 x 7.2	13 x 182	4	48
2351A-20	20	1.0 to 20.0	0.2	0.05	0.6 x 7.9	16 x 200	4	48
2351A-25	25	1.4 to 25.0	0.2	0.15	0.7 x 8.3	17 x 210	4	48
2351A-50	50	3.5 to 50.0	0.5	0.25	0.9 x 8.6	24 x 218	4	48
2351A-100	100	5.0 to 100.0	1	0.40	1.2 x 9.3	30 x 236	4	48
2351A-250	250	10.0 to 250.0	2	1.00	1.6 x 11.9	41 x 301	4	24
2351A-500	500	25.0 to 500.0	5	2.00	2.1 x 14.3	53 x 362	2	12
2351A-1000	1000	50.0 to 1000.0	10	3.00	2.8 x 16.6	70 x 422	2	8
2351A-2000	2000	100.0 to 2000.0	20	6.00	3.5 x 18.9	90 x 478	1	6



SIBATA Class B Graduated Cylinders

Class B, Double-Metric Scale, Graduated, To Contain, Calibration Temperature 20°C/68°F

- Graduated Cylinders feature hexagonal bases for added stability
- All sizes, except the 2000 mL size, come with a protective, polyethylene hexagonal bumper guard
- Constructed of borosilicate glass with durable white enamel markings
- Exceeds ASTM E-1272 Class B, Style I Specifications for Classifications and Tolerances

SIBATA CLASS B GRADUATED CYLINDERS

Cat. No.	Capacity (mL)	Graduation Range (mL)	Graduation Interval (mL)	Tolerance (\pm mL)	Approx. O.D. x Height (in)	Approx. O.D. x Height (mm)	Pack Qty.	Case Qty.
2351-10	10	0.7 to 10.0	0.1	0.10	0.5 x 7.2	13 x 182	4	48
2351-25	25	1.4 to 25.0	0.2	0.30	0.7 x 8.3	17 x 210	4	48
2351-50	50	3.5 to 50.0	0.5	0.40	0.9 x 8.6	24 x 218	4	48
2351-100	100	5.0 to 100.0	1	0.60	1.2 x 9.3	30 x 236	4	48
2351-250	250	10.0 to 250.0	2	1.40	1.6 x 11.9	41 x 301	4	24
2351-500	500	25.0 to 500.0	5	2.60	2.1 x 14.3	53 x 362	2	12
2351-1000	1000	50.0 to 1000.0	10	5.00	2.8 x 16.6	70 x 422	2	8
2351-2000	2000	100.0 to 2000.0	20	10.00	3.5 x 18.8	90 x 478	1	6

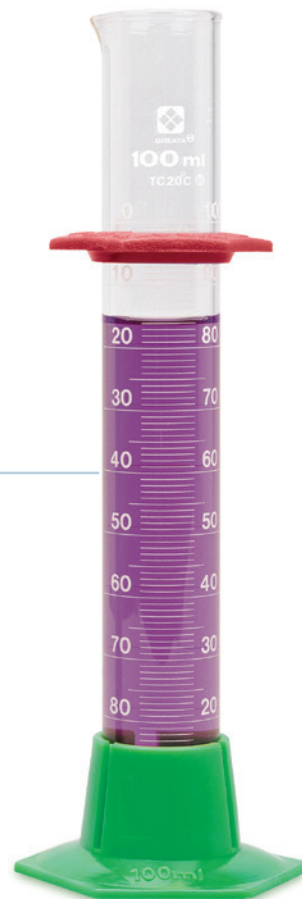


SIBATA Student Graduated Cylinders

Plastic Base, Double-Metric Scale, Graduated, To Contain, Calibration Temperature 20°C/68°F

- These economical graduated cylinders are made of two parts: a strong, borosilicate glass graduate and a detachable, sturdy plastic base which absorbs impacts and reduces breakage
- All cylinders come with a protective, polyethylene, hexagonal bumper guard
- All markings are in durable white enamel
- Exceeds ASTM E-1272 Class B, Style I Specifications for Classifications and Tolerances

SIBATA STUDENT GRADUATED CYLINDERS								
Cat. No.	Capacity (mL)	Graduation Range (mL)	Graduation Interval (mL)	Tolerance (\pm mL)	Approx. O.D. x Height (in)	Approx. O.D. x Height (mm)	Pack Qty.	Case Qty.
2355-10	10	0.4 to 10.0	0.1	0.10	0.5 x 7	13 x 177	6	24
2355-25	25	1.4 to 25.0	0.2	0.30	0.6 x 8.3	16 x 210	6	24
2355-50	50	2.0 to 50.0	1.0	0.40	0.9 x 8.3	24 x 212	6	24
2355-100	100	5.0 to 100.0	1.0	0.60	1.2 x 9.1	30 x 232	6	24



SIBATA Class A Volumetric Flasks with Snap-Cap

Feature machine-blown bodies and heavy-beaded, heavy-tubing necks that are tooled for snap-cap fit

- Designed "To Contain" with a temperature of calibration at 20°C/68°F
- Constructed of borosilicate glass with a low coefficient of expansion
- Graduation line is sharply defined and of uniform width
- Each flask has a large marking square and includes a polypropylene snap-cap
- Meet ASTM E-288 Class A Specifications & USP Standards for Volumetric Flasks

SIBATA CLASS A VOLUMETRIC FLASKS WITH SNAP-CAP							
Cat. No.	Capacity (mL)	Tolerance (±mL)	Snap-Cap No.	Approx. O.D. x Height (in)	Approx. O.D. x Height (mm)	Pack Qty.	Case Qty.
2303A-5	5	0.02	1	0.8 x 2.3	21 x 59	6	72
2303A-10	10	0.02	1	1 x 3.3	26 x 85	6	72
2303A-25	25	0.03	2	1.5 x 4.3	37 x 110	6	72
2303A-50	50	0.05	3	1.9 x 5.4	49 x 136	4	48
2303A-100	100	0.08	3	2.3 x 6.5	58 x 164	4	48
2303A-200	200	0.10	4	2.9 x 8.1	74 x 205	4	24
2303A-250	250	0.12	4	3.1 x 8.9	78 x 225	4	24
2303A-500	500	0.20	5	3.8 x 10.2	96 x 260	2	12
2303A-1000	1000	0.30	6	4.8 x 11.8	122 x 300	2	8



Snap-Cap



SNAP-CAP FOR SIBATA CLASS A VOLUMETRIC FLASK				
Cat. No.	Description	Fits Class A Volumetric Flask	Color	Each Qty.
SC#1	Snap Cap Size #1	2303A-5, 2303A-10	Yellow	1
SC#2	Snap Cap Size #2	2303A-25	Orange	1
SC#3	Snap Cap Size #3	2303A-50, 2303A-100	Red	1
SC#4	Snap Cap Size #4	2303A-200, 2303A-250	Green	1
SC#5	Snap Cap Size #5	2303A-500	Blue	1
SC#6	Snap Cap Size #6	2303A-1000	Yellow	1

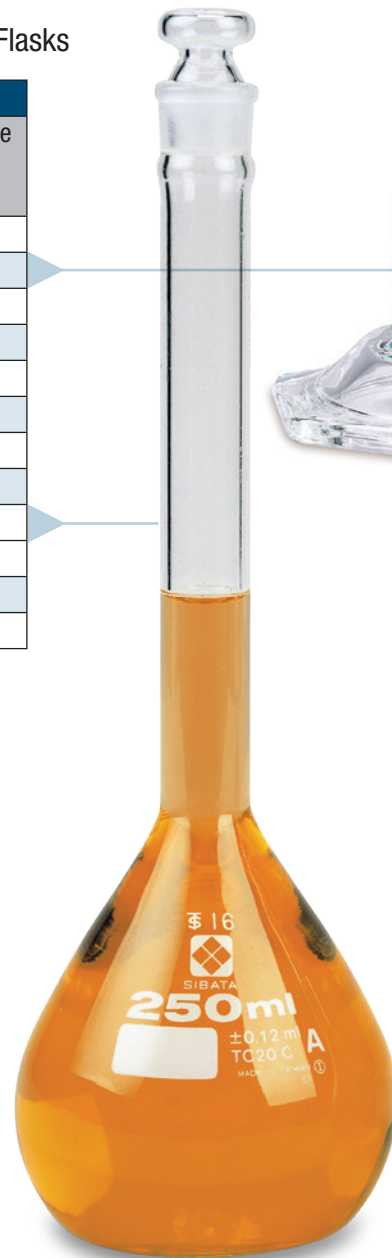
SIBATA Class A Volumetric Flasks with Ground Glass Stopper

Feature machine-blown bodies and heavy-beaded, heavy-tubing necks that are tooled for standard taper glass stoppers

- Designed "To Contain" with a temperature of calibration at 20°C/68°F
- Constructed of borosilicate glass with a low coefficient of expansion
- Graduation line is sharply defined and of uniform width
- Each flask has a large marking square and includes a glass stopper
- Meet ASTM E-288 Class A Specifications & USP Standards for Volumetric Flasks

SIBATA CLASS A VOLUMETRIC FLASKS WITH GROUND GLASS STOPPER

Cat. No.	Capacity (mL)	Tolerance (±mL)	Stopper No.	Approx. O.D. x Height (in)	Approx. O.D. x Height (mm)	Pack Qty.	Case Qty.
2306A-1	1	0.01	9	0.4 x 3.1	10 x 79	6	96
2306A-2	2	0.015	9	0.5 x 3.5	12 x 90	6	96
2306A-5	5	0.02	9	0.8 x 2.8	21 x 72	6	72
2306A-10	10	0.02	9	1 x 3.8	26 x 96	6	72
2306A-25	25	0.03	9	1.5 x 4.8	37 x 123	6	72
2306A-50	50	0.05	13	1.9 x 6	49 x 152	4	48
2306A-100	100	0.08	13	2.3 x 7.1	58 x 181	4	48
2306A-200	200	0.10	16	2.9 x 8.7	74 x 220	4	24
2306A-250	250	0.12	16	3.1 x 9.4	78 x 239	4	24
2306A-500	500	0.20	19	3.8 x 11	96 x 279	2	12
2306A-1000	1000	0.30	22	4.8 x 12.9	122 x 327	2	8
2306A-2000	2000	0.50	27	6.2 x 15.6	157 x 396	2	8



Safely dry glassware with our Lab Drying Rack and Workstation Lab Mat *pg. 13*

SIBATA Amber Class A Volumetric Flasks

Constructed of low-actinic amber glass, providing protection for materials that are sensitive to light

- Feature machine-blown bodies and heavy-beaded, heavy-tubing necks that are tooled for standard taper glass stoppers
- Constructed of borosilicate glass with a low coefficient of expansion
- Designed "To Contain" with a temperature of calibration at 20°C/68°F
- Each flask has a large marking square and includes a glass stopper
- Meet ASTM E-288 Class A Specifications & USP Standards for Volumetric Flasks

SIBATA AMBER CLASS A VOLUMETRIC FLASKS							
Cat. No.	Capacity (mL)	Tolerance (±mL)	Stopper No.	Approx. O.D. x Height (in)	Approx. O.D. x Height (mm)	Pack Qty.	Case Qty.
2307A-10	10	0.02	9	1.1 x 3.7	28 x 95	6	72
2307A-20	20	0.03	9	1.4 x 4.5	36 x 115	6	72
2307A-25	25	0.03	9	1.5 x 4.8	39 x 122	6	72
2307A-50	50	0.05	13	1.9 x 5.9	49 x 150	4	48
2307A-100	100	0.08	13	2.4 x 7.1	60 x 180	4	48
2307A-200	200	0.10	16	3.0 x 8.7	75 x 220	4	24
2307A-250	250	0.12	16	3.1 x 9.4	78 x 239	4	24
2307A-500	500	0.15	19	3.9 x 11	100 x 280	2	12
2307A-1000	1000	0.30	22	5 x 12.8	127 x 325	2	8



SIBATA Glass Stoppers

Stoppers are lightweight yet very strong to reduce chipping and breakage

- Flat top design allows the stopper to stand on its head, freeing the user's hands
- Fully interchangeable with other common flask stoppers and fit all standard labware of comparable standard taper size
- Meet ASTM E-675 Specifications

SIBATA GLASS STOPPERS						
Cat. No.	Standard Taper Stopper No.	Tinting	Approx. Length of Ground Zone (in/mm)	Height Above Ground Joint (in/mm)	Fit Volumetric Flasks	Pack Qty.
03081	9	Clear	0.6 / 14	0.4 / 10	2306A-1, -2, -5, -10, -25	6
03082	13	Clear	0.6 / 14	0.5 / 13	2306A-50, -100	6
03083	16	Clear	0.6 / 16.5	0.7 / 18	2306A-200, -250	6
03084	19	Clear	0.7 / 19	0.7 / 18	2306A-500	6
03085	22	Clear	0.8 / 20.5	0.8 / 20	2306A-1000	6
03087	27	Clear	0.7 / 21	0.8 / 21	2306A-2000	6
03081-A	9	Amber	0.6 / 14	0.4 / 10	2307A-5, -10, -20, -25	6
03082-A	13	Amber	0.6 / 14	0.5 / 13	2307A-50, -100	6
03083-A	16	Amber	0.6 / 16.5	0.7 / 18	2307A-200, -250	6
03084-A	19	Amber	0.7 / 19	0.7 / 18	2307A-500	6
03085-A	22	Amber	0.8 / 20.5	0.8 / 20	2307A-1000	6



Wire Drying Rack

A versatile self-standing draining and drying fixture that can be used on a table, by a sink, or easily mounted on the wall*

- Designed with eighteen 127mm (5") tall pins and seventy-two 76mm (3") tall pins, it holds up to 90 pieces of glassware, including beakers, flasks, bottles and more
- Durably constructed, the drip tray and back are made from polystyrene while the pins are spot-welded, vinyl-coated steel wire for extra durability
- Bottom drainage tray conveniently slides out for easy emptying

*mounting materials not included

WIRE DRYING RACK		
Cat. No.	L x W x H (in)	L x W x H (cm)
30201	18.2 x 7.4 x 20.7	46.2 x 18.2 x 52.5

Drain and dry test tubes, beakers, flasks, and other labware

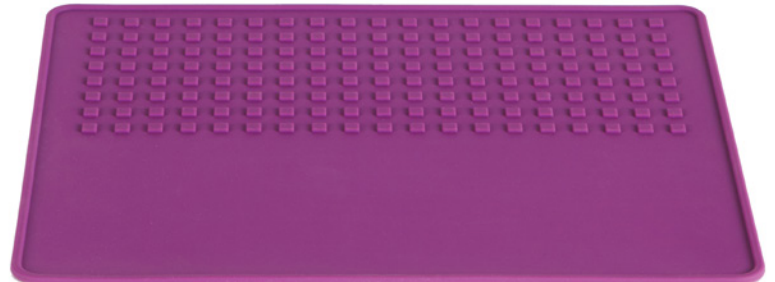


Bottom drainage tray conveniently slides out for easy emptying

Workstation Lab Mat

Safely facilitate workflow processes

- Protect counter tops from hot items up to 200°C (392°F)
- Lip around the edge can hold approx. 250 mL of liquid
- Small footprint, 12 x 14.9 x 0.1 in (30.5 x 37.9 x 0.2 cm)



WORKSTATION LAB MAT				
Cat No.	Color		L x W x H (in)	L x W x H (cm)
32000-1	Blue	■	12 x 14.9 x 0.1	30.5 x 37.9 x 0.2
32000-2	Purple	■	12 x 14.9 x 0.1	30.5 x 37.9 x 0.2

Gridded Surface for tube staging, preventing movement of objects

Reversible
Side One: combination gridded and smooth surface
Side Two: smooth surface only

Parafilm® M Sealing Film

Protect the integrity of your laboratory and research applications

Parafilm® M is a semi-transparent, flexible, thermoplastic film with two-way stretch

- Protect the integrity of research applications with a tight moisture-barrier that holds a strong seal and doesn't release from glassware, despite off-gassing
- Reduce the risk of tampered data with a covering that is odorless, colorless and semi-transparent
- Prevents moisture and volume loss due to material composition and tight seal
- Flexible and self-sealing material allows it to cling around irregular shapes and surfaces
- Resistant up to 48 hours against many polar substances such as saline solutions, inorganic acids and alkaline solutions
- Stretches more than 200% of original length
- Two color options available in 2" rolls (natural and purple) for color coding purposes



PARAFILM® M SEALING FILM						
Cat. No.	Color	Film Width		Roll Length		
		(in)	(cm)	(ft)	(m)	
2200N-2-250	Natural <input type="checkbox"/>	2	5	250	76.2	
2200P-2-250	Purple <input checked="" type="checkbox"/>	2	5	250	76.2	
2200N-4-125	Natural <input type="checkbox"/>	4	10	125	38.1	
2200N-4-250	Natural <input type="checkbox"/>	4	10	250	76.2	
2200N-20-50	Natural <input type="checkbox"/>	20	50.8	50	15.2	

Parafilm® M is a registered trademark of Amcor Limited



Acrylic Dispenser for Parafilm® M Sealing Film

Store, dispense, and cut Parafilm® M, tape and labels

- Strong, crystal-clear acrylic dispenser makes your film supply visible and features a serrated cutting blade
- Rubber feet secures in place while cutting
- Dispenser holds one or two 50 mm (2-inch) rolls or one 100 mm (4-inch) roll

ACRYLIC DISPENSER FOR PARAFILM® M		
Cat. No.	L x W x H	
	(in)	(cm)
2200-1	4.7 x 6.6 x 6.9	11.9 x 16.8 x 17.5

Parafilm® M is a registered trademark of Amcor Limited



Glass Microanalysis, 47 mm

SIBATA 6168-Series Filter Holders are offered with a wide variety of components for different applications. Available with fritted glass support base for general and biological applications, or with removable stainless steel screen support base and PTFE gasket for ultraclean filtrate or proteinaceous solutions. The borosilicate glass funnels are available in 100 and 300 mL.

Specifications

- Effective Filtration Area: 9.6 cm² (filter dia. 47 mm, not included)
- Maximum Capacity: 100 mL Funnel: 150 mL; 300 mL Funnel: 350 mL
- Graduated Volume: 100 mL Funnel: 100 mL; 300 mL Funnel: 300 mL
- Connection: Silicone Stopper (No. 8)
- Sterilization: Autoclavable, except PTFE Gasket (at 121°C / 250 °F for 20 minutes)

FILTRATION KITS		
Cat No.	Kit Includes	
6168-0001	6168-4711	Funnel, 300 mL
	6168-4722	Fritted Glass Support Base
	6168-4751	Silicone Stopper No. 8
	6168-4762	Aluminum Anodized Clamp
6168-0002	6168-4711	Funnel, 300 mL
	6168-4721	Glass Support Base
	6168-4731	Stainless Steel Screen
	6168-4741	PTFE Gaskets (10 pk)
	6168-4751	Silicone Stopper No. 8
	6168-4762	Aluminum Anodized Clamp
6168-0003	6168-47100	Funnel, 100 mL
	6168-4722	Fritted Glass Support Base
	6168-4751	Silicone Stopper No. 8
	6168-4762	Aluminum Anodized Clamp
6168-0004	6168-47100	Funnel, 100 mL
	6168-4721	Glass Support Base
	6168-4731	Stainless Steel Screen
	6168-4741	PTFE Gaskets (10 pk)
	6168-4751	Silicone Stopper No. 8
	6168-4762	Aluminum Anodized Clamp

6168-0001 Kit



6168-47100
Funnel
100 mL



6168-4711
Funnel
300 mL



6168-4762
Aluminum
Anodized Clamp



6168-4731
Stainless Steel
Screen



6168-4741
PTFE Gaskets
(10 pk)



6168-4721
Glass Support
Base



6168-4751
Silicone
Stopper No. 8



6168-4722
Fritted Glass
Support Base

VEE GEE

HYDROMETERS

VEE GEE Scientific
Laboratory Equipment & Supplies



HYDROMETERS

VEE GEE Hydrometers are manufactured to exacting standards. Each instrument is individually tested and inspected to ensure the highest level of dependability, accuracy, and uniformity. Scales include: API, Alcohol, Battery, Baume, Brix, Calcium Chloride, Liquid Petroleum Gas, Plato, Specific Gravity, Sodium Chloride & Soil Analysis.

Hydrometers Explained . . .

The hydrometer is an instrument which is constructed on the Archimedes principle that a solid body displaces its own weight of the liquid in which it floats. Hydrometers can be divided into two general classes; namely for liquid heavier than water and for liquids lighter than water. The base hydrometer scale is Specific Gravity, in which distilled water equals 1.000 as the initial point. Liquids lighter than water are scaled below 1.000 specific gravity and liquids heavier than water are scaled above 1.000 specific gravity.

Many other scales are commonly used, such as API, Brix, Baume, Plato, etc. All of which are convertible into specific gravity by formula.

Hydrometers are usually calibrated at 15°C/60°F. To determine the density of a liquid, the liquid should be at 15°C/60°F. If the temperature varies, the liquid will either contract or expand, depending upon the temperature. Therefore, the density fluctuates with the temperature. Where there is a variation from the standard 15°C/60°F, corrections must be applied to the hydrometer reading. To assure proper corrections, a separate accurate thermometer should be used, or a hydrometer in combination with a thermometer, which is sometimes referred to as a "thermohydrometer."

The correct method of reading a hydrometer follows:

- A. Observe a point below the plane of the liquid surface. The surface should appear as an ellipse (Fig. 1).
- B. The line of vision is raised until the surface, seen first as an ellipse, becomes a straight line (Fig. 2).
- C. The point at which this line cuts the hydrometer scale is the reading of the instrument (Fig. 3).

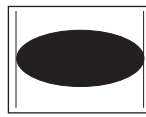


Fig. 1



Fig. 2

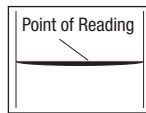


Fig. 3

If the liquid is not sufficiently clear for readings to be made in this manner, read from above the surface and estimate as accurately as possible the point to which the liquid rises on the hydrometer stem. Since hydrometers are calibrated to give correct indications when read at the principal surface of the liquid, correct the reading just taken at the upper edge of the meniscus by an amount equal to this height above the principal surface of the liquid. The amount of correction can be determined with sufficient accuracy for most purposes by taking a few readings on the upper and lower meniscus in a clear liquid of the same character as that being tested and noting the differences.



Alcohol Hydrometers - Tralle and Proof Scales

Verify the alcohol content of distilled spirits

Both models include the same ranges; model 6612-2TS also features an internal thermometer with SafetyBLUE fill for measuring solution temperature from -10 to +100°F.

- Calibrated for use at 15°C/60°F

NOTE: Not for use with beer or wine.

ALCOHOL HYDROMETERS - TRALLE AND PROOF SCALES					
Cat. No.	Range	Subdivisions/ Tolerance	Range		Approx. Length (in/mm)
			TRALLE	PROOF	
6612-1	0 to 100%	1% / ±1%	0 to 200	2 / ±2%	12 / 305
6612-2TS	0 to 100%	1% / ±1%	0 to 200	2 / ±2%	14 / 355

6612-2TS

Alcohol Hydrometers - Proof Scale, Internal Revenue Service Spec.

Verify the alcohol content of your ethyl alcohol-based spirits with these hydrometers

- Tolerances match those laid out by the Internal Revenue Service specifications
- Calibrated for use at 15°C/60°F

ALCOHOL HYDROMETERS - IRS SPECIFICATION					
Cat. No.	Proof Range	IRS Size	Subdivisions	Tolerance	Approx. Length (in/mm)
6613-B	80 to 120	B	0.5	±0.5%	9 / 230
6613-F	0 to 20	F	0.2	±0.3%	12 / 305
6613-G	20 to 40	G	0.2	±0.4%	12 / 305
6613-H	40 to 60	H	0.2	±0.4%	12 / 305
6613-I	60 to 80	I	0.2	±0.3%	12 / 305
6613-K	75 to 95	K	0.2	±0.3%	12 / 305
6613-L	90 to 110	L	0.2	±0.3%	12 / 305
6613-M	105 to 125	M	0.2	±0.3%	12 / 305
6613-N	125 to 145	N	0.2	±0.3%	12 / 305
6613-P	145 to 165	P	0.2	±0.3%	12 / 305
6613-Q	165 to 185	Q	0.2	±0.2%	12 / 305
6613-R	185 to 206	R	0.2	±0.2%	12 / 305

6613-F

Alcohol Hydrometers w/3-point NIST Certificate and PVC Case- Proof Scale, Internal Revenue Service Specification

Verify the alcohol content of your ethyl alcohol-based spirits with these hydrometers

Tolerances match those laid out by the Internal Revenue Service specifications.

- Commonly used in distilleries requiring certification
- Calibrated for use at 15°C/60°F

INCLUDES: Hydrometer, NIST-traceable certificate with 3 data points, and a protective PVC case

ALCOHOL HYDROMETERS W/ NIST CERT. IRS SPECS. & CASE					
Cat. No.	Proof Range	IRS Size	Subdivisions	Tolerance	Approx. Length (in/mm)
6613-B-C	80 to 120	B	0.5	±0.5%	9 / 230
6613-F-C	0 to 20	F	0.2	±0.3%	12 / 305
6613-G-C	20 to 40	G	0.2	±0.4%	12 / 305
6613-H-C	40 to 60	H	0.2	±0.4%	12 / 305
6613-I-C	60 to 80	I	0.2	±0.3%	12 / 305
6613-K-C	75 to 95	K	0.2	±0.3%	12 / 305
6613-L-C	90 to 110	L	0.2	±0.3%	12 / 305
6613-M-C	105 to 125	M	0.2	±0.3%	12 / 305
6613-N-C	125 to 145	N	0.2	±0.3%	12 / 305
6613-P-C	145 to 165	P	0.2	±0.3%	12 / 305
6613-Q-C	165 to 185	Q	0.2	±0.2%	12 / 305
6613-R-C	185 to 206	R	0.2	±0.2%	12 / 305

6613-F-C



Plato Hydrometers with Thermometers

Calibrated to show the concentration of extract as a percentage by weight in brewery wort

For example, a 5°P reading indicates 5 g of extract per 100 g of wort.

- Primarily used in the brewing industry
- Calibrated for use at 68°F/20°C

PLATO HYDROMETERS WITH THERMOMETERS						
Cat. No.	Plato Range	Subdivisions	Approx. Length (in/mm)	Thermometer Range	Thermometer Subdivision	Thermometer Liquid Fill
6614TS-5	0 to 8.5°	0.1°	14 / 360	0 to 50°C	1°C	SafetyBLUE
6614TS-6	7.5 to 16°	0.1°	14 / 360	0 to 50°C	1°C	SafetyBLUE
6614TS-7	15.5 to 24°	0.1°	14 / 360	0 to 50°C	1°C	SafetyBLUE
6614TS-8	0 to 32°	0.5°	14 / 380	30 to 120°F	2°F	SafetyBLUE

6614TS-5

API ASTM Hydrometers with Thermometer

Chosen as the Standard Scale for Petroleum

The API Scale was selected as the standard hydrometer scale for petroleum products by the American Petroleum Institute (API), the U.S. Bureau of Mines, and the National Institute of Standards and Technology (NIST).

- The API Scale is based on the following formula: °API @ 60°F = (141.5/(Specific Gravity at 60°F) - 131.5
- The thermometer scale is located in the body of the hydrometer
- Calibrated for use at 15°C/60°F

API ASTM HYDROMETERS WITH THERMOMETER							
Cat. No.	ASTM No.	API Range	Subdivisions	Approx. Length (in/mm)	Thermometer Range	Thermometer Subdivision	Thermometer Liquid Fill
6752HTS	52H	9 to 21°	0.1°	15 / 380	0 to 150°F	2°F	SafetyBLUE
6753HTS	53H	19 to 31°	0.1°	15 / 380			
6754HTS	54H	29 to 41°	0.1°	15 / 380			
6755HTS	55H	39 to 51°	0.1°	15 / 380			
6756HTS	56H	49 to 61°	0.1°	15 / 380			
6757HTS	57H	59 to 71°	0.1°	15 / 380			

6756HTS

Battery Hydrometer - Syphon Set

For Measuring Battery Acid

The Battery Acid Hydrometer Set is used in many industrial settings including, fleet maintenance, automotive services, solar-powered system maintenance, and general industrial applications.

- The rubber parts are made of nitrile rubber, which is chemically inert and durable
- A reinforced box provides storage and is compartmented to eliminate breakage
- Calibrated for use at 25°C/77°F

INCLUDES: Specific Gravity Hydrometer, glass syphon tube with rubber bulb, nozzle, and clamp

BATTERY HYDROMETERS				
Cat. No.	Description	Specific Gravity Range	Subdivisions	Approx. Length (in/mm)
6605-5	Hydrometer and Syphon Set	1.150 to 1.300	0.005	20 / 507
6605-5H	Hydrometer Only	1.150 to 1.300	0.005	8.7 / 220
6605-OSY	Glass syphon tube, rubber bulb, nozzle, and clamp only	-----	-----	20 / 507

6605-5

Baume (Heavy) Hydrometers

These Baume Hydrometers are for liquids heavier than water

- The Baume scale is based on the following formula: Specific Gravity = 145/(145-degrees Baume)
- Calibrated for use at 15°C/60°F

BAUME (HEAVY) HYDROMETERS			
Cat. No.	Baume Range	Subdivisions	Length (in/mm)
6609-1	0 to 12°	0.1°	12 / 305
6609-2	9 to 21°	0.1°	
6609-3	19 to 31°	0.1°	
6609-4	29 to 41°	0.1°	
6609-5	39 to 51°	0.1°	
6609-8	0 to 15°	0.1°	
6609-9	0 to 25°	0.2°	

BAUME (HEAVY) HYDROMETERS			
Cat. No.	Baume Range	Subdivisions	Length (in/mm)
6609-10	0 to 35°	0.5°	12 / 305
6609-11	0 to 50°	0.5°	
6609-12	35 to 70°	0.5°	
6609-13	0 to 50°	1.0°	
6609-14	0 to 70°	1.0°	
6609-15	0 to 90°	1.0°	

6609-1

Brix Hydrometers

Brix Hydrometers are calibrated to show the percentage of sucrose by weight at 20°C/68°F

The Brix scale is based on the following: 1°Brix = 1% sucrose by weight at the specified temperature(20°C/68°F)

BRIX HYDROMETERS			
Cat. No.	Brix Range	Subdivisions	Approx. Length (in/mm)
6601-1	0 to 12°	0.1°	13 / 330
6601-2	9 to 21°	0.1°	13 / 330
6601-3	19 to 31°	0.1°	13 / 330
6601-4	29 to 41°	0.1°	13 / 330
6601-5	39 to 51°	0.1°	13 / 330

BRIX HYDROMETERS			
Cat. No.	Brix Range	Subdivisions	Approx. Length (in/mm)
6601-10	0 to 35°	0.5°	13 / 330
6601-11	35 to 70°	0.5°	13 / 330
6601-13	-5 to 5°	0.1°	13 / 330
6601-14	5 to 15°	0.1°	13 / 330
6601-15	15 to 25°	0.1°	13 / 330

6601-15



Brix Hydrometers with °C Thermometers

Brix Hydrometers are calibrated to show the percentage of sucrose by weight at 20°C/68°F

The Brix scale is based on the following: 1°Brix = 1% sucrose by weight at the specified temperature (20°C/68°F)

- The thermometer includes a correction scale printed opposite the temperature scale for conversion of the reading to 20°C/68°F

BRIX HYDROMETERS WITH °C THERMOMETERS						
Cat. No.	Brix Range	Subdivisions	Approx. Length (in/mm)	Thermometer Range	Thermometer Subdivision	Thermometer Liquid Fill
6601TS-1	0 to 12°	0.1°	14.5 / 370	0 to 50°C	1°C	SafetyBLUE
6601TS-2	9 to 21°	0.1°	14.5 / 370			
6601TS-3	19 to 31°	0.1°	14.5 / 370			
6601TS-4	29 to 41°	0.1°	14.5 / 370			
6601TS-5	39 to 51°	0.1°	14.5 / 370			
6601TS-6	49 to 61°	0.1°	14.5 / 370			
6601TS-8	69 to 81°	0.1°	14.5 / 370			
6601TS-10	0 to 35°	0.5°	14.5 / 370			
6601TS-12	0 to 70°	1.0°	14.5 / 370			
6601TS-13	-5 to 5°	0.1°	14.5 / 370			
6601TS-14	5 to 15°	0.1°	14.5 / 370			
6601TS-15	15 to 25°	0.1°	14.5 / 370			

6601TS-2



Brix Hydrometers with °F Thermometers

Brix Hydrometers are calibrated to show the percentage of sucrose by weight at 20°C/68°F

The Brix scale is based on the following: 1°Brix = 1% sucrose by weight at the specified temperature (20°C/68°F)

- The thermometer includes a correction scale printed opposite the temperature scale for conversion of the reading to 20°C/68°F

BRIX HYDROMETERS WITH °F THERMOMETERS						
Cat. No.	Brix Range	Subdivisions	Approx. Length (in/mm)	Thermometer Range	Thermometer Subdivision	Thermometer Liquid Fill
6601TS-1F	0 to 12°	0.1°	14.5 / 370	30 to 130°F	2°F	SafetyBLUE
6601TS-2F	9 to 21°	0.1°	14.5 / 370			
6601TS-3F	19 to 31°	0.1°	14.5 / 370			
6601TS-10F	0 to 35°	0.5°	14.5 / 370			
6601TS-13F	-5 to 5°	0.1°	14.5 / 370			

6601TS-1F



Calcium Chloride (CaCl₂) Specific Gravity/Freezing Point Hydrometer

This hydrometer measures the specific gravity and freezing point of calcium chloride in solution

- Calibrated for use at 15°C/60°F

CALCIUM CHLORIDE (CaCl ₂) SPECIFIC GRAVITY/FREEZING POINT HYDROMETER			
Cat. No.	Range	Subdivisions	Approx. Length (in/mm)
6611-3	1.000 to 1.280 Specific Gravity	0.002	12 / 305
	+30 to -40°F Freezing Point	5°	

6611-3

Sodium Chloride Hydrometers

Measure the percentage of sodium chloride in solution with these hydrometers

Model 6611-1 measures the % saturation of sodium chloride in solution; Model 6611-2 measures the % by weight of sodium chloride in solution.

- Calibrated for use at 15°C/60°F

SODIUM CHLORIDE HYDROMETERS			
Cat. No.	Range	Subdivisions	Approx. Length (in/mm)
6611-1	0 to 100% saturation	1.0%	12 / 305
6611-2	0 to 26.5% by weight	0.5%	12 / 305

6611-1

Specific Gravity, also known as relative density, is the ratio of the mass of a liquid to the mass of an equal volume of distilled water.

Ultra-Precision Specific Gravity Hydrometers

Featuring smaller ranges and higher resolution, with subdivisions of 0.0005

- Calibrated for use at 15°C/60°F

ULTRA-PRECISION SPECIFIC GRAVITY HYDROMETERS			
Cat. No.	Specific Gravity Range	Subdivisions	Approx. Length (in/mm)
6602-2	0.700 to 0.770	0.0005	13 / 330
6602-3	0.760 to 0.830	0.0005	13 / 330
6602-4	0.820 to 0.890	0.0005	13 / 330
6602-5	0.880 to 0.950	0.0005	13 / 330
6602-6	0.940 to 1.010	0.0005	13 / 330
6602-7	1.000 to 1.070	0.0005	13 / 330
6602-8	1.060 to 1.130	0.0005	13 / 330
6602-9	1.120 to 1.190	0.0005	13 / 330
6602-10	1.180 to 1.250	0.0005	13 / 330
6602-11	1.240 to 1.310	0.0005	13 / 330
6602-12	1.300 to 1.370	0.0005	13 / 330
6602-13	1.360 to 1.430	0.0005	13 / 330
6602-14	1.420 to 1.490	0.0005	13 / 330
6602-15	1.480 to 1.550	0.0005	13 / 330
6602-19	1.720 to 1.790	0.0005	13 / 330

6602-7

Precision Specific Gravity Hydrometers

Precision Specific Gravity Hydrometers feature subdivisions from 0.001 to 0.01

- Calibrated for use at 15°C/60°F

PRECISION SPECIFIC GRAVITY HYDROMETERS			
Cat. No.	Specific Gravity Range	Subdivisions	Approx. Length (in/mm)
6603-10	0.700 to 0.810	0.001	12 / 305
6603-11	0.800 to 0.910	0.001	12 / 305
6603-12	0.900 to 1.000	0.001	12 / 305
6603-1	1.000 to 1.220	0.002	12 / 305
6603-2	1.200 to 1.420	0.002	12 / 305
6603-3	1.400 to 1.620	0.002	12 / 305
6603-4	1.600 to 1.820	0.002	12 / 305
6603-5	1.800 to 2.020	0.002	12 / 305
6603-21	2.200 to 2.420	0.002	12 / 305
6603-22	2.400 to 2.620	0.002	12 / 305
6603-13	0.650 to 1.000	0.005	12 / 305
6603-6	1.000 to 1.600	0.005	12 / 305
6603-7	1.000 to 2.000	0.010	12 / 305
6603-8	2.000 to 3.000	0.010	12 / 305
6603-9	3.000 to 4.000	0.010	12 / 305

6603-1



Precision Specific Gravity Hydrometers with Thermometer

No need for a separate thermometer to check liquid temperature

- These Hydrometers feature an internal thermometer for calculating temperature corrections
- Calibrated for use at 15°C/60°F

PRECISION SPECIFIC GRAVITY HYDROMETERS WITH THERMOMETER						
Cat. No.	Specific Gravity Range	Subdivisions	Approx. Length (in/mm)	Thermometer Range	Thermometer Subdivision	Thermometer Liquid Fill
6602TS-7	1.000 to 1.070	0.001	15 / 385	20 to 150°F	2°F	SafetyBLUE
6602TS-8	1.060 to 1.130	0.001	15 / 385			
6603TS-1	1.000 to 1.220	0.002	12 / 305			

6602TS-7



Precision Short-Form Specific Gravity Hydrometers

Short-Form Hydrometers use less volume of the test liquid, while still offering 0.001 resolution

- Calibrated for use at 15°C/60°F

PRECISION SHORT-FORM SPECIFIC GRAVITY HYDROMETERS			
Cat. No.	Specific Gravity Range	Subdivisions	Approx. Length (in/mm)
6602-4S	0.820 to 0.890	0.001	6.5 / 165
6602-5S	0.880 to 0.950	0.001	6.5 / 165
6602-6S	0.940 to 1.010	0.001	6.5 / 165
6602-7S	1.000 to 1.070	0.001	6.5 / 165
6602-8S	1.060 to 1.130	0.001	6.5 / 165
6602-9S	1.120 to 1.190	0.001	6.5 / 165
6602-10S	1.180 to 1.250	0.001	6.5 / 165

6602-7S



ASTM Specific Gravity Hydrometers

Manufactured to the specifications of the American Society for Testing and Materials (ASTM)

Select the hydrometer that you need by matching the ASTM number shown in the table.

- Calibrated for use at 15°C/60°F

ASTM SPECIFIC GRAVITY HYDROMETERS				
Cat. No.	ASTM No.	Specific Gravity Range	Subdivisions	Approx. Length (in/mm)
67111H	111H	1.000 to 1.050	0.0005	13 / 330
67112H	112H	1.050 to 1.100	0.0005	13 / 330
67113H	113H	1.100 to 1.150	0.0005	13 / 330
67114H	114H	1.150 to 1.200	0.0005	13 / 330
67115H	115H	1.200 to 1.250	0.0005	13 / 330
67116H	116H	1.250 to 1.300	0.0005	13 / 330
67117H	117H	1.300 to 1.350	0.0005	13 / 330
67118H	118H	1.350 to 1.400	0.0005	13 / 330
67119H	119H	1.400 to 1.450	0.0005	13 / 330
67120H	120H	1.450 to 1.500	0.0005	13 / 330

ASTM SPECIFIC GRAVITY HYDROMETERS				
Cat. No.	ASTM No.	Specific Gravity Range	Subdivisions	Approx. Length (in/mm)
67125H	125H	1.000 to 1.050	0.001	12 / 260
67126H	126H	1.050 to 1.100	0.001	12 / 260
67127H	127H	1.100 to 1.150	0.001	12 / 260
67128H	128H	1.150 to 1.200	0.001	12 / 260
67129H	129H	1.200 to 1.250	0.001	12 / 260
67130H	130H	1.250 to 1.300	0.001	12 / 260
67131H	131H	1.300 to 1.350	0.001	12 / 260
67132H	132H	1.350 to 1.400	0.001	12 / 260
67133H	133H	1.400 to 1.450	0.001	12 / 260
67134H	134H	1.450 to 1.500	0.001	12 / 260

67125H



Wide-Range Specific Gravity Hydrometers

Ideal when you aren't sure of the approximate value of your liquid

- Also use for multiple liquids with different specific gravity within the range of the hydrometer, allowing multiple uses with one unit
- Calibrated for use at 15°C/60°F

WIDE-RANGE SPECIFIC GRAVITY HYDROMETERS			
Cat. No.	Specific Gravity Range	Subdivisions	Approx. Length (in/mm)
6604-1	1.000 to 1.250	0.005	6.5 / 165
6604-2	1.200 to 1.450	0.005	6.5 / 165
6604-3	1.400 to 1.650	0.005	6.5 / 165
6604-4	1.600 to 1.850	0.005	6.5 / 165
6604-5	1.800 to 2.050	0.005	6.5 / 165

6604-1



Universal Specific Gravity Hydrometer

Ideal when you aren't sure of the approximate value of your liquid

This dual-scale model measures specific gravity and Baume. Also use for multiple liquids with different readings, allowing multiple uses with one hydrometer.

- Calibrated for use at 15°C/60°F

UNIVERSAL SPECIFIC GRAVITY HYDROMETER					
Cat. No.	Specific Gravity Range	Subdivisions	Baume Range	Subdivisions	Approx. Length (in/mm)
6605-1	0.700 to 2.000	0.005 (from 0.7 to 1.0); 0.01 (from 1.0 to 2.0)	0 to 72° (Heavy); 70 to 10° (Light)	1°	15 / 380

6605-1



Dual Scale Specific Gravity / Baume Hydrometers

Dual-Scale Hydrometers have two scales on the stem, covering different applications in one unit

The Baume scale has two different scales: one for liquids heavier than water and one for liquids lighter than water. See table below for Baume ranges.

- Calibrated for use at 15°C/60°F

DUAL SCALE SPECIFIC GRAVITY / BAUME HYDROMETERS				
Cat. No.	Specific Gravity Range	Baume Range	Subdivisions	Approx. Length (in/mm)
6603DS-1	1.000 to 1.220	0 to 26° (Heavy)	0.002 / 0.2°	12 / 305
6603DS-1S	1.000 to 1.225	0 to 26° (Heavy)	0.005 / 1°	12 / 305
6603DS-2	1.200 to 1.420	24 to 42° (Heavy)	0.002 / 0.2°	12 / 305
6603DS-2S	1.200 to 1.425	24 to 42° (Heavy)	0.005 / 1°	12 / 305
6603DS-3	1.400 to 1.620	42 to 55° (Heavy)	0.002 / 0.2°	12 / 305
6603DS-4	1.600 to 1.820	55 to 65° (Heavy)	0.002 / 0.2°	12 / 305
6603DS-5	1.800 to 2.020	64 to 72° (Heavy)	0.002 / 0.2°	12 / 305
6603DS-6	1.000 to 1.450	0 to 45° (Heavy)	0.005 / 0.5°	12 / 305
6603DS-6S	1.000 to 1.400	0 to 41° (Heavy)	0.010 / 1°	12 / 305
6603DS-7	1.000 to 2.000	0 to 72° (Heavy)	0.010 / 1°	12 / 305
6603DS-13	0.600 to 1.000	10 to 100° (Light)	0.005 / 1°	12 / 305
6603DS-04	0.70 to 1.00	10 to 70° (Light)	0.01 / 1°	6.5 / 165

6603DS-1



Liquid Petroleum Gas (LPG) Specific Gravity Hydrometer with Thermometer

LPG Hydrometers measure the specific gravity of LPG such as propane, butane, and other light hydrocarbons

Includes an internal thermometer for temperature measurement.

- Calibrated for use at 15°C/60°F

LIQUID PETROLEUM GAS (LPG) SPECIFIC GRAVITY HYDROMETER WITH THERMOMETER						
Cat. No.	Specific Gravity Range	Subdivisions	Approx. Length (in/mm)	Thermometer Range	Thermometer Subdivision	Thermometer Liquid Fill
67101HTS	0.500 to 0.650	0.001	14.4 / 365	30 to 90°F	1°F	SafetyBLUE

67101HTS



Soil ASTM Specific Gravity Hydrometer

Measure the specific gravity of soil samples in suspension

Often used with a sedimentation cylinder for soil analysis.

- Calibrated for use at 20°C/68°F

SOIL ASTM SPECIFIC GRAVITY HYDROMETER				
Cat. No.	ASTM No.	Specific Gravity Range	Subdivisions	Approx. Length (in/mm)
67151H	151H	0.995 to 1.038	0.001	11 / 280

67151H



Soil ASTM Soil Colloids Hydrometer

Measure the amount of soil colloids in grams of soil samples in suspension

Often used with a sedimentation cylinder for soil analysis.

- Calibrated for use at 20°C/68°F

SOIL ASTM SOIL COLLOIDS HYDROMETER				
Cat. No.	ASTM No.	Soil Colloids Range	Subdivisions	Approx. Length (in/mm)
67152H	152H	-5 to 60g	1.0	11 / 280

67152H



Hydrometer Cases

PVC Hydrometer Cases help protect your hydrometer from damage

Ideal for storing your hydrometer when not in use, these cases feature a foam or felt padded insert and padded bottom and cap.

HYDROMETER CASES		
Cat. No.	Description	Approx. Length (in/mm)
66CS-8	PVC Case	8.5 / 216
66CS-8F	PVC Case, short	8.5 / 216
66CS-13	PVC Case	13.5 / 343
66CS-13J	PVC Case, wide-body	13.5 / 343
66CS-16	PVC Case	16.5 / 420



Hydrometer Jars

Made of borosilicate glass, these jars feature a beaded rim and a circular base

Sized properly to eliminate surface tension effects that lead to inaccurate readings.

- Model 21050-1000-L and 21000-1000-L have a graduation line at 1000 mL for precise filling and are used as a sedimentation cylinder

HYDROMETER JARS		
Cat. No.	Description	Maximum Hydrometer Length (mm)
21050-100	100 mL Hydrometer Jar	185
21050-250	250 mL Hydrometer Jar	280
21050-500	500 mL Hydrometer Jar	360
21050-600	600 mL Hydrometer Jar	390
21050-1000	1000 mL Hydrometer Jar	400
21050-1000-L	1000 mL Hydrometer Jar with Graduation Line	400
21000-1000-L	1000 mL Hydrometer Jar with Graduation Line	385



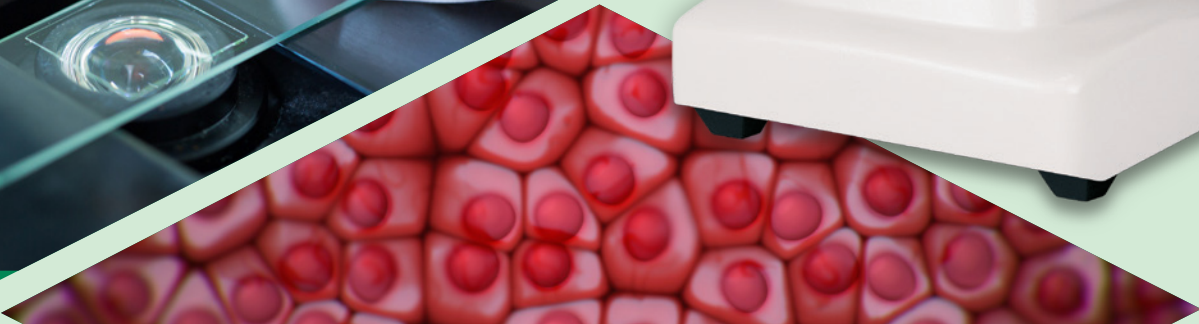
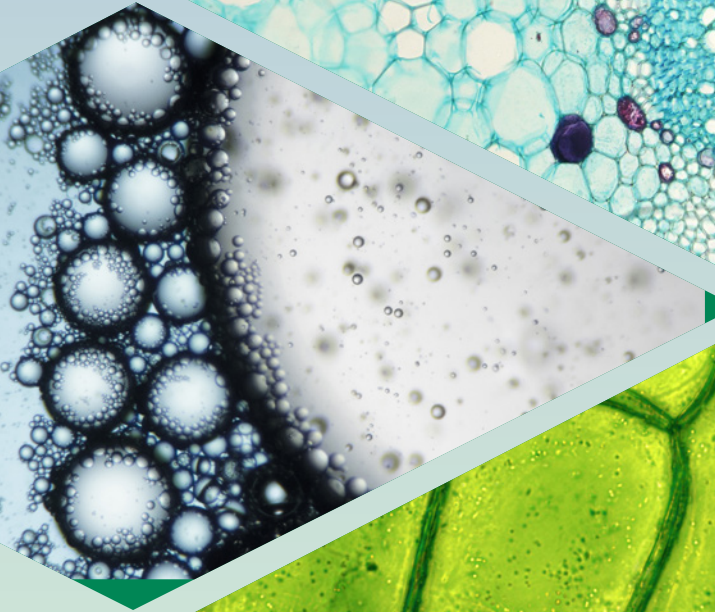
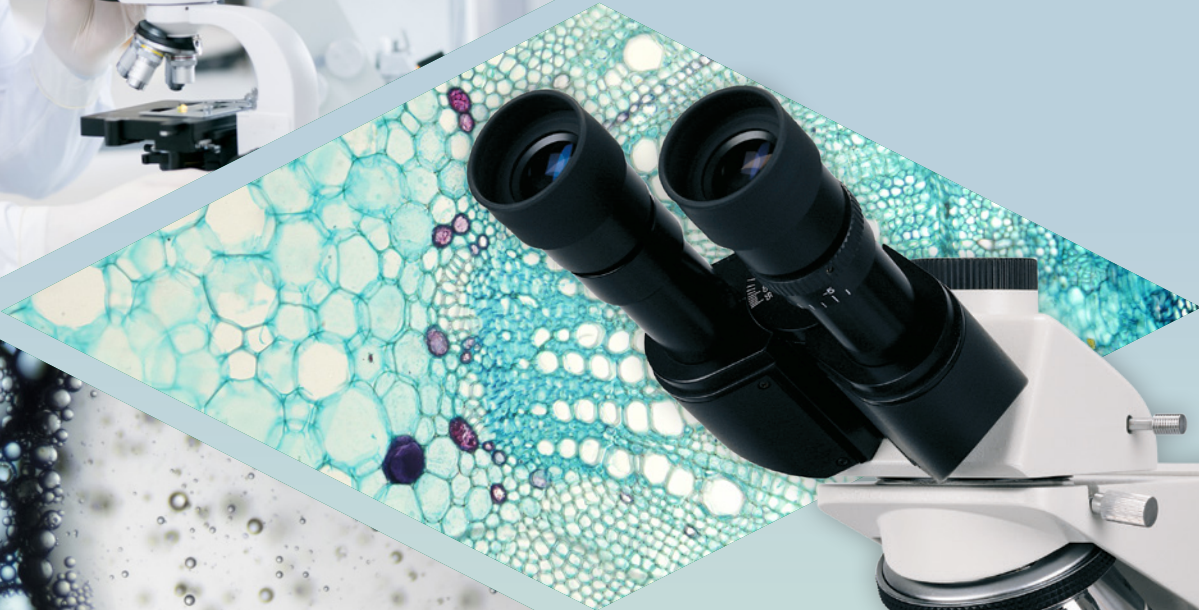
Hydrometer Cases & Jars: Reference Guide

HYDROMETER CASES & JARS REFERENCE GUIDE				
Hydrometer Series	Description	Approx. Length (mm)	Uses Case	Uses Jar
6601-Series	Brix	330	66CS-13	21050-500
6601TS-Series	Brix w/Thermometer	370	66CS-16	21050-600 or -1000
6602, 6603-Series	Specific Gravity	305	66CS-13	21050-500
6603DS-Series	Specific Gravity & Baume	305	66CS-13	21050-500
6604-Series	Specific Gravity	165	66CS-8F	21050-100
6605-1	Specific Gravity & Baume: Universal	380	66CS-16	21050-600 or -1000
6609-Series	Baume: Heavy	305	66CS-13	21050-500
6611-Series	Salt	305	66CS-13	21050-500
6612-1	Alcohol: Tralle and Proof	305	66CS-13	21050-500
6612-2TS	Alcohol: Tralle and Proof w/Thermometer	355	66CS-16	21050-600 or -1000
6613-Series	Alcohol: Proof, IRS	230-305	66CS-13J	21050-250 or -500
6614TS-Series	Plato w/Thermometer	360-380	66CS-16	21050-600 or -1000
675xHTS-Series	API, ASTM w/Thermometer	380	66CS-16	21050-600 or -1000
67111H-67134H	Specific Gravity: ASTM	260-330	66CS-13	21050-250 or -500
67101HTS	LPG w/Thermometer	365	66CS-16	21050-600 or -1000
6715xH	Specific Gravity or Soil Colloids: ASTM	280	66CS-13J	21050-250 or -500

VEE GEE

MICROSCOPES

VEE GEE Scientific
Laboratory Equipment & Supplies



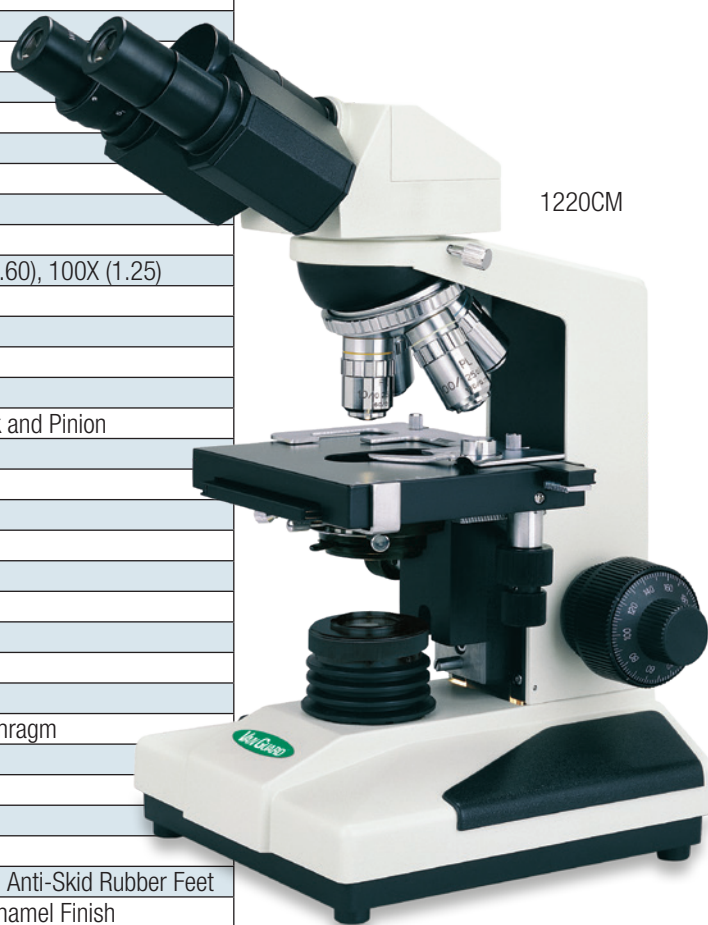
MICROSCOPES

VanGuard 1220CM Compound Microscope

The 1220CM is an economical microscope ideal for use in Education/ University, Medical/Veterinary, and Industrial applications

- The drop-down X-Y stage control is positioned close to the focus control for quick and easy adjustments
- Accessories and parts are available; contact VEE GEE for more information

SPECIFICATIONS		1220CM
Optical System		Fixed 160 mm
Viewing Head	Type	Binocular (Siedentopf)
	Tube Inclination	30°
	Rotation	360°
	Interpupillary	2.2-3 in / 55-75 mm
Eyepieces	Dioptric	-5 to +5
	Magnification	10X
	Type	Widefield
	Field Diameter	0.7 in / 18 mm
Nosepiece	High-Eyepoint	Yes
	Rubber Eyecups	Yes
	Positions	4
	Pitch	Reverse
Objectives	Illumination Technique	Brightfield
	Type	Achromatic
	Magnification (N.A.)	4X (0.10), 10X (0.25), 40X (0.60), 100X (1.25)
	DIN Standard	Yes
Stage	Type	Mechanical
	Shape	Rectangular
	Dimensions (L x W)	5.5 x 4.3 in / 140 x 110 mm
	X-Y Control	Drop-down, Right Hand, Rack and Pinion
	Cross Travel Range	3 x 1.6 in / 75 x 40 mm
	Slide Holder	Removable spring clip
Focusing	Finish	Chemical Resistant
	Type	Coaxial
	Controls	Coarse / Fine
	Tension Adjustment	Yes
	Safety Auto-Stop	Yes
	Focusing Range	0.6 in / 15 mm
Condenser	Precision	0.002 mm
	Type	Abbe 1.25 N.A. with Iris Diaphragm
Illumination	Focusing Control	Rack and Pinion
	Type	20W Variable Quartz Halogen
	Koehler	Field Diaphragm
Specifications	Filter Holder	On Collector
	Base (L x W)	8.3 x 7.1 in / 210 x 180 mm; Anti-Skid Rubber Feet
	Body	Ergonomic; Stain-Resistant Enamel Finish
	Dimensions (L x W x H)	8.3 x 7.1 x 15 in / 210 x 180 x 380 mm
	Weight	7.0 kg
Warranty	Voltage	110 VAC
Supplied With	5-Year Optical/Mechanical; 1-Year Electrical	
	Clear Diffusing Filter, Blue Filter, Spare Lamp and Fuses, Dust Cover, and Operation Manual	

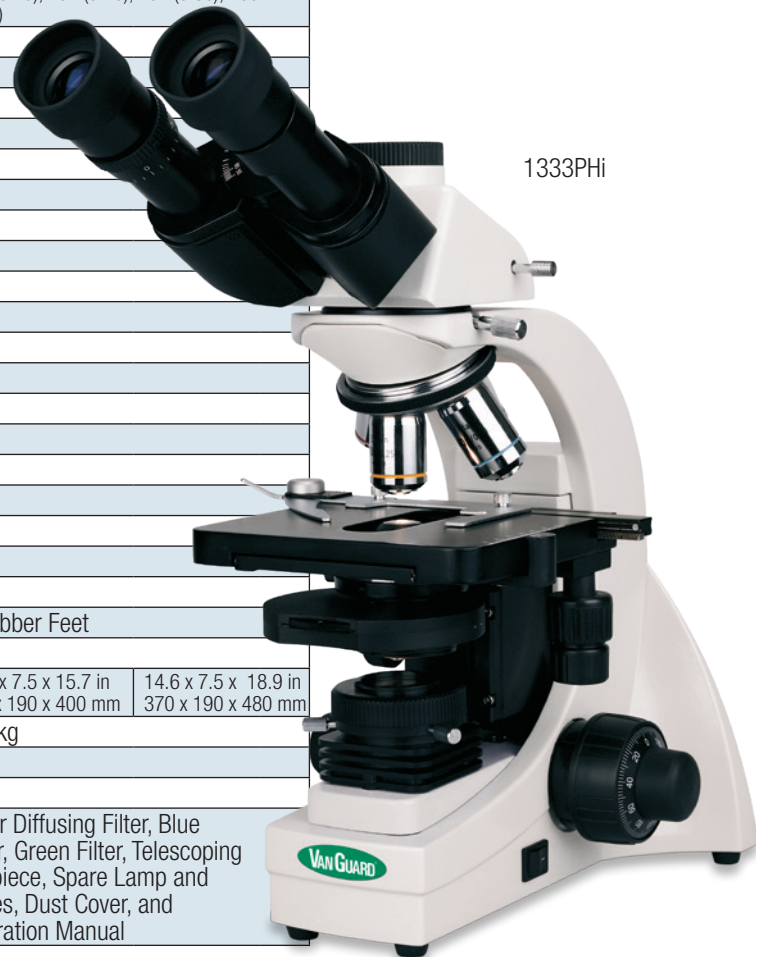


VanGuard 1300-Series Compound Microscopes

Ultra-low focus control, angled viewing head, and interpupillary / dioptic adjustments make this microscope comfortable to use

- The compact frame allows easy arm placement to the controls. Plan objectives provide exceptionally high optical flatness and visual clarity
- Choose from binocular or trinocular viewing heads, and Brightfield or Phase Contrast configurations
- Accessories and parts are available; contact VEE GEE for more information

SPECIFICATIONS		1321Bri	1331Bri	1323PHi	1333PHi
Optical System		VIOS Infinity Corrected			
Viewing Head	Type	Binocular (Siedentopf)	Trinocular (Siedentopf)	Binocular (Siedentopf)	Trinocular (Siedentopf)
	Tube Inclination	30°			
	Rotation	360°			
	Interpupillary	2.2-3 in / 55-75 mm			
	Dioptic	-5 to +5			
Camera Port		N/A	20/80 Spilt	N/A	20/80 Spilt
Eyepieces	Magnification	10X			
	Type	Widefield			
	Field Diameter	0.8 in / 20 mm			
	High-Eyepoint	Yes			
	Rubber Eyecups	Yes			
Nosepiece	Positions	4			
	Pitch	Reverse			
Objectives	Illumination	Brightfield		Brightfield / Darkfield / Phase Contrast	
	Type	Plan Achromatic		Plan Phase	
	Magnification (N.A.)	4X (0.10), 10X (0.25), 40X (0.60), 100X (1.25)		10X (0.25), 20X (0.40), 40X (0.60), 100X (1.25)	
	DIN Standard	Yes			
Stage	Type	Mechanical			
	Shape	Rectangular			
	Dimensions (L x W)	5.5 x 4.3 in / 140 x 110 mm			
	X-Y Control	Drop-down, Right Hand, Rack and Pinion			
	Cross Travel Range	3 x 2 in / 75 x 50 mm			
	Slide Holder	Removable spring clip			
	Finish	Chemical Resistant			
Focusing	Type	Coaxial, Low-Position			
	Controls	Coarse / Fine			
	Tension Adjustment	Yes			
	Safety Auto-Stop	Yes			
	Focusing Range	0.4 in x 10 mm			
	Precision	0.002 mm			
Condenser	Type	Abbe 1.25 N.A. with Iris Diaphragm			
	Focusing Control	Rack and Pinion			
Illumination	Type	20W Variable Quartz Halogen			
	Koehler	Field Diaphragm			
	Filter Holder	On Collector			
Specifications	Base (L x W)	8.9 x 6.9 in / 225 x 175 mm; Anti-Skid Rubber Feet			
	Body	Ergonomic; Stain-Resistant Enamel Finish			
	Dimensions (L x W x H)	14.6 x 7.5 x 15.7 in 370 x 190 x 400 mm	14.6 x 7.5 x 18.9 in 370 x 190 x 480 mm	14.6 x 7.5 x 15.7 in 370 x 190 x 400 mm	14.6 x 7.5 x 18.9 in 370 x 190 x 480 mm
	Weight	6.5 kg		6.8 kg	
	Voltage	110 VAC			
Warranty	5-Year Optical/Mechanical; 1-Year Electrical				
Supplied With	Clear Diffusing Filter, Blue Filter, Spare Lamp and Fuses, Dust Cover, and Operation Manual			Clear Diffusing Filter, Blue Filter, Green Filter, Telescoping Eyepiece, Spare Lamp and Fuses, Dust Cover, and Operation Manual	



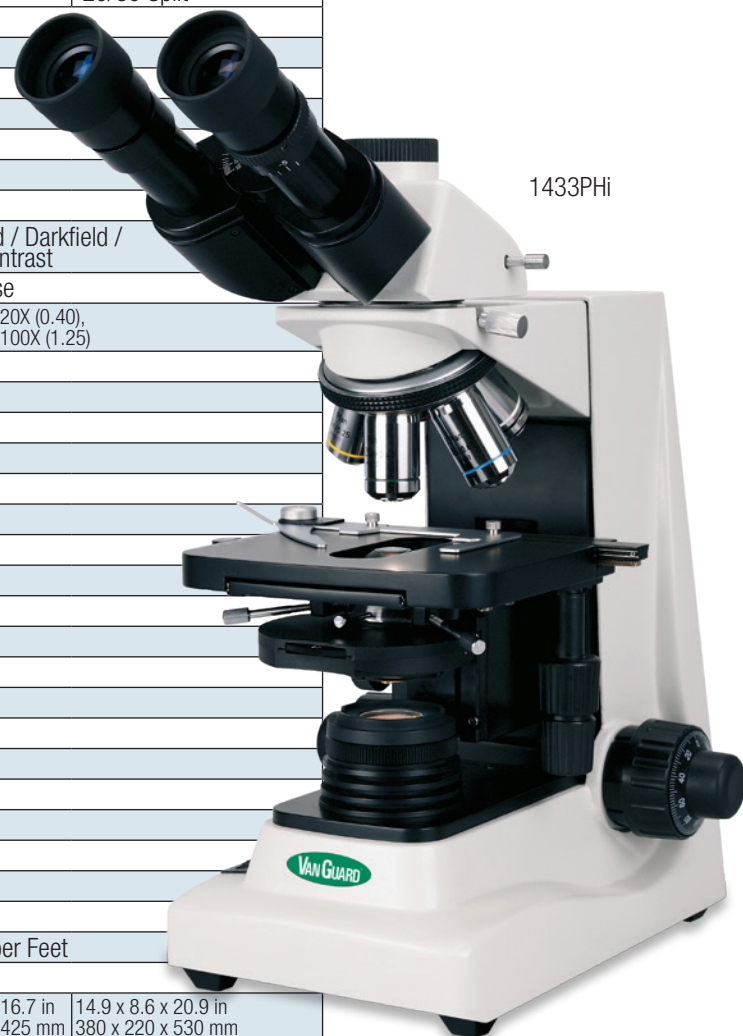
1333PHi

VanGuard 1400-Series Compound Microscopes

Built around a full-size frame, the 1400-Series eliminates the fatigue and strain associated with working long hours over a microscope

- Low-position focusing controls and long drop-down X-Y controls ensure simple, consistent, and comfortable use. Plan objectives provide exceptionally high optical flatness and visual clarity
- Choose from binocular or trinocular viewing heads, and Brightfield or Phase Contrast configurations
- Accessories and parts are available; contact VEE GEE for more information

SPECIFICATIONS		1421Bri	1431Bri	1423PHi	1433PHi
Optical System		VIOS Infinity Corrected			
Viewing Head	Type	Binocular (Siedentopf)	Trinocular (Siedentopf)	Binocular (Siedentopf)	Trinocular (Siedentopf)
	Tube Inclination	30°			
	Rotation	360°			
	Interpupillary	2.2-3 in / 55-75 mm			
	Dioptric	-6 to +6			
Camera Port		N/A	20/80 Spilt	N/A	20/80 Spilt
Eyepieces	Magnification	10X			
	Type	Widefield			
	Field Diameter	0.8 in / 20 mm			
	High-Eyepoint	Yes			
	Rubber Eyecups	Yes			
Nosepiece	Positions	5			
	Pitch	Reverse			
Objectives	Illumination	Brightfield		Brightfield / Darkfield / Phase Contrast	
	Type	Plan Achromatic		Plan Phase	
	Magnification (N.A.)	4X (0.10), 10X (0.25), 40X (0.60), 100X (1.25)		10X (0.25), 20X (0.40), 40X (0.60), 100X (1.25)	
	DIN Standard	Yes			
Stage	Type	Mechanical			
	Shape	Rectangular			
	Dimensions (L x W)	6.1 x 4.3 in / 155 x 110 mm			
	X-Y Control	Drop-down, Right Hand, Rack and Pinion			
	Cross Travel Range	3 x 2 in / 75 x 50 mm			
	Slide Holder	Removable spring clip			
	Finish	Chemical Resistant			
Focusing	Type	Coaxial, Low-Position			
	Controls	Coarse / Fine			
	Tension Adjustment	Yes			
	Safety Auto-Stop	Yes			
	Focusing Range	0.8 in / 20 mm			
	Precision	0.002 mm			
Condenser	Type	Abbe 1.25 N.A. with Iris Diaphragm			
	Focusing Control	Rack and Pinion			
Illumination	Type	20W Variable Quartz Halogen			
	Koehler	Field Diaphragm			
	Filter Holder	On Collector			
Specifications	Base	10.2 x 6.7 in / 260 x 170 mm; Anti-Skid Rubber Feet			
	Body	Ergonomic; Stain-Resistant Enamel Finish			
	Dimensions (L x W x H)	14.9 x 8.6 x 16.7 in 380 x 220 x 425 mm	14.9 x 8.6 x 20.9 in 380 x 220 x 530 mm	14.9 x 8.6 x 16.7 in 380 x 220 x 425 mm	14.9 x 8.6 x 20.9 in 380 x 220 x 530 mm
	Weight	9.0 kg		9.3 kg	
	Voltage	110 VAC			
Warranty	5-Year Optical/Mechanical; 1-Year Electrical				
Supplied With	Clear Diffusing Filter, Blue Filter, Spare Lamp and Fuses, Dust Cover, and Operation Manual			Clear Diffusing Filter, Blue Filter, Green Filter, Telescoping Eyepiece, Spare Lamp and Fuses, Dust Cover, and Operation Manual	



1433PHi

VanGuard 1353SL Stereo Microscope

VanGuard 1353SL Stereo Microscope features precision optics to ensure the highest level of performance for inspection and dissection applications

- Upper and lower LED lighting provides bright and efficient illumination
- Large stage area gives you room to work with bigger objects
- Accessories and parts are available; contact VEE GEE for more information

SPECIFICATIONS		1353SL
Optical System		Fixed 160 mm
Viewing Head	Type	Binocular
	Tube Inclination	45°
	Rotation	360°
	Interpupillary	2.1-3.3 in / 53-83 mm
	Dioptric	-5 to +5
Eyepieces	Magnification	10X
	Type	Extra Widefield
	Field Diameter	0.8 in / 20 mm
	Rubber Eyecups	Yes
Stereo Objectives		1X and 3X
Stage	Plate	Translucent Acrylic
	Clips	Stainless Steel, Spring-Loaded
Focusing Movement		Dual Knobs; Rack and Pinion Assembly
Vertical Travel		125 mm
Illumination	Upper	LED
	Lower	LED
Specifications	Base	11.4 x 10.2 in / 290 x 260 mm
	Body	Ergonomic; Stain-Resistant
	Dimensions (L x W x H)	11.4 x 10.2 x 19.7 / 290 x 260 x 500 mm
	Weight	4.5 kg
	Voltage	110 VAC
Warranty	5-Year Optical/Mechanical; 1-Year Electrical	
Supplied With	Eyecups (2), Dust Cover, and Operation Manual	



USB Color Digital Microscope Camera Systems

Microscope cameras produce high-definition live images and video for documentation of clinical, life sciences, and material science applications

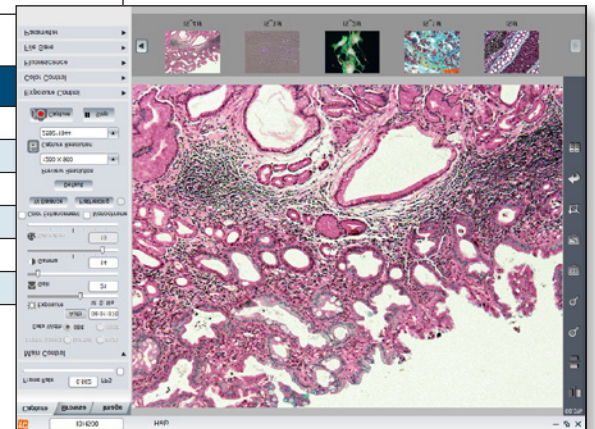
- Cameras feature still and video capture modes, automatic / manual exposure control, manual gamma control, and automatic / manual white balance control
- No separate power cable is required; video, power, and full camera control are all enabled through a single USB cable
- The imaging software allows the user to control all of the advanced settings and has a simple but powerful graphic interface
- Software requires: Windows 7 or later, Intel Core 2 Duo or later, 2 GB of RAM, 2GB hard disk free space, and USB 2.0 / 3.0 port

SPECIFICATIONS	3 MEGAPIXELS	5 MEGAPIXELS	10 MEGAPIXELS
Image Sensor	1/2" CMOS	1/2.5" CMOS	1/2.3" CMOS
Pixel Size	3.2µm x 3.2µm	2.2µm x 2.2µm	1.67µm x 1.67µm
Active Pixels	2048 x 1536	2592 x 1944	3856 x 2764
Frame Rate	2048 1536: 12 fps	2592 x 1944: 5 fps	3856 x 2764: 3 fps
	1024 x 768: 25 fps	1280 x 960: 21 fps	1832 x 1370: 8 fps
	640 x 480: 40 fps	1024 x 768: 25 fps	1280 x 1024: 25 fps
	-----	640 x 480: 38 fps	916 x 680: 28 fps
Sensitivity	1.0 V/Lux-S (550 nm)	0.53 V/Lux-S (550 nm)	0.44 V/Lux-S (550 nm)
Digital Output	24-Bit		
S/N Ratio	> 43 dB	> 40.5 dB	> 40.5 dB
Dynamic Range	54 dB	60 dB	6.5 dB
Capture Mode	Still and Video Color		
Scanning Method	Progressive		
Exposure	Automatic / Manual		
White Balance	Automatic / Manual		
Gamma	Manual		
Interface	USB 2.0 / 3.0		
Specialized Mode	Fluorescence		
Lens Mount	C / CS Mount		
Adapter Lens	0.50X	0.45X	0.45X
Adapters (included)	23 mm, 30 mm, 30.5 mm	23 mm, 30 mm, 30.5 mm	23 mm, 30 mm, 30.5 mm
Twain Compatible	Yes		
Capture Software Suite	Tcapture		
Power	USB 2.0 / 3.0 Bus		
Dimensions (L x W x H)	2.8 x 3.3 x 1.8 in / 70 x 85 x 45 mm		
Weight	0.2 kg		
Supplied With	Adapters and USB cable		



1400 CDPC-10

CAT. NO.	CAMERA TYPE	FOR MICROSCOPE MODELS
1400-CDPC-3	USB Digital Camera, 3 Megapixels	1220CM, 1300-Series, 1400-Series
1400-CDPC-5	USB Digital Camera, 5 Megapixels	1220CM, 1300-Series, 1400-Series
1400-CDPC-10	USB Digital Camera, 10 Megapixels	1220CM, 1300-Series, 1400-Series
M1397-K005-1	USB Digital Camera, 3 Megapixels	1353SL
M1397-K007-1	USB Digital Camera, 5 Megapixels	1353SL
M1397-K009-1	USB Digital Camera, 10 Megapixels	1353SL



Tcapture: Camera Software Screen

Microscope Slide Boxes

Durable & Reusable

- Constructed of durable ABS material
- Easy to clean and re-use for multiple projects

Secure & Safe

- Grooved Slots to securely hold slide in place
- Lining material for added cushion against breakage
- Locking feature on outside of box to prevent accidental opening

Systematic

- Multiple identifying features to make labeling and classification simple
- Removable slide inventory sheet included for slide identification

Microscope Slide Box

- Lockable clasp and hinge pins are nickel-plated and rust resistant
- Identification made easy with numbered cork lining corresponding directly to the slide sheet. Outside cover also features an extra labelling area for "Project" and "Date" classification
- Stack multiple boxes with molded in feet to steadily hold for transport or storage



MICROSCOPE SLIDE BOX						
Cat. No.	Capacity	Color	Material	Lining	Dimensions (L x W x H)	
					Inches	Centimeters
1400-SLCS201	100 slides	Blue	ABS	Cork	8.2 x 6.9 x 1.3	20.8 x 17.5 x 3.4

Premium Microscope Slide Box Assortment

- All plastic construction eliminates the potential of rust
- Sliding polypropylene lock has extra security feature allowing use of a 2-mm zip tie or security tag (not included)
- Center bar in slide storage area is clearly numbered for easy correspondence to the slide inventory sheet. Assorted colors can be used for additional project coding
- Sold as a pack of five slide boxes with assorted colors: one each of Blue, Orange, Green, Red, and Purple



PREMIUM MICROSCOPE SLIDE BOX						
Cat. No.	Capacity	Color	Material	Lining	Dimensions (L x W x H)	
					Inches	Centimeters
1400-SLCS101	100 slides, each box	Blue, Orange, Green, Red, and Purple	Translucent ABS	EVA Foam	8.2 x 7.7 x 1.3	20.7 x 19.5 x 3.2

Manual Polarimeter

Rugged design and simple operation allows for heavy use at the instructional level

- Polarimeters are used to measure the purity of ingredients in pharmaceuticals, quality control of raw materials, and concentration of ingredients in sugar-based substances
- The model C25L Polarimeter is designed to measure the angle of rotation caused by passing polarized light through an optically active substance
- Adjustable eyepiece brings the 2 half shadows of your sample into sharp focus
- When the 2 half shadows are viewed, right-side shading indicates a dextrorotatory sample and left-side shading indicates a levorotatory sample
- With the Vernier scale, rotations can be measured to an accuracy of $\pm 0.1^\circ$
- Includes 100 mm and 200 mm sample cells with bubble trap



4601P



4600P-SC200, 200 mm, 18 mL



4600P-SC100, 100 mm, 11 mL

MANUAL POLARIMETER								
Cat. No.	Measuring Range	Resolution	Accuracy	Light Source	Dimension L x W x H (in)	Dimension L x W x H (mm)	Weight	Power
4601P	$\pm 180^\circ$	0.1°	$\pm 0.1^\circ$	LED with 589 nm filter	18.1 x 5.5 x 13	460 x 140 x 330	11.5 lbs / 5.2 kg	110 VAC

REPLACEMENT PARTS	
Cat. No.	Description
4600P-SC100	100 mm sample cell
4600P-SC200	200 mm sample cell
1200-FS4	Fuse, 1A, 250V

VEE GEE

THERMOMETERS

VEE GEE Scientific
Laboratory Equipment & Supplies



THERMOMETERS

We have a wide range of thermometers to measure and track temperatures for a wide range of applications. Our portfolio includes Dial (Bimetal), Digital and Glass Thermometers options to get the job done.

Dial Thermometers

Dial thermometers don't require batteries, are rugged, and readings can be adjusted with the calibration screw on the back

Indicates temperature through a metal stem with attached circular scale.

Application use varies with dial sizes, stem lengths and temperature ranges.

Dial Thermometers - 1" Diameter

Ideal for many applications including food and beverage quality control, general lab use, and asphalt/concrete testing

- The small stem and face fits nicely into a shirt pocket or holder
- Includes a plastic sheath with pocket clip for storage



DIAL THERMOMETERS - 1" DIAMETER						
Cat. No.	Temperature Range	Subdivisions	Accuracy	Face Diameter (in/mm)	Stem Length (in/mm)	Stem Diameter (in/mm)
81125	25 to 125°F	1°F	±1°F	1 / 25	5 / 127	0.1 / 3.5
81070	-40 to 70°C	1°C	±1°C			
81110	-10 to 110°C	1°C	±1°C			
81550	50 to 550°F	5°F	±5°F			

Dial Thermometers - 1.75" / 2" Diameter

Ideal for many applications including food and beverage quality control, general lab use, and asphalt/concrete testing

- Larger dial size than common pocket thermometers for easier reading
- Features an adjustment screw for field calibration
- Includes a clip for container mounting



DIAL THERMOMETERS - 1.75" / 2" DIAMETER						
Cat. No.	Temperature Range	Subdivisions	Accuracy	Face Diameter (in/mm)	Stem Length (in/mm)	Stem Diameter (in/mm)
82125	25 to 125°F	1°F	±1°F	1.8 / 44.5	8 / 203	0.1 / 3.5
82110	-10 to 110°C	1°C	±1°C	1.8 / 44.5	8 / 203	0.1 / 3.5
82220	0 to 220°F	2°F	±2°F	1.8 / 44.5	8 / 203	0.1 / 3.5
82550	50 to 550°F	5°F	±5°F	1.8 / 44.5	8 / 203	0.1 / 3.5
82550DG	50 to 550°F / 10 to 290°C	2.5°F	±2.5°F	2 / 51	8 / 203	0.1 / 3.5
		5°C	±5°C			

Dial Thermometers - 3" Dial

Ideal for many applications including soil testing, food and beverage quality control, and asphalt/concrete testing

- Constructed of stainless-steel case, bezel, and stem with a glass window
- Case is hermetically sealed to prevent lens fogging
- Includes a 1/2"NPT male thread on the back for threading into a pipeline
- Also features an adjustment screw for field calibration



DIAL THERMOMETERS - 3" DIAMETER						
Cat. No.	Temperature Range	Subdivisions	Accuracy	Face Diameter (in/mm)	Stem Length (in/mm)	Stem Diameter (in/mm)
82160-6	-40 to 160°F	2°F	±2°F	3 / 76	6 / 152	0.3 / 6.4
82160-12	-40 to 160°F	2°F	±2°F	3 / 76	12 / 305	0.3 / 6.4

Long-Stem Dial Thermometers

Ideal for many applications including compost testing, food and beverage quality control, and asphalt/concrete testing

- Constructed of stainless-steel case, bezel, and stem with a glass window
- Case is hermetically sealed to prevent lense fogging
- Includes a 1/2"NPT male thread on the back for threading into a pipeline
- Also features an adjustment screw for field calibration



LONG-STEM DIAL THERMOMETERS						
Cat. No.	Temperature Range	Subdivisions	Accuracy	Face Diameter (in/mm)	Stem Length (in/mm)	Stem Diameter (in/mm)
82200-36	0 to 200°F	2°F	±2°F	3 / 76	36 / 914	0.3 / 7.9
82100-36	0 to 100°C	1°C	±1°C	3 / 76	36 / 914	0.3 / 7.9
82200-48	0 to 200°F	2°F	±2°F	3 / 76	48 / 1220	0.3 / 7.9

Swivel-Head Digital Thermometers

Digital stem thermometers are ideal for temperature monitoring in essentially any setting and application

- Laboratories - easily monitoring reagents and liquids in test tubes, beakers, and flasks
- Food Processing
- Refrigeration
- Horticulture

Both models feature a dual scale (°F / °C), fast 1-second update time, and a swivel head that can be moved a full 180° for easy reading in any position. Both the ON/OFF and scale selection buttons are located on the face for easy access.

The thermistor sensor stem is stainless steel, 0.138" (3.5 mm) diameter, and includes a protective case featuring a pocket clip. Includes a 1.5V alkaline battery (LR44) and features automatic power-off after 10 minutes of non-use.



SWIVEL-HEAD DIGITAL THERMOMETERS						
Cat. No.	Temperature Range	Resolution	Accuracy	Stem Length (in/mm)	Stem Diameter (in/mm)	
83210-12	-58 to 302°F / -50 to 150°C	0.1°	±2.0°F / 1.0°C	12 / 305	0.1 / 3.5	
83110	14 to 212°F / -10 to 100°C	0.1°	±1.0°F / 0.5°C	5 / 127	0.1 / 3.5	

GLASS THERMOMETERS

VEE GEE thermometers feature a SafetyBLUE fill. This is an organic performance liquid that is bio-degradable and exhibits all the qualities of mercury without the risk of contamination and hazards associated with mercury.

Serialized Glass Thermometers

Precision, serialized thermometers are ideal for use in laboratories, universities, food/beverage, environmental, wastewater and many other general-purpose applications

- Feature SafetyBLUE fill against a white background for easy reading
- Accuracy is equal to one subdivision

SERIALIZED GLASS THERMOMETERS				
Cat. No.	Temperature Range	Subdivisions	Length (in/mm)	Immersion
80701	-30 to 120°F	2°F	12 / 300	Total
80702	-4 to 230°F	2°F	12 / 300	Total
80703	0 to 300°F	2°F	12 / 300	Total
80706	-35 to 50°C	1°C	12 / 300	Total
80707	-20 to 110°C	1°C	12 / 300	Total
80708	-20 to 150°C	1°C	12 / 300	Total
80901	-30 to 120°F	2°F	12 / 300	Partial
80902	-4 to 230°F	2°F	12 / 300	Partial
80903	0 to 300°F	2°F	12 / 300	Partial
80905	20 to 500°F	2°F	15.4 / 391	Partial
80906	-35 to 50°C	1°C	12 / 300	Partial
80907	-20 to 110°C	1°C	12 / 300	Partial
80908	-20 to 150°C	1°C	12 / 300	Partial
80910	-10 to 250°F	2°F	15.4 / 391	Partial

80901

Serialized Encapsulated Glass Thermometers

Encapsulation protects you from broken glass and liquid

- Feature FEP encapsulation; in the event of breakage the FEP coating contains the broken glass and liquid, preventing injury or contamination
- Feature SafetyBLUE fill against a white background for easy reading
- Accuracy is equal to one subdivision

SERIALIZED ENCAPSULATED GLASS THERMOMETERS				
Cat. No.	Temperature Range	Subdivisions	Length (in/mm)	Immersion
80701E	-30 to 120°F	2°F	12 / 300	Total
80702E	-4 to 230°F	2°F	12 / 300	Total
80703E	0 to 300°F	2°F	12 / 300	Total
80704E	30 to 220°F	2°F	15.4 / 391	Total
80706E	-35 to 50°C	1°C	12 / 300	Total
80707E	-20 to 110°C	1°C	12 / 300	Total
80708E	-20 to 150°C	1°C	12 / 300	Total
80901E	-30 to 120°F	2°F	12 / 300	Partial
80902E	-4 to 230°F	2°F	12 / 300	Partial
80903E	0 to 300°F	2°F	12 / 300	Partial
80904E	30 to 220°F	2°F	15.4 / 391	Partial
80906E	-35 to 50°C	1°C	12 / 300	Partial
80907E	-20 to 110°C	1°C	12 / 300	Partial
80908E	-20 to 150°C	1°C	12 / 300	Partial

80702E



Serialized Armored Glass Thermometers

Armor protects the thermometer from rough handling and shock during use

- Includes nickel-plated brass armor
- Feature SafetyBLUE fill against a white background for easy reading
- Accuracy is equal to one subdivision

SERIALIZED ARMORED GLASS THERMOMETERS				
Cat. No.	Temperature Range	Subdivisions	Length (in/mm)	Immersion
80701-A	-30 to 120°F	2°F	12 / 300	Total
80702-A	-4 to 230°F	2°F	12 / 300	Total
80703-A	0 to 300°F	2°F	12 / 300	Total
80706-A	-35 to 50°C	1°C	12 / 300	Total
80707-A	-20 to 110°C	1°C	12 / 300	Total
80708-A	-20 to 150°C	1°C	12 / 300	Total
80901-A	-30 to 120°F	2°F	12 / 300	Partial
80902-A	-4 to 230°F	2°F	12 / 300	Partial
80903-A	0 to 300°F	2°F	12 / 300	Partial
80905-A	20 to 500°F	2°F	15.4 / 391	Partial
80906-A	-35 to 50°C	1°C	12 / 300	Partial
80907-A	-20 to 110°C	1°C	12 / 300	Partial
80908-A	-20 to 150°C	1°C	12 / 300	Partial
80910-A	-10 to 250°F	2°F	15.4 / 391	Partial

80701-A



Armored Encapsulated Glass Thermometers

Armor protects the thermometer and encapsulation protects you

- Includes FEP encapsulation and nickel-plated brass armor
- In the event of breakage, the FEP coating contains the broken glass and liquid fill, preventing injury or contamination. The armor protects the thermometer from rough handling and shock during use
- Feature SafetyBLUE fill against a white background for easy reading
- Accuracy is equal to one subdivision

ARMORED ENCAPSULATED GLASS THERMOMETERS				
Cat. No.	Temperature Range	Subdivisions	Length (in/mm)	Immersion
80701E-A	-30 to 120°F	2°F	12 / 300	Total
80702E-A	-4 to 230°F	2°F	12 / 300	Total
80703E-A	0 to 300°F	2°F	12 / 300	Total
80704E-A	30 to 220°F	2°F	15.4 / 391	Total
80706E-A	-35 to 50°C	1°C	12 / 300	Total
80707E-A	-20 to 110°C	1°C	12 / 300	Total
80708E-A	-20 to 150°C	1°C	12 / 300	Total
80901E-A	-30 to 120°F	2°F	12 / 300	Partial
80902E-A	-4 to 230°F	2°F	12 / 300	Partial
80903E-A	0 to 300°F	2°F	12 / 300	Partial
80904E-A	30 to 220°F	2°F	15.4 / 391	Partial
80906E-A	-35 to 50°C	1°C	12 / 300	Partial
80907E-A	-20 to 110°C	1°C	12 / 300	Partial
80908E-A	-20 to 150°C	1°C	12 / 300	Partial



83025A

Armor Cases for Glass Thermometers

Nickel-plated brass armor cases protect liquid-in-glass thermometers from rough handling and shock during use

- Armors feature a threaded screw cap with ring top for suspension where necessary

ARMOR CASES FOR GLASS THERMOMETERS			
Cat. No.	For Thermometer Length (in/mm)	Outside Diameter (in/mm)	Inside Diameter (in/mm)
83025A	12 / 305	0.4 / 9.5	0.3 / 7.5
83025N	15.5 / 393	0.4 / 9.5	0.3 / 7.5

Column Separation

The largest single cause for failure of liquid-in-glass thermometers in the lab is due to column separation. This can occur in transit or in the lab.

The simplest and safest method to reunite a separated column is to force the liquid down the capillary tube by using a centrifuge, if one is available with a cup deep enough to ensure that the centrifugal force is below the liquid column.

- Carefully insert the thermometer, bulb down, into the centrifuge. Place some cotton wadding at the bottom of the cup to prevent any damage to the bulb. Turn on the centrifuge - in just a few seconds all the liquid will be forced past the separation.
- If the cup is not deep enough and all the centrifugal force is not below the column, the column will split, forcing part of the liquid down. The remainder will be forced up, filling the expansion chamber.
- If a centrifuge is not available, the column can be reunited by holding the thermometer in an upright position and gingerly tapping the stem above the separation against the palm of your hand. As you gently tap the thermometer, observe the liquid above the separation until it breaks away from the wall of the capillary and runs down to join the main column.

Immersion Types

Thermometers are one of the most important instruments used in the laboratory and are a relatively inexpensive means of reliably measuring temperature, provided they are properly used and not abused.

It is essential that the instruments be used in the manner prescribed if true temperature are to be ascertained. The following are some terms that should be understood and adhered to when true temperatures are to be obtained:

Total immersion - such a thermometer is designed to indicate temperatures correctly when the bulb and the entire liquid column are exposed to the temperature being measured, except for a minimal length emergent to be visible. Therefore, the thermometer is immersed into the medium up to the point of reading.

Partial Immersion - such a thermometer has a line around it at the immersion distance from the bottom. The thermometer indicates correctly when the bulb and liquid column to that line are exposed to the temperature being measured and the emergent stem is at ambient temperature. Therefore, the thermometer is immersed only up to the immersion line.

1100ZL SERIES

Stereo Microscopes

Features

- Precision Optics
- Upper & Lower LED Illumination
- Zoom Magnification (4.5:1)
- Optional Eyepieces & Lenses
- 5-Year Warranty

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1100ZL-Series Stereo Microscopes

VanGuard 1100ZL-Series Stereo Microscopes feature precision optics to ensure the highest level of performance for inspection and dissection. All models also come with upper and lower LED illumination to provide the brightest and most energy-efficient lighting available on the market.

Zoom magnification of 0.75X to 3.4X (4.5:1) is available on binocular and trinocular heads to produce high-resolution, three-dimensional images.

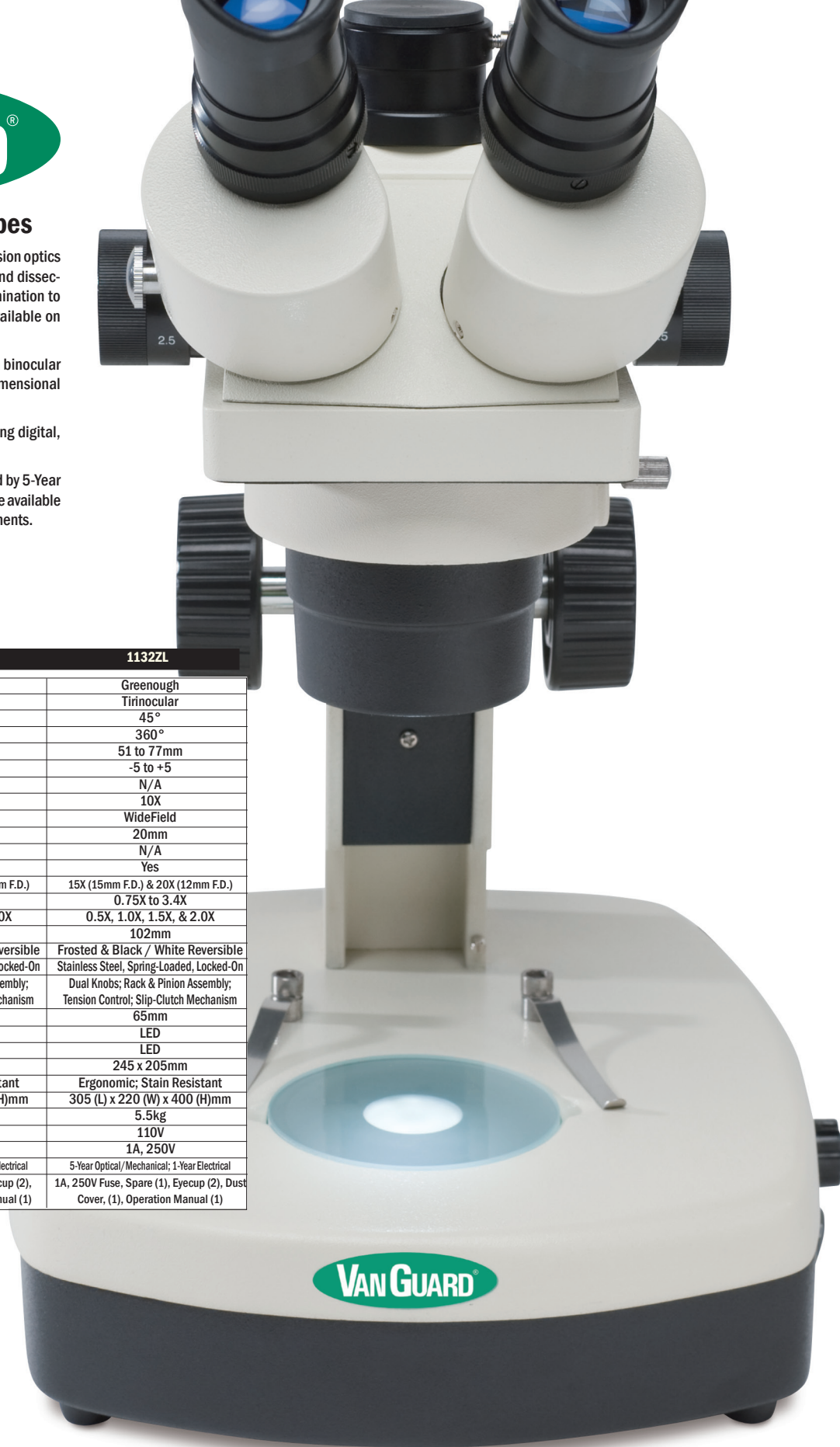
Various camera packages are available as options; including digital, video, and 35mm systems.

All models feature 10X WideField eyepieces and are backed by 5-Year warranties. Optional eyepieces and supplementary lenses are available to customize any model for specific magnification requirements.

Make your lab work better...make it VanGuard.

Technical Specifications

		1131ZL	1132ZL
Optical System		Greenough	Greenough
	Type	Binocular	Trinocular
	Tube Inclination	45°	45°
Viewing Head	Rotatable	360°	360°
	Interpupillary	51 to 77mm	51 to 77mm
	Dioptric	-5 to +5	-5 to +5
Camera Port		N/A	N/A
	Magnification	10X	10X
Eyepieces	Type	WideField	WideField
	Field Diameter	20mm	20mm
	High-Eyepoint	N/A	N/A
	Rubber Eyecups	Yes	Yes
	Optional	15X (15mm F.D.) & 20X (12mm F.D.)	15X (15mm F.D.) & 20X (12mm F.D.)
Zoom Objectives		0.75X to 3.4X	0.75X to 3.4X
Supplementary Lenses	Optional	0.5X, 1.0X, 1.5X, & 2.0X	0.5X, 1.0X, 1.5X, & 2.0X
Working Distance		102mm	102mm
Stage	Plate	Frosted & Black / White Reversible	Frosted & Black / White Reversible
	Clips	Stainless Steel, Spring-Loaded, Locked-On	Stainless Steel, Spring-Loaded, Locked-On
Focusing Movement		Dual Knobs; Rack & Pinion Assembly; Tension Control; Slip-Clutch Mechanism	Dual Knobs; Rack & Pinion Assembly; Tension Control; Slip-Clutch Mechanism
Vertical Travel		65mm	65mm
Illumination	Upper	LED	LED
	Lower	LED	LED
Base		245 x 205mm	245 x 205mm
Body		Ergonomic; Stain Resistant	Ergonomic; Stain Resistant
Dimensions		305 (L) x 220 (W) x 400 (H)mm	305 (L) x 220 (W) x 400 (H)mm
Weight		5.5kg	5.5kg
Voltage		110V	110V
Fuse		1A, 250V	1A, 250V
Warranty		5-Year Optical/Mechanical; 1-Year Electrical	5-Year Optical/Mechanical; 1-Year Electrical
Supplied With		1A, 250V Fuse, Spare (1), Eyecup (2), Dust Cover, (1), Operation Manual (1)	1A, 250V Fuse, Spare (1), Eyecup (2), Dust Cover, (1), Operation Manual (1)



VEE GEE Scientific LLC

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VAN GUARD

1200CMI Series

- Intermediate Level
- Brightfield & Phase Contrast
- Precision Optics

VanGuard 1200CMI Series Inverted Microscopes are suited for observation of biological cultures or specimens within well plates, petri dishes, or vials.

Objectives are made to DIN standards and are coated.



Specifications

Viewing Head:	Trinocular	
Viewing Head Type:	Seidentopf	
Head Rotation:	360°	
Head Inclination:	30°	
Sliding Prism:	100 / 100 Split	
Interpupillary Adjustment:	55-75mm	
Dioptric Adjustment:	-5 to +5	
Eyepiece Magnification:	10X Widefield	
Eyepiece Field Diameter:	18mm	
Optional Eyepieces:	15X (Field Diameter: 11mm) 20X (Field Diameter: 11mm)	
Nosepiece:	Quadruple	
Brightfield Objectives: <i>(Plan Achromatic)</i>	4X	[0.10 N.A., 17.0mm W.D., 4.5mm F.O.V.] (Optional)
	10X	[0.25 N.A., 8.1mm W.D., 1.8mm F.O.V.]
	25X	[0.25 N.A., 8.1mm W.D., 1.8mm F.O.V.]
	40X	[0.65 N.A., 3.3mm W.D., 0.45mm F.O.V.]
Phase Contrast Objectives: <i>(Plan Achromatic)</i>	10X	[0.25 N.A., 8.1mm W.D., 1.8mm F.O.V.]
	25X	[0.25 N.A., 8.1mm W.D., 1.8mm F.O.V.]
	40X	[0.65 N.A., 3.3mm W.D., 0.45mm F.O.V.]
Stage Dimensions:	150mm x 200mm	
Stage Motion:	Right-Hand Coaxial Control / Rack & Pinion Drive	
Stage Movement Range:	30x70mm	
Sample Clearance (Brightfield):	75mm (Maximum)	
Sample Clearance (Phase):	40mm (Maximum)	
Stage Inserts:	Microscope Slide (1x3") Insert & Petri Dish/Vial Insert	
Focusing Movement:	Coaxial Coarse & Fine Controls / Safety Autostop	
Focusing Range:	40mm	
Focusing Graduation:	2 Microns Per Division	
Brightfield Condenser:	0.40 N.A. Condenser w/ Iris Diaphragm	
Phase Contrast Condenser:	0.40 N.A. Zernike Condenser w/ Iris Diaphragm	
Phase Centering Tool:	Telescoping Eyepiece [Model 1293CMI]	
Illumination:	20W Variable Quartz Halogen	
Fuse:	0.5A, 250V	
Voltage:	110V [Standard]	
Base Dimensions:	330mm x 205mm	
Overall Dimensions:	330mm (L) x 205mm (W) x 435mm (H)	
Weight:	9.7kg	
Supplied With:	20W Halogen Lamp (Spare) (cat. no. 1200-20WHL), 0.5A, 250V Fuse (Spare) (cat. no. 1200-FS1), Dust Cover, Operation Manual	

Ordering Information

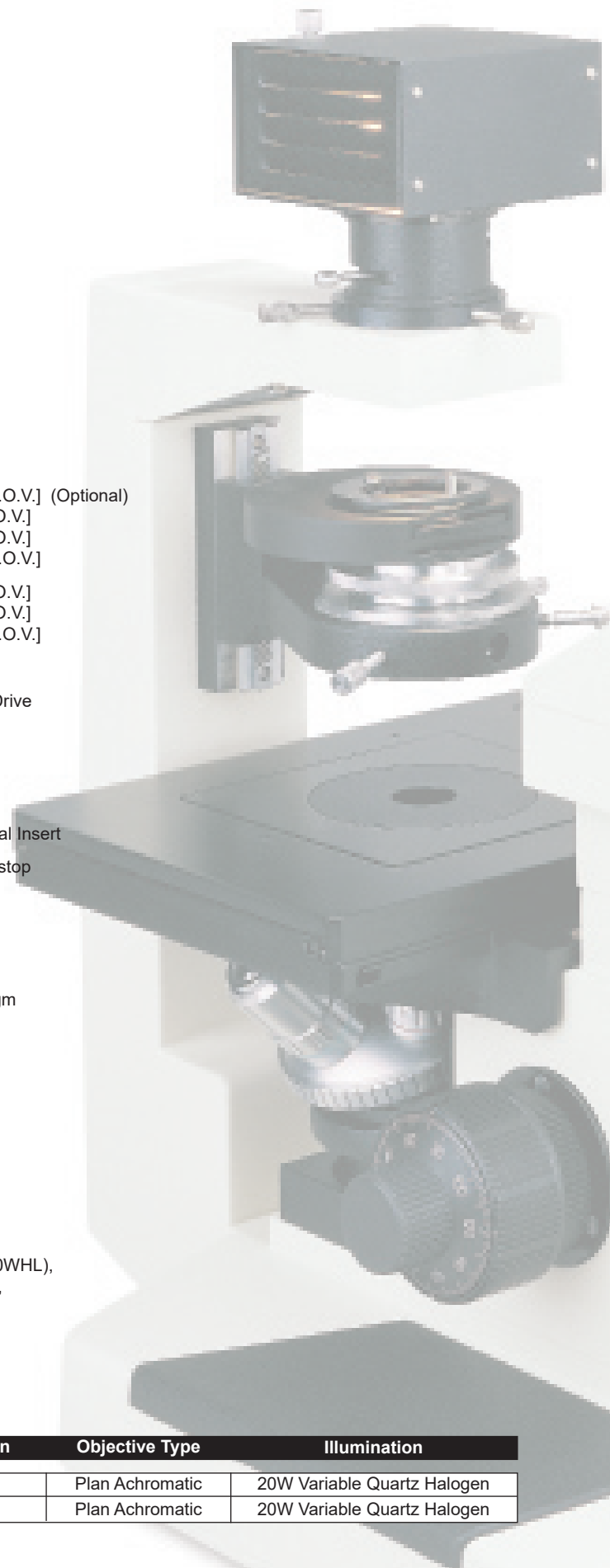
Model	Head	Type	Objective Magnification	Objective Type	Illumination
1291CMI	Trinocular	Brightfield	10X, 25X, 40X	Plan Achromatic	20W Variable Quartz Halogen
1293CMI	Trinocular	Phase Contrast	10X, 25X, 40X	Plan Achromatic	20W Variable Quartz Halogen



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1200 SERIES

Clinical Microscopes

Features

- Precision Optics
- 20W Variable Quartz Halogen Illumination
- Brightfield & Phase Contrast
- Integrated Koehler Illumination
- 5-Year Warranty

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1200-Series Clinical Microscopes

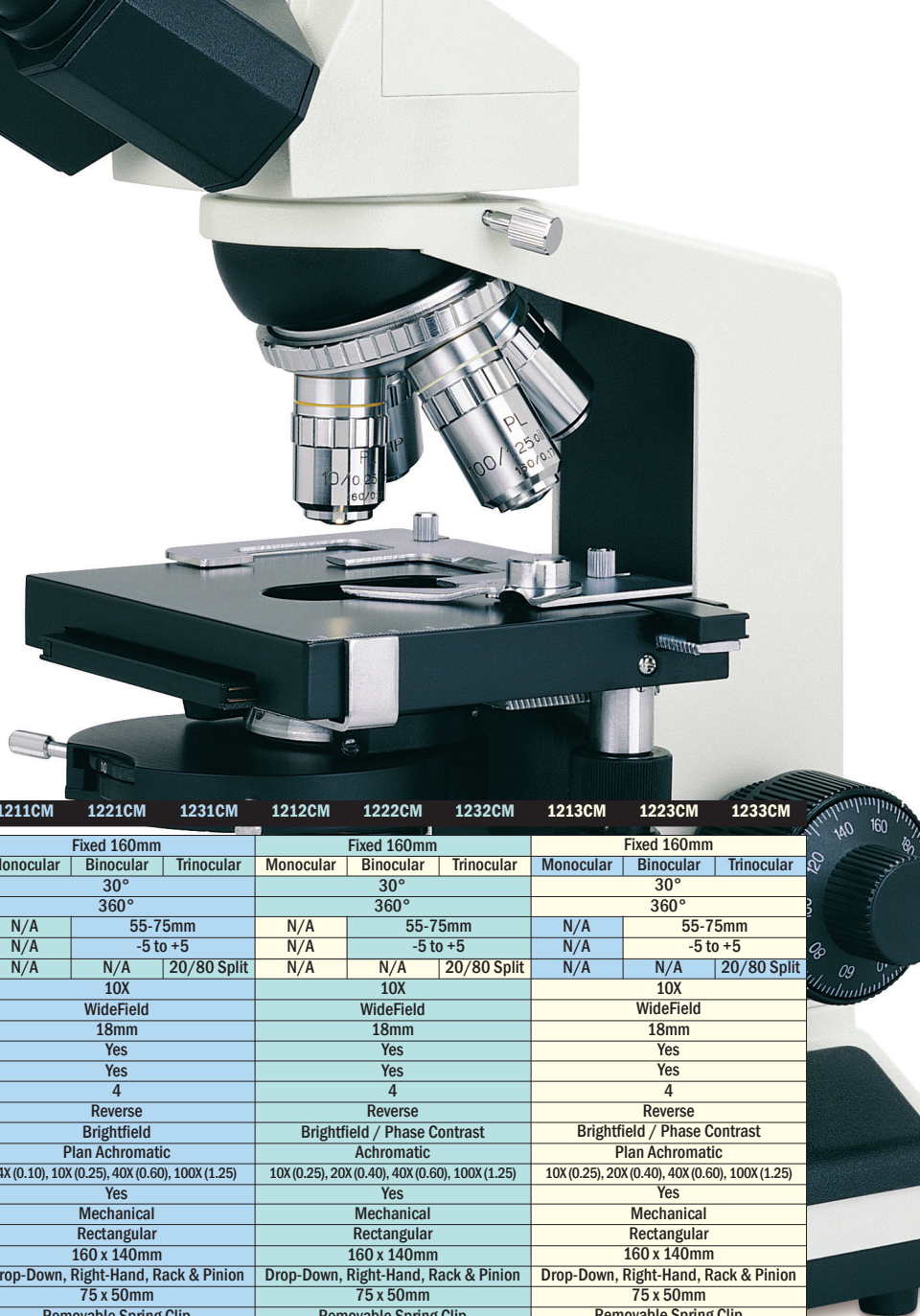
VanGuard 1200-Series Clinical Microscopes provide the necessary specifications for diagnostic & educational use in medical/veterinary clinics, universities, and industrial laboratories.

Wide ranges of models are available in Brightfield & Phase Contrast configurations. Choose from standard achromatic or plan achromatic objectives; monocular, binocular, or trinocular viewing heads.

Various camera packages are available as options; including digital, video, and 35mm systems.

All models feature 10X WideField eyepieces, 20W variable quartz halogen, field diaphragms for Koehler illumination, and are backed by a 5-Year warranty.

Make your lab work better...make it VanGuard.



Technical Specifications

	1210CM	1220CM	1230CM	1211CM	1221CM	1231CM	1212CM	1222CM	1232CM	1213CM	1223CM	1233CM
Optical System	Fixed 160mm			Fixed 160mm			Fixed 160mm			Fixed 160mm		
Type	Monocular	Binocular	Trinocular	Monocular	Binocular	Trinocular	Monocular	Binocular	Trinocular	Monocular	Binocular	Trinocular
Viewing Head	30°			30°			30°			30°		
Rotatable	360°			360°			360°			360°		
Interpupillary	N/A	55-75mm		N/A	55-75mm		N/A	55-75mm		N/A	55-75mm	
Dioptric	N/A	-5 to +5		N/A	-5 to +5		N/A	-5 to +5		N/A	-5 to +5	
Camera Port	N/A	N/A	20/80 Split	N/A	N/A	20/80 Split	N/A	N/A	20/80 Split	N/A	N/A	20/80 Split
Magnification	10X			10X			10X			10X		
Type	WideField			WideField			WideField			WideField		
Field Diameter	18mm			18mm			18mm			18mm		
High-Eyepoint	Yes			Yes			Yes			Yes		
Rubber Eyecups	Yes			Yes			Yes			Yes		
Nosepiece	4			4			4			4		
Pitch	Reverse			Reverse			Reverse			Reverse		
Illumination Technique(s)	Brightfield			Brightfield			Brightfield / Phase Contrast			Brightfield / Phase Contrast		
Objectives	Achromatic			Plan Achromatic			Achromatic			Plan Achromatic		
Magnification (N.A.)	4X (0.10), 10X (0.25), 40X (0.60), 100X (1.25)			4X (0.10), 10X (0.25), 40X (0.60), 100X (1.25)			10X (0.25), 20X (0.40), 40X (0.60), 100X (1.25)			10X (0.25), 20X (0.40), 40X (0.60), 100X (1.25)		
DIN Standard	Yes			Yes			Yes			Yes		
Type	Mechanical			Mechanical			Mechanical			Mechanical		
Shape	Rectangular			Rectangular			Rectangular			Rectangular		
Dimensions	160 x 140mm			160 x 140mm			160 x 140mm			160 x 140mm		
Stage	Drop-Down, Right-Hand, Rack & Pinion			Drop-Down, Right-Hand, Rack & Pinion			Drop-Down, Right-Hand, Rack & Pinion			Drop-Down, Right-Hand, Rack & Pinion		
Cross Travel Range	75 x 50mm			75 x 50mm			75 x 50mm			75 x 50mm		
Slide Holder	Removable Spring Clip			Removable Spring Clip			Removable Spring Clip			Removable Spring Clip		
Finish	Chemical Resistant			Chemical Resistant			Chemical Resistant			Chemical Resistant		
Type	Coaxial			Coaxial			Coaxial			Coaxial		
Controls	Coarse/ Fine			Coarse/ Fine			Coarse/ Fine			Coarse/ Fine		
Tension Adjustment	Yes			Yes			Yes			Yes		
Safety Auto-Stop	Yes			Yes			Yes			Yes		
Focusing Range	40mm			40mm			40mm			40mm		
Precision	0.002mm			0.002mm			0.002mm			0.002mm		
Type	Abbe 1.25 N.A. w/ Iris Diaphragm			Abbe 1.25 N.A. w/ Iris Diaphragm			Abbe 1.25 N.A. w/ Iris Diaphragm			Abbe 1.25 N.A. w/ Iris Diaphragm		
Focusing Control	Rack & Pinion			Rack & Pinion			Rack & Pinion			Rack & Pinion		
Zemike Phase Annuli	N/A			N/A			10X, 20X, 40X, & 100X			10X, 20X, 40X, & 100X		
Type	20W Variable Quartz Halogen			20W Variable Quartz Halogen			20W Variable Quartz Halogen			20W Variable Quartz Halogen		
Koehler	Field Diaphragm			Field Diaphragm			Field Diaphragm			Field Diaphragm		
Filter Holder	On Collector			On Collector			On Collector			On Collector		
Base	210 x 180mm; Anti-Skid Rubber Feet			210 x 180mm; Anti-Skid Rubber Feet			210 x 180mm; Anti-Skid Rubber Feet			210 x 180mm; Anti-Skid Rubber Feet		
Body	Ergonomic; Stain-Resistant Enamel Finish			Ergonomic; Stain-Resistant Enamel Finish			Ergonomic; Stain-Resistant Enamel Finish			Ergonomic; Stain-Resistant Enamel Finish		
Dimensions	210 (L) x 180 (W) x 380 (H) mm			210 (L) x 180 (W) x 380 (H) mm			210 (L) x 180 (W) x 380 (H) mm			210 (L) x 180 (W) x 380 (H) mm		
Weight	7.0kg			7.0kg			7.0kg			7.0kg		
Voltage	110V (220V Available On Request)			110V (220V Available On Request)			110V (220V Available On Request)			110V (220V Available On Request)		
Warranty	5-Year Optical/Mechanical; 1-Year Electrical			5-Year Optical/Mechanical; 1-Year Electrical			5-Year Optical/Mechanical; 1-Year Electrical			5-Year Optical/Mechanical; 1-Year Electrical		
Supplied With	Clear Diffusing Filter, Blue Filter, Spare Lamps & Fuses, Dust Cover, & Operation Manual			Clear Diffusing Filter, Blue Filter, Spare Lamps & Fuses, Dust Cover, & Operation Manual			Clear Diffusing Filter, Blue Filter, Green Filter, Telescoping Eyepiece, Spare Lamps & Fuses, Dust Cover, & Operation Manual			Clear Diffusing Filter, Blue Filter, Green Filter, Telescoping Eyepiece, Spare Lamps & Fuses, Dust Cover, & Operation Manual		



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Industrial Microscopes

1200MM Series



- Research Level
- Reflected & Transmitted Light Models
- Precision Optics

VanGuard 1200MM Series Industrial Microscopes featuring reflected illumination, as well as long working distance objectives, are perfect for the inspection of integrated circuits, wafers, electronic components, metals, polymers, paint, textiles, and essentially any other opaque sample.

Viewing Head. Trinocular (Seidentopf) heads rotate 360° and are inclined at 30°. Both models feature interpupillary and dioptic adjustment. The heads feature a sliding main prism (100/100 split) to provide either 100% of the image to the vertical tube, or 100% of the image to the eyepieces.

Eyepieces. 10X Widefield (DIN) with a field number of 18.

Nosepiece. Quadruple, reversed, ball-bearing nosepiece with high-grade lubricant and positive stops. The nosepiece is reversed (inward facing) to allow for easier manipulation of slides and to aid in keeping the objectives clean.

Objectives. Plan achromatic objectives come standard on both models. Objectives are made to DIN standards and are coated.

Stage. Delivering a high level of fluid motion control and longevity, the stage measures 185x140mm. Model 1242MM is fitted with a 77x98mm glass insert. Motion is controlled by a right-hand, low-position coaxial control and is driven by a rack and pinion system.

Focusing Movement. Coaxial, low-position coarse and fine focus controls feature a 40mm focusing range and are graduated to 2 microns per division. Fitted with tension adjustment and safety autostop.

Condenser. Model 1242MM comes with a 1.25 N.A. Abbe condenser mounted on a rack and pinion focusing mechanism and feature spring-loaded centering knobs and an iris diaphragm with a swing-in filter holder.

Upper (Reflected) Illumination System. Condenser, iris diaphragm; four-color filter wheel (yellow, green, blue, and neutral); polarizing filter.

Upper (Reflected) Illumination. 20W variable quartz halogen light source.

Lower (Transmitted) Illumination. Model 1242MM only. 20W variable quartz halogen light source. Comes with blue and neutral density filters. 0.5A, 250V fuse.

Base. Stable 180x210mm base fitted with anti-skid rubber feet.

Body. Cast-metal, ergonomic body with stain-resistant enamel finish.

Dimensions. 250mm (L) x 200mm (W) x 435mm (H); 8.6kg.



Model 1242MM

Specifications

Viewing Head:	Trinocular	
Viewing Head Type:	Seidentopf	
Head Rotation:	360°	
Head Inclination:	30°	
Sliding Prism:	100 / 100 Split	
Interpupillary Adjustment:	55-75mm	
Dioptic Adjustment:	-5 to +5	
Eyepiece Magnification:	10X Widefield	
Eyepiece Field Diameter:	18mm	
Optional Eyepieces:	15X (Field Diameter: 11mm) 20X (Field Diameter: 11mm)	
Nosepiece:	Quadruple / Reversed	
Brightfield Objectives: (Plan Achromatic)	4X	[0.10 N.A., 17.0mm W.D., 4.5mm F.O.V.]
	10X	[0.25 N.A., 8.0mm W.D., 1.8mm F.O.V.]
	25X	[0.40 N.A., 4.8mm W.D., 0.72mm F.O.V.]
	40X	[0.65 N.A., 3.3mm W.D., 0.45mm F.O.V.]
	100X	[1.25 N.A., 0.25mm W.D., 0.18mm F.O.V.] (Optional)
Stage Dimensions:	140mm x 185mm	
Stage Motion:	Right-Hand Coaxial Control / Rack & Pinion Drive	
Stage Movement Range:	30x70mm	
Stage Inserts:	Glass Insert [Model 1242MM]	
Focusing Movement:	Coaxial Coarse & Fine Controls / Safety Autostop	
Focusing Range:	40mm	
Focusing Graduation:	2 Microns Per Division	
Brightfield Condenser:	1.25 N.A. Abbe Condenser w/ Iris Diaphragm [Model 1242MM]	
Upper Illumination System:	Condenser, Iris Diaphragm (2), Four-Color Filter Wheel, Polarizing Filter	
Upper Illumination:	20W Variable Quartz Halogen	
Lower Illumination:	20W Variable Quartz Halogen [Model 1242MM]	
Fuse:	0.5A, 250V	
Voltage:	110V [Standard]; 220V [Special Order]	
Base Dimensions:	250mm x 200mm	
Overall Dimensions:	250mm (L) x 200mm (W) x 400mm (H)	
Weight:	8.6kg	
Supplied With:	20W Halogen Lamp (Spare) (cat. no. 1200-20WHL), 0.5A, 250V Fuse (Spare) (cat. no. 1200-FS1), Dust Cover, Operation Manual	



Model 1241MM

Ordering Information

Reflected Light Model

Model	Head	Type	Objective Magnification	Objective Type	Illumination
1241MM	Trinocular	Reflected	4X, 10X, 25X, & 40X	Plan Achromatic	20W Variable Quartz Halogen

Reflected / Transmitted Light Model

Model	Head	Type	Objective Magnification	Objective Type	Illumination
1242MM	Trinocular	Reflected / Transmitted	4X, 10X, 25X, & 40X	Plan Achromatic	20W Variable Quartz Halogen

VAN GUARD

1200ZP & 1200ZB Series

- Professional Level
- Zoom Magnification (6.5:1)
- Pole Stand Or Boom Stand Bases
- Precision Optics

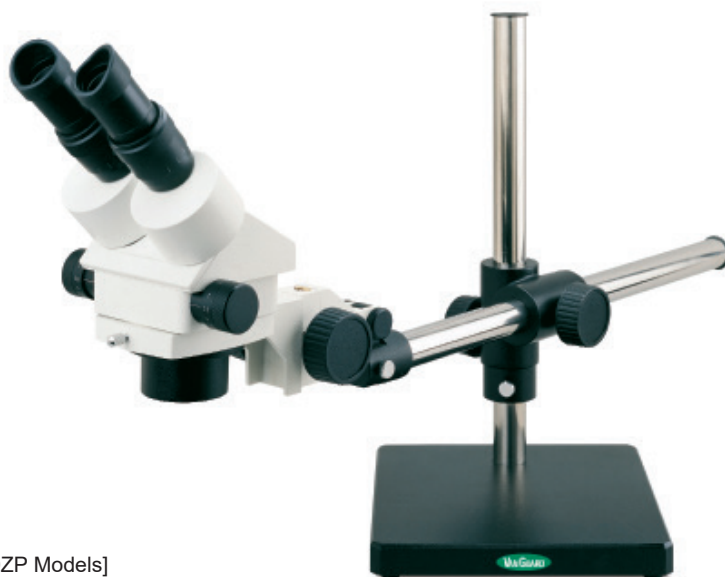
VanGuard 1200ZP & 1200ZB Series Stereo Microscopes feature a zoom magnification range of 7X to 45X (w/ 10X eyepieces). The precision stereo optics produce high-resolution, three-dimensional images. Choose from pole stand or boom stand bases. Optional eyepieces and supplementary lenses are available to customize any model for specific magnification requirements.



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Specifications

Viewing Head:	Binocular or Trinocular
Head Rotation:	360°
Head Inclination:	45°
Interpupillary Adjustment:	55-90mm
Dioptic Adjustment:	-5 to +5
Eyepiece Magnification:	10X Widefield
Eyepiece Field Number:	20mm
Optional Eyepieces:	15X (Field Diameter: 15mm) 20X (Field Diameter: 12mm)
Optional Supplementary Lenses:	0.5X, 1.0X, 1.5X, & 2.0X
Stereo Zoom Objectives:	0.7X to 4.5X
Working Distance:	93mm
Pod Ring I.D.:	85mm
Stage Plate:	Black/White Reversible [1200ZP Models]
Stage Clips:	Stainless Steel, Spring-Loaded, Locked-On [1200ZP Models]
Focusing Movement:	Dual Knobs; Rack & Pinion Assembly; Tension Control; Slip-Clutch Mechanism
Vertical Travel:	85mm
Upper Illumination:	None
Lower Illumination:	None
Horizontal Base Pole:	500mm Length; 415mm Travel [1200ZB Models]
Vertical Base Pole:	165mm Length; 100mm Travel [1200ZP Models] 390mm Length; 300mm Travel [1200ZB Models]
Base Dimensions:	190mm x 150mm [1200ZP Models] 240mm x 260mm [1200ZB Models]
Overall Dimensions:	190mm (L) x 150mm (W) x 430mm (H) [1200ZP Models] 815mm (L) x 240mm (W) x 420mm (H) [1200ZB Models]
Weight:	5.6kg [1200ZP Models] 11.5kg [1200ZB Models]
Supplied With:	Eyecup (2), Dust Cover, Operation Manual



Magnification Configurations

Eyeieces	Supplementary Lens	Zoom Range	Field of View (mm)	Working Distance (mm)
10X	0.5X	3.5X to 22.5X	57.0 to 8.8	150
10X	1.0X / None	7X to 45X	28.5 to 4.4	93
10X	1.5X	10.5X to 67.5X	19.0 to 3.0	49
10X	2.0X	14X to 90X	14.2 to 2.2	34
15X	0.5X	5.25X to 33.75X	42.8 to 6.6	150
15X	1.0X / None	10.5X to 67.5X	22.0 to 3.4	93
15X	1.5X	15.75X to 101.25X	14.2 to 2.2	49
15X	2.0X	21X to 135X	11.0 to 1.7	34
20X	0.5X	7X to 45X	34.0 to 5.3	150
20X	1.0X / None	14X to 90X	17.0 to 2.6	93
20X	1.5X	21X to 135X	11.0 to 1.7	49
20X	2.0X	28X to 180X	8.5 to 1.3	34

Ordering Information

Model	Head	Zoom Range (Primary)	Stand	Upper/Lower Illumination
1275ZP	Binocular	0.7X to 4.5X	Pole	None
1276ZP	Trinocular	0.7X to 4.5X	Pole	None
1277ZB	Binocular	0.7X to 4.5X	Boom	None
1278ZB	Trinocular	0.7X to 4.5X	Boom	None



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620 Lakeview Parkway • Vernon Hills, IL 60061
(800) 423-8842 • www.veege.com • sales@veege.com

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VAN GUARD

1300ZP SERIES



- Professional Level
- Zoom Magnification (6.5:1)
- Pole Stand Or Boom Stand Bases
- Precision Optics
- Mechanical Stage Option

VanGuard 1300ZP-Series Stereo Microscopes feature a zoom magnification range of 7X to 45X (w/ 10X eyepieces). The precision stereo optics produce high-resolution, three-dimensional images. Pole stand base available with optional eyepieces and supplementary lenses to customize any model for specific magnification requirements.



Mechanical Stage Option for:
Fine Control over X-Y movement.
(105mm WX 103mm D)
Installation Required
Cat No. M1305-0001

Specifications

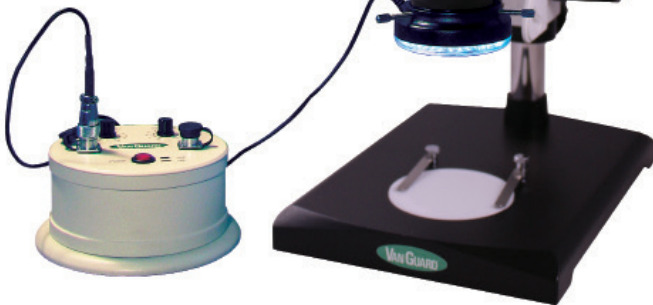
Viewing Head:	Binocular or Trinocular
Head Rotation:	360°
Head Inclination:	45°
Interpupillary Adjustment:	53-75mm
Dioptic Adjustment:	-5 to +5
Eyepiece Magnification:	10X Ultra Widefield
Eyepiece Field Number:	22mm
Optional Eyepieces:	15X (Field Diameter: 15mm) 20X (Field Diameter: 12mm) 25X (Field Diameter: 9mm)
Optional Supplementary Lenses:	0.5X, 0.75X, 1.0X, 1.5X, & 2.0X
Stereo Zoom Objectives:	0.7X to 4.5X
Working Distance:	88mm
Stage Plate:	Black/White Reversible
Stage Clips:	Stainless Steel, Spring-Loaded
Focusing Movement:	Dual Knobs; Rack & Pinion Assembly; Tension Control;
Vertical Travel:	135mm
Upper Illumination:	None
Lower Illumination:	None
Vertical Base Pole:	260mm Length; 160mm Travel
Base Dimensions:	240mm x 180mm
Overall Dimensions:	345mm (L) x 180mm (W) x 480mm (H)
Weight:	4.2kg
Supplied With:	Eyecup (2), Dust Cover, Operation Manual



Magnification Configurations

Zoom Range = Eyepiece Magnification X (Objective Magnification X Supplementary Lens)					
FOV = FN ÷ (Objective Magnification X Supplementary Lens)					
Eyepieces	F.N.	Supplementary Lens	Zoom Range	Field of View (mm)	Working Distance (mm)
10X	22mm	0.5X	3.5X to 22.5X	62.8 to 9.7	137
		0.75X	5.3X to 33.8X	41.9 to 6.5	103
		None	5.3X to 33.8X	41.9 to 6.5	88
		1.0X	7.0X to 45.0X	31.4 to 4.8	75
		1.5X	10.5X to 67.5X	20.9 to 3.2	48
		2.0X	14.0X to 90.0X	15.7 to 2.4	29
15X	15mm	0.5X	5.3X to 33.8X	42.8 to 6.6	137
		0.75X	7.9X to 50.6X	28.5 to 4.4	103
		None	10.5X to 67.5X	21.4 to 3.3	88
		1.0X	10.5X to 67.5X	21.4 to 3.3	75
		1.5X	15.8X to 101.3X	14.2 to 2.2	48
		2.0X	21.0X to 135.0X	10.7 to 1.6	29
20X	12mm	0.5X	7.0X to 45.0X	34.2 to 5.3	137
		0.75X	10.5X to 67.5X	22.8 to 3.5	103
		None	14.0X to 90.0X	17.1 to 2.6	88
		1.0X	14.0X to 90.0X	17.1 to 2.6	75
		1.5X	21.0X to 135.0X	11.4 to 1.7	48
		2.0X	28.0X to 180.0X	8.5 to 1.3	29
25X	9mm	0.5X	8.8X to 56.3X	25.7 to 4.0	137
		0.75X	13.1X to 84.4X	17.1 to 2.6	103
		None	17.5X to 112.5X	12.8 to 2.0	88
		1.0X	17.5X to 112.5X	12.8 to 2.0	75
		1.5X	26.3X to 168.8X	8.5 to 1.3	48
		2.0X	35.0X to 225.0X	6.4 to 1.0	29

Auxiliary Lighting is available with a ring light attachment of 60 individual LED's fixed in a circular mount. The ring light attaches right to the objective cover on the microscope. The LED Control Unit comes with two white light goosenecks and the ring light is an available option.



Cat. No. 1200-LED1 (LED Control Unit with 2 White Light Goosenecks)
Cat. No. 1200-LEDRL1 (Ringlight Attachment)

1300ZP-Series

Model	Head	Zoom Range (Primary)	Stand	Upper/Lower Illumination
1375ZP	Binocular	0.7X to 4.5X	Pole	None
1376ZP	Trinocular	0.7X to 4.5X	Pole	None



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VAN GUARD

1300ZP SERIES



- Professional Level
- Zoom Magnification (6.5:1)
- Pole Stand Or Boom Stand Bases
- Precision Optics
- Mechanical Stage Option

VanGuard 1300ZP-Series Stereo Microscopes feature a zoom magnification range of 7X to 45X (w/ 10X eyepieces). The precision stereo optics produce high-resolution, three-dimensional images. Pole stand base available with optional eyepieces and supplementary lenses to customize any model for specific magnification requirements.



Mechanical Stage Option for:
Fine Control over X-Y movement.
(105mm WX 103mm D)
Installation Required
Cat No. M1305-0001

Specifications

Viewing Head:	Binocular or Trinocular
Head Rotation:	360°
Head Inclination:	45°
Interpupillary Adjustment:	53-75mm
Dioptic Adjustment:	-5 to +5
Eyepiece Magnification:	10X Ultra Widefield
Eyepiece Field Number:	22mm
Optional Eyepieces:	15X (Field Diameter: 15mm) 20X (Field Diameter: 12mm) 25X (Field Diameter: 9mm)
Optional Supplementary Lenses:	0.5X, 0.75X, 1.0X, 1.5X, & 2.0X
Stereo Zoom Objectives:	0.7X to 4.5X
Working Distance:	88mm
Stage Plate:	Black/White Reversible
Stage Clips:	Stainless Steel, Spring-Loaded
Focusing Movement:	Dual Knobs; Rack & Pinion Assembly; Tension Control;
Vertical Travel:	135mm
Upper Illumination:	None
Lower Illumination:	None
Vertical Base Pole:	260mm Length; 160mm Travel
Base Dimensions:	240mm x 180mm
Overall Dimensions:	345mm (L) x 180mm (W) x 480mm (H)
Weight:	4.2kg
Supplied With:	Eyecup (2), Dust Cover, Operation Manual

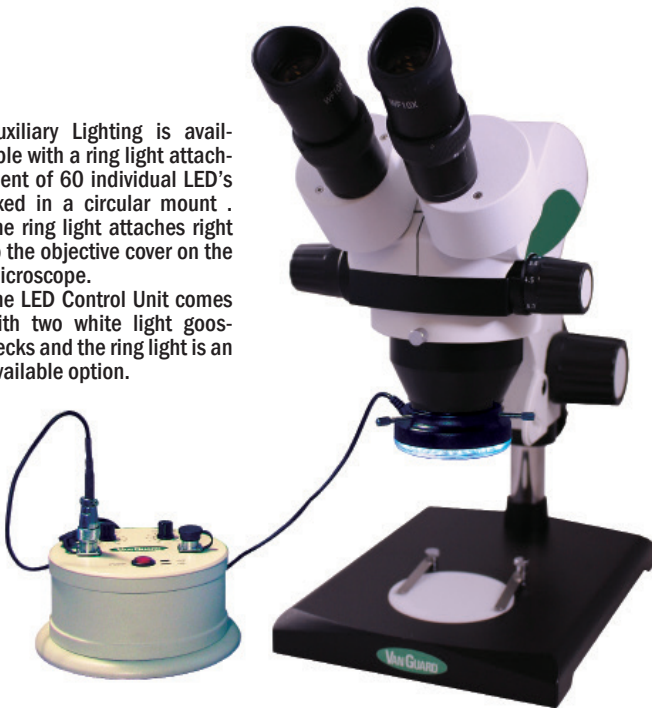


Magnification Configurations

Zoom Range = Eyepiece Magnification X (Objective Magnification X Supplementary Lens)
FOV = FN ÷ (Objective Magnification X Supplementary Lens)

Eyepieces	F.N.	Supplementary Lens	Zoom Range	Field of View (mm)	Working Distance (mm)
10X	22mm	0.5X	3.5X to 22.5X	62.8 to 9.7	137
		0.75X	5.3X to 33.8X	41.9 to 6.5	103
		None	5.3X to 33.8X	41.9 to 6.5	88
		1.0X	7.0X to 45.0X	31.4 to 4.8	75
		1.5X	10.5X to 67.5X	20.9 to 3.2	48
		2.0X	14.0X to 90.0X	15.7 to 2.4	29
15X	15mm	0.5X	5.3X to 33.8X	42.8 to 6.6	137
		0.75X	7.9X to 50.6X	28.5 to 4.4	103
		None	10.5X to 67.5X	21.4 to 3.3	88
		1.0X	10.5X to 67.5X	21.4 to 3.3	75
		1.5X	15.8X to 101.3X	14.2 to 2.2	48
		2.0X	21.0X to 135.0X	10.7 to 1.6	29
20X	12mm	0.5X	7.0X to 45.0X	34.2 to 5.3	137
		0.75X	10.5X to 67.5X	22.8 to 3.5	103
		None	14.0X to 90.0X	17.1 to 2.6	88
		1.0X	14.0X to 90.0X	17.1 to 2.6	75
		1.5X	21.0X to 135.0X	11.4 to 1.7	48
		2.0X	28.0X to 180.0X	8.5 to 1.3	29
25X	9mm	0.5X	8.8X to 56.3X	25.7 to 4.0	137
		0.75X	13.1X to 84.4X	17.1 to 2.6	103
		None	17.5X to 112.5X	12.8 to 2.0	88
		1.0X	17.5X to 112.5X	12.8 to 2.0	75
		1.5X	26.3X to 168.8X	8.5 to 1.3	48
		2.0X	35.0X to 225.0X	6.4 to 1.0	29

Auxiliary Lighting is available with a ring light attachment of 60 individual LED's fixed in a circular mount. The ring light attaches right to the objective cover on the microscope. The LED Control Unit comes with two white light goosnecks and the ring light is an available option.



Cat. No. 1200-LED1 (LED Control Unit with 2 White Light Goosnecks)
Cat. No. 1200-LEDRL1 (Ringlight Attachment)

1300ZP-Series

Model	Head	Zoom Range (Primary)	Stand	Upper/Lower Illumination
1375ZP	Binocular	0.7X to 4.5X	Pole	None
1376ZP	Trinocular	0.7X to 4.5X	Pole	None



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VAN GUARD

1300ZP SERIES



- Professional Level
- Zoom Magnification (6.5:1)
- Pole Stand Or Boom Stand Bases
- Precision Optics
- Mechanical Stage Option

VanGuard 1300ZP-Series Stereo Microscopes feature a zoom magnification range of 7X to 45X (w/ 10X eyepieces). The precision stereo optics produce high-resolution, three-dimensional images. Pole stand base available with optional eyepieces and supplementary lenses to customize any model for specific magnification requirements.



Mechanical Stage Option for:
Fine Control over X-Y movement.
(105mm WX 103mm D)
Installation Required
Cat No. M1305-0001

Specifications

Viewing Head:	Binocular or Trinocular
Head Rotation:	360°
Head Inclination:	45°
Interpupillary Adjustment:	53-75mm
Dioptic Adjustment:	-5 to +5
Eyepiece Magnification:	10X Ultra Widefield
Eyepiece Field Number:	22mm
Optional Eyepieces:	15X (Field Diameter: 15mm) 20X (Field Diameter: 12mm) 25X (Field Diameter: 9mm)
Optional Supplementary Lenses:	0.5X, 0.75X, 1.0X, 1.5X, & 2.0X
Stereo Zoom Objectives:	0.7X to 4.5X
Working Distance:	88mm
Stage Plate:	Black/White Reversible
Stage Clips:	Stainless Steel, Spring-Loaded
Focusing Movement:	Dual Knobs; Rack & Pinion Assembly; Tension Control;
Vertical Travel:	135mm
Upper Illumination:	None
Lower Illumination:	None
Vertical Base Pole:	260mm Length; 160mm Travel
Base Dimensions:	240mm x 180mm
Overall Dimensions:	345mm (L) x 180mm (W) x 480mm (H)
Weight:	4.2kg
Supplied With:	Eyecup (2), Dust Cover, Operation Manual

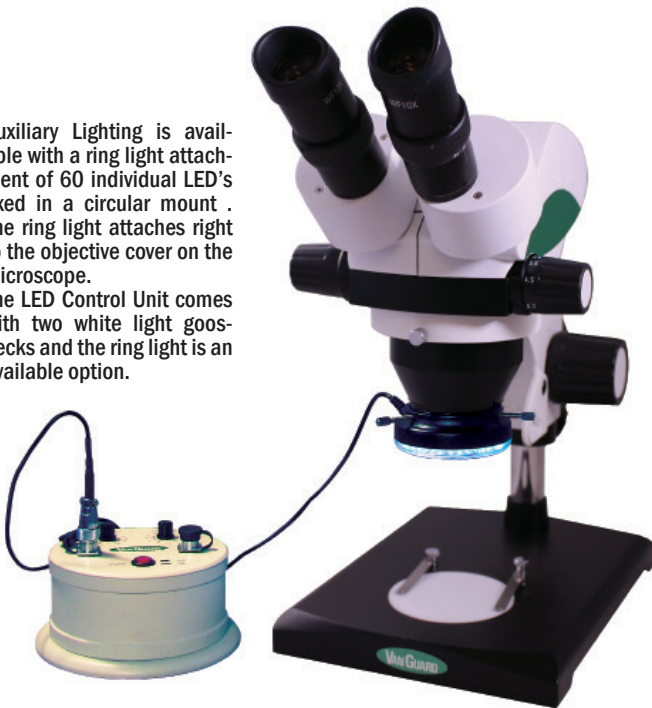


Magnification Configurations

Zoom Range = Eyepiece Magnification X (Objective Magnification X Supplementary Lens)
FOV = FN ÷ (Objective Magnification X Supplementary Lens)

Eyepieces	F.N.	Supplementary Lens	Zoom Range	Field of View (mm)	Working Distance (mm)
10X	22mm	0.5X	3.5X to 22.5X	62.8 to 9.7	137
		0.75X	5.3X to 33.8X	41.9 to 6.5	103
		None	5.3X to 33.8X	41.9 to 6.5	88
		1.0X	7.0X to 45.0X	31.4 to 4.8	75
		1.5X	10.5X to 67.5X	20.9 to 3.2	48
		2.0X	14.0X to 90.0X	15.7 to 2.4	29
15X	15mm	0.5X	5.3X to 33.8X	42.8 to 6.6	137
		0.75X	7.9X to 50.6X	28.5 to 4.4	103
		None	10.5X to 67.5X	21.4 to 3.3	88
		1.0X	10.5X to 67.5X	21.4 to 3.3	75
		1.5X	15.8X to 101.3X	14.2 to 2.2	48
		2.0X	21.0X to 135.0X	10.7 to 1.6	29
20X	12mm	0.5X	7.0X to 45.0X	34.2 to 5.3	137
		0.75X	10.5X to 67.5X	22.8 to 3.5	103
		None	14.0X to 90.0X	17.1 to 2.6	88
		1.0X	14.0X to 90.0X	17.1 to 2.6	75
		1.5X	21.0X to 135.0X	11.4 to 1.7	48
		2.0X	28.0X to 180.0X	8.5 to 1.3	29
25X	9mm	0.5X	8.8X to 56.3X	25.7 to 4.0	137
		0.75X	13.1X to 84.4X	17.1 to 2.6	103
		None	17.5X to 112.5X	12.8 to 2.0	88
		1.0X	17.5X to 112.5X	12.8 to 2.0	75
		1.5X	26.3X to 168.8X	8.5 to 1.3	48
		2.0X	35.0X to 225.0X	6.4 to 1.0	29

Auxiliary Lighting is available with a ring light attachment of 60 individual LED's fixed in a circular mount. The ring light attaches right to the objective cover on the microscope. The LED Control Unit comes with two white light goosnecks and the ring light is an available option.



Cat. No. 1200-LED1 (LED Control Unit with 2 White Light Goosnecks)
Cat. No. 1200-LEDRL1 (Ringlight Attachment)

1300ZP-Series

Model	Head	Zoom Range (Primary)	Stand	Upper/Lower Illumination
1375ZP	Binocular	0.7X to 4.5X	Pole	None
1376ZP	Trinocular	0.7X to 4.5X	Pole	None



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VAN GUARD

1400INi-Series Inverted Microscopes



Features

- VIOS Infinity-Corrected Optics
- 30W Variable Quartz Halogen Illumination
- Phase Contrast & Brightfield
- Optional Fluorescence Packages
- Advanced Ergonomics
- 400mm Eyepoint Height
- High-Eyepoint Eyepieces (FD 22mm) w/ Rubber Eyecups
- Multiple Stage Inserts For Plates, Dishes, Vials, & Slides

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VIOS
Infinity Optics



1400iNi Series Inverted Microscopes

Featuring vivid, infinity-corrected optics, the 1400iNi Series Inverted Microscopes provide life science professionals high performance for tissue culture applications. A wide selection of stage inserts come standard to support 96-well plates, HLA/Terasaki plates, 3x1" glass slides, and 65/54/35mm Petri dishes.

Built around an industry-leading, high-performance frame, the 1400iNi Series models eliminate the fatigue and strain associated with working long hours over a microscope. Low-position focusing controls and long drop-down X-Y controls ensure simple, consistent, and comfortable use.

Brightfield & Phase Contrast models feature infinity-corrected plan achromatic objectives. Fluorescence upgrade packages are available as options.

Various camera packages are available as options; including digital, video, and 35mm systems.

All models feature 10X High-Eyepoint WideField eyepieces, 30W variable quartz halogen illumination, and are backed by a 5-Year warranty.

Technical Specifications

	1491iNi	1493iNi
Optical System	VIOS Infinity-Corrected	
Type	Trinocular	Trinocular
Viewing Head	30°	
Tube Inclination	360°	
Rotatable	48-75mm	
Interpupillary	-6 to +6	
Dioptric	20/80 Split	
Camera Port	10X	
Magnification	Ultra WideField	
Type	22mm	
Field Diameter	Yes	
High-Eyepoint	Yes	
Rubber Eyecups	5	
Positions	Reverse	
Pitch	Brightfield	
Illumination Technique(s)	Brightfield / Phase Contrast	
Type	Plan Achromatic	
Objectives	4x (0.10), 10x (0.25), 20x (0.40), 40x (0.60)	
Magnification (N.A.)	Yes	
DIN Standard	Mechanical	
Type	Rectangular (w/ Circular Glass Insert)	
Shape	250x160mm	
Dimensions	Drop-Down, Right-Hand, Rack & Pinion	
X-Y Control	120x80mm	
Stage	2	
Cross Travel Range	Chemical Resistant	
Auxiliary Stages	96-Well Plates, HLA/Terasaki Plates, 3x1" Glass Slides, 65/54/35mm Petri Dishes	
Finish	Chemical Resistant	
Inserts	96-Well Plates, HLA/Terasaki Plates, 3x1" Glass Slides, 65/44/35mm Petri Dishes	
Type	Coaxial, Ultra Low-Position	
Controls	Coarse/ Fine	
Tension Adjustment	Yes	
Safety Auto-Stop	Yes	
Focusing	40mm	
Focusing Range	0.002mm	
Precision	0.30 N.A. w/ Iris Diaphragm	
Type	75mm	
Condenser	Rack & Pinion	
Working Distance	Rack & Pinion	
Focusing Control	10X/20X Stop, 40X Stop, Filter Stop	
Phase Slider Annuli	30W Variable Quartz Halogen	
Type	Front Insert / Phase Slider	
Filter Holder	Front Insert	
Base	320 x 240mm; Anti-Skid Rubber Feet	
Body	Ergonomic	
Type	Ergonomic	
Finish	Stain-Resistant Enamel	
Dimensions	515 (L) x 250 (W) x 475 (H) mm	
Weight	8.7kg	
Voltage	110V (220V Available On Request)	
Warranty	5-Year Optical/Mechanical; 1-Year Electrical	
Supplied With	Clear Diffusing Filter (Ø45mm), Blue Filter (Ø45mm), Green Filter (Ø45mm)*, Telescoping Eyepiece*, Spare Lamps & Fuses, Dust Cover, & Operation Manual	

*Model 1493iNi Only



VEE GEE Scientific LLC

620 Lakeview Parkway • Vernon Hills, IL 60061
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VAN GUARD

1442MMi Metallurgical / Industrial Microscope



Features

- VIOS Infinity-Corrected Optics
- 50W Variable Quartz Halogen Reflected Illumination
- 30W Variable Quartz Halogen Transmitted Illumination
- Brightfield & Polarizing Modes
- Integrated Köhler Illumination
- Advanced Ergonomics
- Large, Professional Stand
- High-Eyepoint Eyepieces (FD 22mm) w/ Rubber Eyecups
- 5-Year Limited Warranty





1400-Series Industrial Microscope

Featuring vivid, infinity-corrected optics, the 1400-Series Industrial Microscope is the flagship of the VanGuard line. Combining top performance with highly-advanced features, it stands up to the rigorous requirements of even the most demanding laboratory.

Built around an industry-leading, full-size frame, the 1442MMi model eliminates the fatigue and strain associated with working long hours over a microscope. Low-position focusing controls and long drop-down X-Y controls ensure simple, consistent, and comfortable use.

Various camera packages are available as options; including digital, video, and DSLR systems. The 1442MMi features: 10X High-Eyepoint Ultra-Widefield eyepieces, 30W variable quartz halogen transmitted illumination, 50W quartz halogen reflected illumination, field diaphragms for Köhler illumination and are backed by a 5-Year limited warranty.

Technical Specifications

		1442MMi
Optical System		VIOS Infinity-Corrected
Viewing Head	Type	Trinocular
	Tube Inclination	30°
	Rotability	360°
	Interpupillary	55-75mm
Camera Port	Dioptic	-5 to +5
		100/ 0 Split
Eyepieces	Magnification	10X
	Type	Ultra Wide Field
	Field Diameter	22mm
	High-Eyepoint	Yes
	Rubber Eyecups	Yes
Nosepiece	Position	5
	Pitch	Reverse
Objectives	Illumination Techniques	Brightfield / Polarizing
	Type	Plan Achromatic
	Magnification (N.A.)	5X (0.12), 10X (0.25), 20X (0.40), 40X (0.60)
Stage	Type	Mechanical
	Shape	Rectangular
	Dimensions	210 x 140 mm
	X-Y Control	Drop-Down, Right-Hand, Rack & Pinion
	Cross Travel Range	75 x 65mm
	Finish	Chemical Resistant
Focusing	Type	Coaxial, Low-Position
	Controls	Coarse / Fine
	Tension Adjustment	Yes
	Safety Auto-Stop	Yes
	Focusing Range	40mm
	Precision	0.002mm
Condenser	Type	Abbe 1.25 N.A. w/ Iris Diaphragm
	Focusing Control	Rack & Pinion
Transmitted Illumination	Type	30W Variable Quartz Halogen
	Iris	Köhler Field Diaphragm
	Filter Holder	On Collector
Reflected Illumination	Type	50W Variable Quartz Halogen
	Iris	Field & Aperture Diaphragms
	Filters	On Filter Wheel
Base		260 X 170mm; Anti-Skid Rubber Feet
Body / Finish		Stain-Resistant Enamel
Dimensions		470(L) x 250(W) x 520(H) mm
Weight		10kg
Warranty		5-Year Optical/Mechanical; 1-Year Electrical
Supplied With		Glass Stage Insert, Dispersion Filter, Blue Filter, Rubber Eyecups, Hex Wrenches (2ea.), Spare Lamps & Fuse, Dust Cover, Operation Manual



VEE GEE Scientific LLC

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No. VGBRC030620/1442MMi
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VAN GUARD

1442MMi Metallurgical / Industrial Microscope



Features

- VIOS Infinity-Corrected Optics
- 50W Variable Quartz Halogen Reflected Illumination
- 30W Variable Quartz Halogen Transmitted Illumination
- Brightfield & Polarizing Modes
- Integrated Köhler Illumination
- Advanced Ergonomics
- Large, Professional Stand
- High-Eyepoint Eyepieces (FD 22mm) w/ Rubber Eyecups
- 5-Year Limited Warranty





1400-Series Industrial Microscope

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Built around an industry-leading, full-size frame, the 1442MMi model eliminates the fatigue and strain associated with working long hours over a microscope. Low-position focusing controls and long drop-down X-Y controls ensure simple, consistent, and comfortable use.

Various camera packages are available as options; including digital, video, and DSLR systems. The 1442MMi features: 10X High-Eyepoint Ultra-Widefield eyepieces, 30W variable quartz halogen transmitted illumination, 50W quartz halogen reflected illumination, field diaphragms for Köhler illumination and are backed by a 5-Year limited warranty.

Technical Specifications

		1442MMi
Optical System		VIOS Infinity-Corrected
Viewing Head	Type	Trinocular
	Tube Inclination	30°
	Rotability	360°
	Interpupillary	55-75mm
Camera Port	Dioptic	-5 to +5
		100/ 0 Split
Eyepieces	Magnification	10X
	Type	Ultra Wide Field
	Field Diameter	22mm
	High-Eyepoint	Yes
	Rubber Eyecups	Yes
Nosepiece	Position	5
	Pitch	Reverse
Objectives	Illumination Techniques	Brightfield / Polarizing
	Type	Plan Achromatic
	Magnification (N.A.)	5X (0.12), 10X (0.25), 20X (0.40), 40X (0.60)
Stage	Type	Mechanical
	Shape	Rectangular
	Dimensions	210 x 140 mm
	X-Y Control	Drop-Down, Right-Hand, Rack & Pinion
	Cross Travel Range	75 x 65mm
	Finish	Chemical Resistant
Focusing	Type	Coaxial, Low-Position
	Controls	Coarse / Fine
	Tension Adjustment	Yes
	Safety Auto-Stop	Yes
	Focusing Range	40mm
	Precision	0.002mm
Condenser	Type	Abbe 1.25 N.A. w/ Iris Diaphragm
	Focusing Control	Rack & Pinion
Transmitted Illumination	Type	30W Variable Quartz Halogen
	Iris	Köhler Field Diaphragm
	Filter Holder	On Collector
Reflected Illumination	Type	50W Variable Quartz Halogen
	Iris	Field & Aperture Diaphragms
	Filters	On Filter Wheel
Base		260 X 170mm; Anti-Skid Rubber Feet
Body / Finish		Stain-Resistant Enamel
Dimensions		470(L) x 250(W) x 520(H) mm
Weight		10kg
Warranty		5-Year Optical/Mechanical; 1-Year Electrical
Supplied With		Glass Stage Insert, Dispersion Filter, Blue Filter, Rubber Eyecups, Hex Wrenches (2ea.), Spare Lamps & Fuse, Dust Cover, Operation Manual




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VEE GEE®

Crucibles

VEE GEE®, made by  Porcelain High Form Crucibles are manufactured with the highest standards. Crucibles are glazed inside and out except for outside bottom surface and rim. Crucible Covers with ring handle are glazed inside and out except for rim.



Specifications

Crucibles w/out

Cat. No.	Capacity (mL)	Dimensions Top O.D. x Height	Pack Qty
52120-0301	10	30 x 25 mm	5
52120-0351	12	35 x 28 mm	5
52120-0451	30	45 x 36 mm	5
52120-0501	45	50 x 40 mm	5
52120-0601	80	60 x 48mm	5
52120-0701	120	70 x 56 mm	5



Covers Only

Cat. No.	Fits Diameter	Pack Qty
52100-0301	30 mm	5
52100-0351	35 mm	5
52100-0451	45 mm	5
52100-0501	50 mm	5
52100-0601	60 mm	5
52100-0701	70 mm	5



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Funnels

Buchner, Porcelaine, w/ Fixed Perforated Plate



VEE GEE®, made by  53223-Series, Buchner Funnels are manufactured with the highest standards and are glazed inside and out with the exception of the rim.

Specifications

Cat. No.	Capacity (mL)	Plate Diameter (mm)	Filter Paper Diameter (mm)	Approx. Height (mm)	Pack Qty
53223-7201	70	62	55	118	1 (Each)
53223-7301	120	77	70	137	1 (Each)
53223-7401	240	97	90	166	1 (Each)
53223-7501	400	116	110	192	1 (Each)
53223-7601	600	130	125	198	1 (Each)




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Evaporating Dishes

VEE GEE®, made by , Porcelain Evaporating Dishes 52220-Series, are manufactured with the highest standards and are glazed inside and on the outside lip. Used for heating liquids and the evaporation of solutions.



Specifications

Cat No.	Capacity (mL)	Dimensions Top O.D. x Height	Pack Qty
52220-6121	30	63 x 25	5
52220-6201	60	80 x 32	5
52220-6221	107	81 x 38	5
52220-6321	150	100 x 40	5
52220-6401	232	112 x 47	5




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Mortar & Pestles

VEE GEE®, made by , Porcelain Mortar & Pestles 53121-Series, are manufactured with the highest standards. Mortars are glazed outside and on inside lip. No glaze on bottom or inside grinding surface. Pestle handle glazed to grinding surface. Used for mixing, crushing and grinding.



Specifications

Cat. No.	Mortar/ Pestle	Capacity (mL)	Mortar O.D. (mm)	Pestle Length (mm)	Pack Qty.
53121-1110	Mortar	70	63	NA	1 (Each)
53121-3100	Pestle	NA	NA	115	1 (Each)
53121-1220	Mortar	160	90	NA	1 (Each)
53121-3200	Pestle	NA	NA	135	1 (Each)
53121-1320	Mortar	400	125	NA	1 (Each)
53121-3400	Pestle	NA	NA	175	1 (Each)
53121-1500	Mortar	650	150	NA	1 (Each)
53121-3500	Pestle	NA	NA	210	1 (Each)



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No.VGBRC121219/53121
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Refractometers



Handheld Refractometers

Digital Refractometers

Benchtop Refractometer

REFRACTOMETERS

VEE GEE's benchtop and handheld refractometers provide users with highly accurate readings for a wide range of applications in the agricultural, food & beverage, chemical and manufacturing industries.

We offer a large breadth of scales for specific applications such as Brix, NaCl, Salinity, Specific Gravity of Seawater, Coolant, Battery Acid, and more.

X-Series Handheld Refractometers

Compact & Portable

The X-Series handheld refractometers are exceptionally simple to operate and provide quick, accurate measurements for the concentration of nearly any aqueous solution in a wide range of applications.

Made durable with industrial-grade design features to provide years of reliable use even in the field. Rugged metal housing construction with slip-resistant rubber grip and a Non-Roll stand to protect from rolling off surfaces.

No need to recalibrate or apply correction factors in work environments with large temperature swings with the Automatic Temperature Compensation (ATC) feature included on Models BTX-1, BTX-20, STX-3, CTX-1 & CTX-2. The effective compensation range is 50-86° F / 10-30° C.

Our portable line of optical and digital refractometers offers the convenience to perform sample analysis where and when you need. With added temperature control, our Abbe benchtop unit takes the accuracy of your Brix/Refractive Index analysis to the next level in the laboratory.

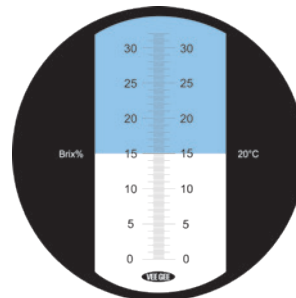


Protective Grip

The rubber grip reduces hand slipping and guards against user's hand heat to maintain accuracy

Tool-Free Calibration

Tools not required with our patented "Zero-Ring" calibration (non ATC units only)



Accurate & Sharp Readings

Large scale is best in class delivering clear, sharp figures, screen shading and incredible contrast for overall accuracy

X-Series Specifications

Sample Type	Transparent and Translucent
Sample Quantity	>0.1 mL
Prism	Optical Glass
Prism Housing	Copper Alloy w/Nickel-Chrome Coating
Included	Carrying Case, Plastic Transfer Pipet, Instruction Manual * ATC models include calibration screwdriver.
Warranty	1-Year

Quick Results

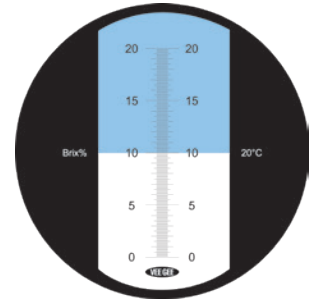
High quality optical glass prism and all-metal housing design allows the sample and prism to reach temperature equilibrium quickly

X-Series Handheld Refractometers

For Food, Beverage, and Agriculture Applications

Brix Handheld Refractometers

Item No.	Model No.	Scale	Range	Resolution	Accuracy	ATC	Approx Length (in/mm)
43001	BX-1	Brix	0 to 32%	0.2%	±0.2% Brix	No	6.5 / 165
43002	BTX-1	Brix	0 to 32%	0.2%	±0.2% Brix	Yes	6.5 / 165
43003	BX-2	Brix	28 to 62%	0.2%	±0.2% Brix	No	5.9 / 150
43004	SGX-1	Brix/Specific Gravity Beer Wort	0 to 32% 1.000 to 1.130	0.2% / 0.001	±0.2% / ±0.001	Yes	6.5 / 165
43005	BX-3	Brix	60 to 92%	0.2%	±0.2% Brix	No	5.5 / 140
43006	HXM-1	Brix, Honey Moisture	Brix, 58.0 to 92% Water, 13 to 27% Baume, 38 to 43°	0.5% 1.0% 0.5°	±0.5% Brix ±1.0% Water ±0.5° Baume	Yes	5.8 / 148
43007	BX-4	Brix	45 to 82%	0.2%	±0.2% Brix	No	5.5 / 140
43009	BX-10	Brix	0 to 10%	0.1%	±0.1% Brix	No	7.3 / 185
43011	BX-20	Brix	0 to 20%	0.1%	±0.1% Brix	No	7.3 / 185
43012	BTX-20	Brix	0 to 20%	0.1%	±0.1% Brix	Yes	7.3 / 185
43015	BX-50	Brix	0 to 50%	0.5%	±0.5% Brix	No	5.7 / 145



43012/Model BTX-20

For specific scale images, visit product on our website.



New! Brix Field Kits

Everything you need for in field testing at the Vineyard or Honey Bee Farm

Includes durable Carrying Case with Refractometer, Microfiber Cloth, Bottle for Distilled Water, Sample Cup, Sample Pipette, Calibration Screwdriver and Manual

Item No.	Model No.	Scale	Range	Resolution	Accuracy	ATC	Approx. Length (in/mm)	L x W x H of Kit (in/cm)
43002-KIT	BTX-1	Brix	0 to 32%	0.2%	±0.2% Brix	Yes	6.5 / 165	10.5 x 7 x 3 /
43006-KIT	HXM-1	Brix, Honey Moisture	Brix, 58.0 to 92% Water, 13 to 27% Baume, 38 to 43°	0.5% 1.0% 0.5°	±0.5% Brix ±1.0% Water ±0.5° Baume	Yes	5.8 / 148	26.7 x 17.8 x 7.6

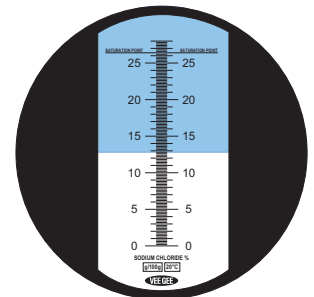


Water Testing Refractometers

For Water/Wastewater, Aquatic and Aquaculture Applications

Sodium Chloride And Salinity Handheld Refractometers

Item No.	Model No.	Scale	Range	Resolution	Accuracy	ATC	Approx. Length (in/mm)
43033	SX-1	NaCl	0 to 10%	0.1%	±0.1%	No	7.3 / 185
43035	SX-2	NaCl	0 to 28%	0.2%	±0.2%	No	6.5 / 165
43036	STX-3	Salinity Specific Gravity of Seawater	0 to 100 ppt 1.000 to 1.070	1.0 ppt 0.001	±1.0 ppt ±0.001	Yes	7.3 / 185



43035/Model SX-2

For specific scale images, visit product on our website.



New! Water Testing Field Kit

Testing when and where you need to with this convenient kit

Includes durable Carrying Case with Refractometer, Microfiber Cloth, Bottle for Distilled Water, Sample Cup, Sample Pipette, Calibration Screwdriver and Manual

Item No.	Model No.	Scale	Range	Resolution	Accuracy	ATC	Approx. Length (in/mm)	L x W x H of Kit (in/cm)
43036-KIT	STX-3	Salinity Specific Gravity of Seawater	0 to 100 ppt 1.000 to 1.070	1.0 ppt 0.001	±1.0 ppt ±0.001	Yes	7.3 / 185	10.5 x 7 x 3 / 26.7 x 17.8 x 7.6

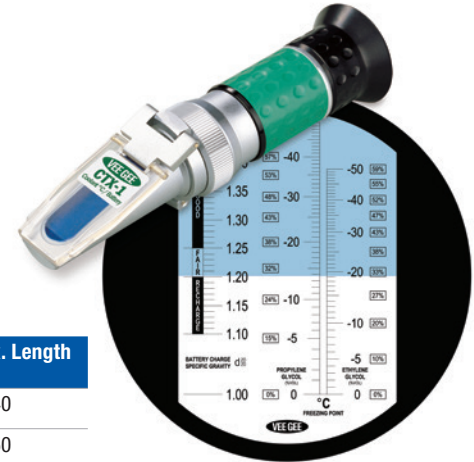


X-Series Handheld Refractometers

For Light Industrial, Chemical, and Automotive Applications

General Purpose and Industrial Chemical Handheld Refractometers

Item No.	Model No.	Scale	Range	Resolution	Accuracy	ATC	Approx. Length (in/mm)
43055	NDX-2	Refractive Index	1.435 to 1.520	0.001	±0.001	No	5.5 / 140
43062	CTX-1	Propylene Glycol Freezing Point	-58 to 32°F / -50 to 0°C	33.80°F 1°C	±1°C	Yes	5.9 / 150
		Ethylene Glycol Freezing Point	-50 to 0°C	1°C	±1°C		
		Battery Acid Specific Gravity	1.10 to 1.40	0.01	±0.01		
43064	CTX-2	Propylene Glycol Freezing Point	-50 to 32°F / -45.56 to 0°C -60 to 32°F / -51.11 to 0°C	2°F -16.67°C	±2°F	Yes	5.9 / 150
		Ethylene Glycol Freezing Point	-60 to 32°F	2°F	±2°F		
		Battery Acid Specific Gravity	1.10 to 1.40	0.01	±0.01		
43071	URX-60	Urea	0 to 60%	0.5%	±0.5%	No	5.7 / 145



43062/Model CTX-1
For specific scale images, visit product on our website.

Accessories

Item No.	Description	Model
43000-DLXXX	Daylight Plate Kit	X-Series Handheld Refractometers Kit includes: Ring, Hinge, Plate, and Screw. Assembled
43RP-008	Soft Fabric Carrying Case	X-Series Handheld Refractometers
1111	Soft Vinyl Carrying Case	BX-1, BTX-1, BX-2, BX-3, BX-4, BX-50, SX-2, NDX-2, CTX-1, CTX-2
1111L	Soft Vinyl Carrying Case	BX-10, BX-20, BTX-20, SX-1, STX-3



43000-DLXXX
Daylight Plate Kit

Transfer Pipets

One-piece, unbreakable polyethylene plastic pipettes

Transfer and deliver small volumes of liquid quickly and safely

- Bulk packed versions come in handy dispenser box
- Sterile versions available single wrapped or 20 wrapped at a time
- Lot-to-lot traceability on sterile versions

STERILE R

Transfer Pipets

Item No.	Vol. (mL)	Working Vol. (mL)	Approx. Length (in/mm)	Graduations (mL)	Packaging 500 per box	Sterile
20327-1	5	1	5.9 / 150	0.25	Bulk	
a 20327-1SB	5	1	5.9 / 150	0.25	20/bag	✓
20327-1S	5	1	5.9 / 150	0.25	1/single wrap	✓
20327-2	5	2	6.1 / 155	0.5	Bulk	
b 20327-2SB	5	2	6.1 / 155	0.5	20/bag	✓
20327-2S	5	2	6.1 / 155	0.5	1/single wrap	✓
20327-3	7	3	6.1 / 155	0.5	Bulk	
c 20327-3SB	7	3	6.1 / 155	0.5	20/bag	✓
20327-3S	7	3	6.1 / 155	0.5	1/single wrap	✓



MDX-Series Digital Refractometers

Compact, Durable and Accurate

The MDX-Series Digital Refractometers feature IP65/67 ratings, making them ideal for use in the field and in a multitude of environments.

Delivering quick digital accuracy with high-end performance features like:

- Automatic Temperature Compensation (ATC)
- Continuous Loop Average Readings



Intuitive to Use

Easy operation with large readable digital LCD display that shows all data needed on screen



Quick Results

Simply place 4-5 drops of your sample into the well, close the prism cover, and press the "READ" button



Easy to Clean

Prism cover and rubber grip add extra protection and are removable for easy cleaning

Mdx-Series Specifications

ATC Range	32 to 104°F / 0 to 40°C
IP Rating	IP67: detecting unit IP65: body
Prism	Optical Glass
Wavelength	589.3 nm LED
Sample Cell	Stainless Steel
Calibration Solution	Distilled Water (not included)
Min. Sample Volume	0.3 mL
Battery	1 X AAA, 1.5V
Dimensions (L x W x H in/mm)	4.8 x 2.3 x 1 / 121 x 58 x 25
Weight (lb/kg)	0.198 lb / 0.089 kg
Included	Hard shell case with protective lining, disposable pipette, (1) AAA Battery, and user manual
Warranty	1-Year Parts and Labor

MDX-Series Digital Refractometers

For Food, Beverage, and Agriculture Applications

Digital Brix/Sugar Refractometer

Item No.	Model No.	Scale	Range	Resolution	Accuracy
48101	MDX-101	Brix	0.0 to 50.0% Brix	0.1% Brix	±0.2% Brix
		Refractive Index	1.3330 to 1.4200 nD	0.0001 nD	±0.0003 nD
48102	MDX-102	Brix	0.0 to 90.0% Brix	0.1% Brix	±0.2% Brix
		Refractive Index	1.3330 to 1.5300 nD	0.0001 nD	±0.0003 nD
48103	MDX-103	Dextran	0.0 to 10.5%	0.1%	±0.2%
		Fructose	0.0 to 68.0%	0.1%	±0.2%
		Glucose	0.0 to 59.0%	0.1%	±0.2%
		Lactose	0.0 to 16.5%	0.1%	±0.2%
		Maltose	0.0 to 15.5%	0.1%	±0.2%
		Sucrose (Brix)	0.0 to 90.0%	0.1%	±0.2%

Digital Honey Refractometer

Item No.	Model No.	Scale	Range	Resolution	Accuracy
48301	MDX-301	Brix	0.0 to 90.0% Brix	0.1% Brix	±0.2% Brix
		Moisture	5.0 to 38.0%	0.1%	±0.2%
		Baume	33.0 to 48.0°	0.1°	±0.2°
		Refractive Index	1.3330 to 1.5300 nD	0.0001 nD	±0.0003 nD

Digital Wine Refractometer

Item No.	Model No.	Scale	Range	Resolution	Accuracy
48401	MDX-401	Brix	0.0 to 50.0% Brix	0.1% Brix	±0.2% Brix
		PA (% v/v)	0.0 to 22.0%	0.1%	±0.2%
		Oechsle (Oe)	0 to 150°	1°	±2°
		KMW (Babo)	0.0 to 25.0°	0.1°	±0.2°

For Water/Wastewater, Aquatic and Aquaculture Applications

Digital Sodium Chloride Refractometer

Item No.	Model No.	Scale	Range	Resolution	Accuracy
48201	MDX-201	NaCl (%)	0.0 to 28.0%	0.1%	±0.2%
		NaCl (ppt)	0 to 280 ppt	1 ppt	±2 ppt
		Specific Gravity	1.000 to 1.217	0.001	±0.002
		Refractive Index	1.3330 to 1.4200 nD	0.0001 nD	±0.0003 nD

Digital Seawater Refractometer

Item No.	Model No.	Scale	Range	Resolution	Accuracy
48202	MDX-202	Salinity	0 to 100 ppt	1 ppt	±2 ppt
		Chlorinity	0 to 57 ppt	1 ppt	±2 ppt
		Specific Gravity	1.000 to 1.075	0.001	±0.002
		Refractive Index	1.3330 to 1.4200 nD	0.0001 nD	±0.0003 nD

For Light Industrial, Chemical, and Automotive Applications

Digital DEF (UREA)/Battery Acid Refractometer

Item No.	Model No.	Scale	Range	Resolution	Accuracy
48602	MDX-602	DEF (Urea)	0.0 to 51.0%	0.1%	±0.2%
		Refractive Index	1.3330 to 1.4200 nD	0.0001 nD	±0.0003 nD
		Battery Acid Specific Gravity	1.000 to 1.500	0.001	±0.005

Digital Coolant Refractometer

Item No.	Model No.	Scale	Range	Resolution	Accuracy
48603	MDX-603	Ethylene Glycol (% v/v)	0.0 to 65.0%	0.1%	±0.5%
		Ethylene Glycol Freezing Point	-80.0 to 32.0°F / -50.0 to 0.0°C	0.1°F / 0.1°C	±1.0°F / ±0.5°C
		Propylene Glycol (% v/v)	0.0 to 73.0%	0.1%	±0.5%
		Propylene Glycol Freezing Point	-100.0 to 32.0°F / -50.0 to 0.0°C	0.1°F / 0.1°C	±1.0°F / ±0.5°C

C10 Abbe Refractometer

High Precision Benchtop Unit

The C10 Abbe Refractometer is a high precision benchtop instrument measuring the Refractive Index (nD) of liquids, glass, plastic and film.

With an oversized, easy to read scale and Prism Temperature Control feature, the C10 delivers Brix and Refractive Index Scales and dispersion measurements with high precision.

Made of easy to clean, durable metal housing, the C10 is a long-lasting tool perfect for Education, Food, Beverage and Industrial Laboratories.



C10

C10 Abbe Refractometer Specifications

Dispersion (nF-nC)	Dial Readings w/Conversion Charts
Ambient Temperature	41 to 95°F / 5 to 35°C 32 to 158°F / 0 to 70°C
Measuring Temperature	0 to 70°C
Optical Wavelength	589 nm
Prism	Optical Glass
Prism Housing	SUS316 Stainless Steel
Circulator Nozzles	2 for Primary Prism, 2 for Secondary Prism; accepts 3/8" ID tubing
Dimensions (L x W x H in/mm)	5.5 x 3.5 x 9.4 / 140 x 90 x 240
Weight	9.9 lb / 4.5 kg
Supplied With	2 x LR44, 1.5V Batteries Glass Standard (1.5163 nD) Bromonaphthalene Contact Liquid (4 mL bottle) Scale Adjustment Tool
Warranty	1-Year Parts and Labor

C10 Abbe Refractometer

Item No.	Scale	Range	Resolution	Accuracy
C10	Brix	0.0 to 95.0%	0.25% Brix	±0.15% Brix
	Refractive Index	1.3000 to 1.7200 nD	0.0005 nD	±0.00025 nD

Refractometer Standards, Letter of NIST Traceability Certification

Refractometer Standards

Item No.	Type	Brix Value (68°F / 20°C)	R.I. Value (68°F / 20°C)	Bottle Volume
45000-OS025	Oil	60.00%	1.4420 nD	7.4 mL / 0.25 oz
45000-OS200	Water	0.00%	1.33297 nD	7.4 mL / 0.25 oz
45000-OS001	Contact Solution	0.00%	1.65 nD	7.4 mL / 0.25 oz



Gooch Crucibles

High Form, w/ Fritted Disc

SIBATA 1305-Series Gooch Crucibles, with fritted disc filters, meet ISO 4793 Specifications.

Suitable for analytical work where precipitates are dried to a constant weight at 110°C. Also suitable for higher temperatures, in which case it is advisable to heat in an electric furnace.

Crucibles should not be subjected to sudden temperature changes. In order to avoid strain, they should not be removed from the furnace until the temperature has dropped to 250°C.



Specifications

Cat. No.	Capacity (mL)	Type	Porosity	Pore Size (µm)	Disc Diameter (mm)	Approx. O.D. x Height (mm)	Pack Qty.
1305-1250A	30	1G	EC	160 - 250	34	38 x 60	3
1305-1100A	30	1G	C	40 - 100	34	38 x 60	3
1305-140A	30	1G	PC	16 - 40	34	38 x 60	3
1305-116A	30	1G	M	10 - 16	34	38 x 60	3
1305-15A	30	1G	F	4 - 5.5	34	38 x 60	3
1305-2250A	50	2G	EC	160 - 250	41	46 x 60	3
1305-2160A	50	2G	SEC	100 - 160	41	46 x 60	3
1305-2100A	50	2G	C	40 - 100	41	46 x 60	3
1305-240A	50	2G	PC	16 - 40	41	46 x 60	3
1305-216A	50	2G	M	10 - 16	41	46 x 60	3
1305-25A	50	2G	F	4 - 5.5	41	46 x 60	3

EXTRA COARSE [160 - 250µm] (liquid and gas dispersion, coarse filtration); SEMI EXTRA COARSE [100 - 160µm] (liquid and gas dispersion, semi-coarse filtration); COARSE [40 - 100µm] (preparative fine filtration and work with crystalline products, mercury filtration); PARTLY COARSE [16 - 40µm] (analytical work with medium-fine precipitates, fine gas filtration); MEDIUM [10 - 16µm] (analytical fine filtration preparative work with the finest precipitates); FINE [4 - 5.5µm] (filtration of fine precipitates, mercury valve, extraction apparatus)