

**Lightpath**  
*Optical (UK) Ltd.*

Representación en España:

SYMTA, S.A.L.

Tel: +(34) 91 500 2060 Fax: +(34) 91 500 0045

correo-e: info@symta.com

Web: www.symta.com

---

## **Folder Contents**

### **Brochures :-**

- A1 - A4** UV-VIS-NIR Sample Cells / Cuvettes  
(Liquid Analysis)
- B1 - B2** Infrared Crystals , Discs, Rectangles,  
ATR Plates.
- C1 - C2** IR Liquid Cells and Holders
- D1 - D2** IR Liquid / Paste Cells / Holders  
and Accessories.
- E1 - E2** Hydraulic Presses and Die Sets
- E3** IR Solids Accessories
- E4** Gas Cells and Accessories.
- F1 - F2** IR Polishing / Starter Die Kits.  
Chart Paper / Pens
- G1 - G2** Replacement Light Sources / Lamps.
- H1 - H2** Scientific Instruments / Servicing.
- J1 - J2** Reflectance Accessories.



**Standard Rectangular Type 1**

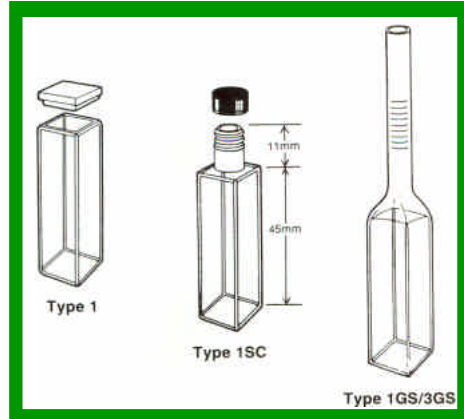
Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
1	1	12.5	45	0.4	1-G-1	1-I-1	1-Q-1
1	2	12.5	45	0.7	1-G-2	1-I-2	1-Q-2
1	5	12.5	45	1.7	1-G-5	1-I-5	1-Q-5
1	10	12.5	45	3.5	1-G-10	1-I-10	1-Q-10
1	20	12.5	45	7.0	1-G-20	1-I-20	1-Q-20
1	30	12.5	45	10.5	1-G-30	1-I-30	1-Q-30
1	40	12.5	45	14.0	1-G-40	1-I-40	1-Q-40
1	50	12.5	45	17.5	1-G-50	1-I-50	1-Q-50

**Rectangular with Screw Cap Type 1SC**

Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
1SC	10	12.5	56	3.5	N/A	1SC-I-10	1SC-Q-10

**Rectangular with Graded Seal Type 1GS (Tube ID 8mm, OD 10mm, Tube length 70mm)**

Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
1GS	10	12.5	45	3.5	N/A	1GS-I-10	1GS-Q-10
3GS	10	12.5	45	3.5	N/A	N/A	3GS-Q-10



**Fluorimeter Rectangular Cells Type 3**

Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
3	5	12.5	45	1.7	3-G-5	3-I-5	3-Q-5
3	10	12.5	45	3.5	3-G-10	3-I-10	3-Q-10
3	20	12.5	45	7.0	3-G-20	3-I-20	3-Q-20
3	40	12.5	45	10.5	3-G-40	3-I-40	3-Q-40
3	50	12.5	45	14.0	3-G-50	3-I-50	3-Q-50

**Semi-Micro Rectangular Cells Type 9**

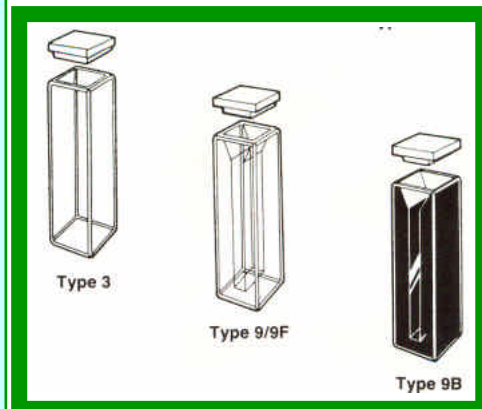
Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
9	5	12.5	45	0.7	9-G-5	9-I-5	9-Q-5
9	10	12.5	45	1.4	9-G-10	9-I-10	9-Q-10
9	20	12.5	45	2.8	9-G-20	9-I-20	9-Q-20
9	30	12.5	45	4.2	9-G-30	9-I-30	9-Q-30
9	40	12.5	45	5.6	9-G-40	9-I-40	9-Q-40
9	50	12.5	45	7.0	9-G-50	9-I-50	9-Q-50

**Semi-Micro Self Masking Cells Type 9B**

Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
9B	5	12.5	45	0.7	9B-G-5	9B-I-5	9B-Q-5
9B	10	12.5	45	1.4	9B-G-10	9B-I-10	9B-Q-10
9B	20	12.5	45	2.8	9B-G-20	9B-I-20	9B-Q-20
9B	40	12.5	45	4.2	9B-G-40	9B-I-40	9B-Q-40

**Semi-Micro Fluorimeter Cell Type 9F**

Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
9F	10	12.5	45	1.4	9F-G-10	N/A	9F-Q-10



**Micro Short Rectangular Cells Type 17**

Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
17	5	12.5	25	0.2	17-G-5	17-I-5	17-Q-5
17	10	12.5	25	0.4	17-G-10	17-I-10	17-Q-10
17	20	12.5	25	0.6	17-G-20	17-I-20	17-Q-20
17	30	12.5	25	0.8	17-G-30	17-I-30	17-Q-30
17	40	12.5	25	1.0	17-G-40	17-I-40	17-Q-40
17	50	12.5	25	1.2	17-G-50	17-I-50	17-Q-50

**Micro Short Self Masking Cells Type 17B**

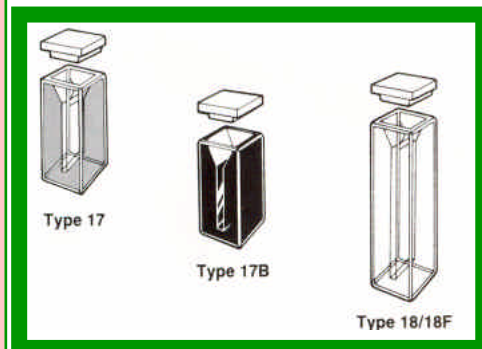
Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
17B	5	12.5	25	0.2	17B-G-5	17B-I-5	17B-Q-5
17B	10	12.5	25	0.4	17B-G-10	17B-I-10	17B-Q-10
17B	20	12.5	25	0.6	17B-G-20	17B-I-20	17B-Q-20
17B	30	12.5	25	0.8	17B-G-30	17B-I-30	17B-Q-30
17B	40	12.5	25	1.0	17B-G-40	17B-I-40	17B-Q-40
17B	50	12.5	25	1.2	17B-G-50	17B-I-50	17B-Q-50

**Micro with lid Cells Type 18**

Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
18	5	12.5	45	0.35	18-G-5	18-I-5	18-Q-5
18	10	12.5	45	0.7	18-G-10	18-I-10	18-Q-10
18	20	12.5	45	1.4	18-G-20	18-I-20	18-Q-20
18	30	12.5	45	2.1	18-G-30	18-I-30	18-Q-30
18	40	12.5	45	2.8	18-G-40	18-I-40	18-Q-40
18	50	12.5	45	3.5	18-G-50	18-I-50	18-Q-50

**Micro Fluorimeter Cell Type 18F**

18F	10	12.5	45	0.7	18F-G-10	N/A	18F-Q-10
-----	----	------	----	-----	----------	-----	----------





**Self Masking Micro Cells Type 18B**

Cell Type	Path length (mm)	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
18B	5	12.5	45	0.35	18B-G-5	18B-I-5	18B-Q-5
18B	10	12.5	45	0.7	18B-G-10	18B-I-10	18B-Q-10
18B	20	12.5	45	1.4	18B-G-20	18B-I-20	18B-Q-20
18B	30	12.5	45	2.1	18B-G-30	18B-I-30	18B-Q-30
18B	40	12.5	45	2.8	18B-G-40	18B-I-40	18B-Q-40

**Demountable Cells Type 20C**

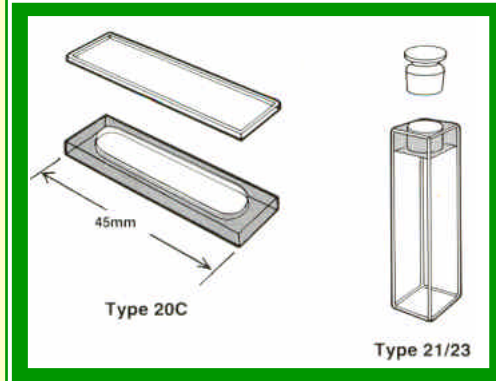
Cell Type	Path length (mm)	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code U UV-VIS-NIR	Code UV-VIS
20C	0.01	12.5	45	0.008	20C-G-0.01	20C-I-0.01	20C-Q-0.01
20C	0.1	12.5	45	0.03	20C-G-0.1	20C-I-0.1	20C-Q-0.1
20C	0.5	12.5	45	0.15	20C-G-0.5	20C-I-0.5	20C-Q-0.5
20C	1.0	12.5	45	0.3	20C-G-1.0	20C-I-1.0	20C-Q-1.0

**Standard Rectangular with Stopper Type 21**

Cell Type	Path length (mm)	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
21	1	12.5	45	0.4	21-G-1	21-I-1	21-Q-1
21	2	12.5	45	0.7	21-G-2	21-I-2	21-Q-2
21	5	12.5	45	1.7	21-G-5	21-I-5	21-Q-5
21	10	12.5	45	3.5	21-G-10	21-I-10	21-Q-10
21	20	12.5	45	7.0	21-G-20	21-I-20	21-Q-20
21	30	12.5	45	10.5	21-G-30	21-I-30	21-Q-30
21	40	12.5	45	14.0	21-G-40	21-I-40	21-Q-40
21	50	12.5	45	17.0	21-G-50	21-I-50	21-Q-50

**Fluorimeter Rectangular with Stopper Cells Type 23**

Cell Type	Path length (mm)	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
23	5	12.5	45	1.7	23-G-5	23-I-5	23-Q-5
23	10	12.5	45	3.5	23-G-10	23-I-10	23-Q-10
23	20	12.5	45	7.0	23-G-20	23-I-20	23-Q-20
23	40	12.5	45	10.5	23-G-40	23-I-40	23-Q-40
23	50	12.5	45	14.0	23-G-50	23-I-50	23-Q-50



**Anaerobic Fluorimeter Cells Type 28F**

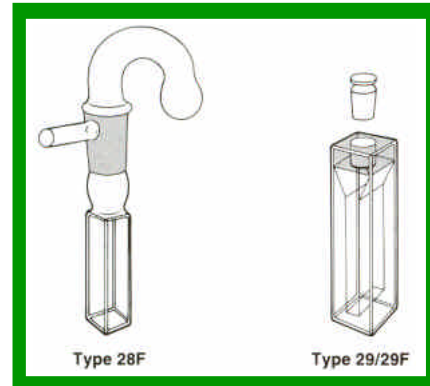
Cell Type	Path length (mm)	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
28F	10	12.5	45	3.5	28F-G-10	N/A	28F-Q-10

**Semi Micro with Stopper Cells Type 29**

Cell Type	Path length (mm)	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
29	5	12.5	45	0.7	29-G-5	29-I-5	29-Q-5
29	10	12.5	45	1.4	29-G-10	29-I-10	29-Q-10
29	20	12.5	45	2.8	29-G-20	29-I-20	29-Q-20
29	30	12.5	45	4.2	29-G-30	29-I-30	29-Q-30
29	40	12.5	45	5.6	29-G-40	29-I-40	29-Q-40
29	50	12.5	45	7.0	29-G-50	29-I-50	29-Q-50

**Semi Micro Fluorimeter with Stopper Cells Type 29F**

Cell Type	Path length (mm)	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
29F	10	12.5	45	1.4	29F-G-10	N/A	29F-Q-10



**Semi Micro with Stopper Self Masking Cells Type 28B**

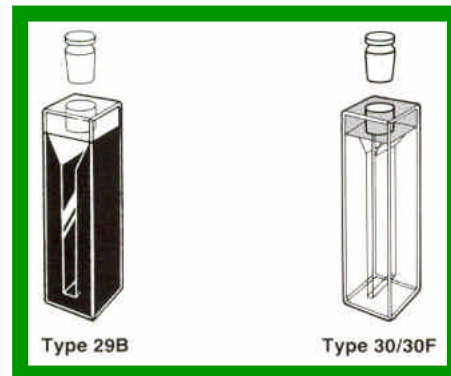
Cell Type	Path length (mm)	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
28B	5	12.5	45	0.7	28B-G-5	28B-I-5	28B-Q-5
28B	10	12.5	45	1.4	28B-G-10	28B-I-10	28B-Q-10
28B	20	12.5	45	2.8	28B-G-20	28B-I-20	28B-Q-20
28B	40	12.5	45	5.6	28B-G-40	28B-I-40	28B-Q-40

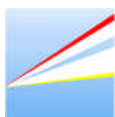
**Micro with Stopper Cells Type 30**

Cell Type	Path length (mm)	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
30	5	12.5	45	0.35	30-G-5	30-I-5	30-Q-5
30	10	12.5	45	0.7	30-G-10	30-I-10	30-Q-10
30	20	12.5	45	1.4	30-G-20	30-I-20	30-Q-20
30	30	12.5	45	2.1	30-G-30	30-I-30	30-Q-30
30	40	12.5	45	2.8	30-G-40	30-I-40	30-Q-40
30	50	12.5	45	3.5	30-G-50	30-I-50	30-Q-50

**Micro Fluorimeter Cell with Stopper Type 30F**

Cell Type	Path length (mm)	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
30F	10	12.5	45	0.7	30F-G-10		30F-Q-10



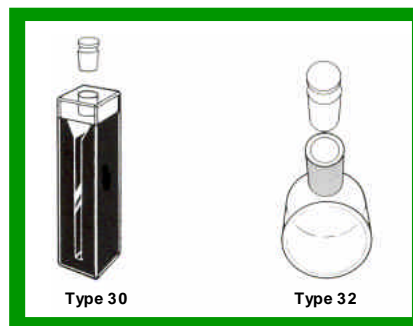


**Micro with Stopper Cells Type 30B**

Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
30B	5	12.5	45	0.35	30B-G-5	30B-I-5	30B-Q-5
30B	10	12.5	45	0.7	30B-G-10	30B-I-10	30B-Q-10
30B	20	12.5	45	1.4	30B-G-20	30B-I-20	30B-Q-20
30B	40	12.5	45	2.8	30B-G-40	30B-I-40	30B-Q-40

**Cylindrical One Stopper Cells Type 32**

Cell Type	Path length	Dia. (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
32	10	22	N/A	2.8	32-G-10	32-I-10	32-Q-10
32	20	22	N/A	5.6	32-G-20	32-I-20	32-Q-20
32	50	22	N/A	14.1	32-G-50	32-I-50	32-Q-50
32	100	22	N/A	28.2	32-G-100	32-I-100	32-Q-100

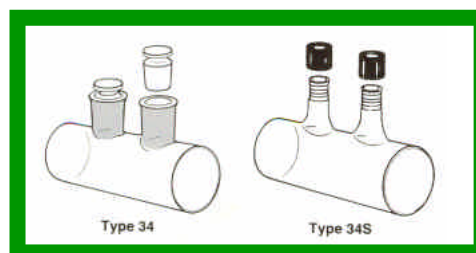


**Cylindrical Two Stopper Cells Type 34**

Cell Type	Path length	Dia. (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
34	50	22	N/A	14.1	34-G-50	34-I-50	34-Q-50
34	100	22	N/A	28.2	34-G-100	34-I-100	34-Q-100

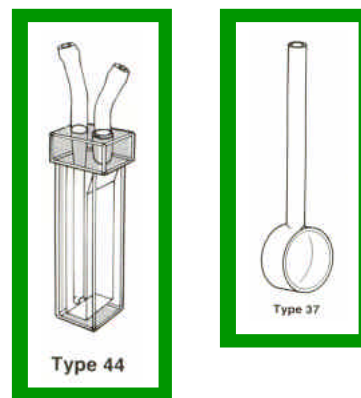
**Cylindrical Cells with Screw Caps Type 34S**

Cell Type	Path length	Dia. (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
34S	50	22	N/A	14.1	34S-G-50	34S-I-50	34S-Q-50
34S	100	22	N/A	28.2	34S-G-100	34S-I-100	34S-Q-100



**Long Outlet Cylindrical One Cells Type 37 (Tube ID=2mm, OD=4mm, Length=70mm)**

Cell Type	Path length	Dia. (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
37	1	22	92	0.28	37-G-1	37-I-1	37-Q-1
37	2	22	92	0.56	37-G-2	37-I-2	37-Q-2
37	5	22	92	1.4	37-G-5	37-I-5	37-Q-5
37	10	22	92	2.8	37-G-10	37-I-10	37-Q-10



**Flow Through Micro Cells Type 44**

Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
44	10	12.5	45	1.8	N/A	44-I-10	44-Q-10

**Flow Through Micro Self Masking Cells (aperture 11 x 4mm), Type 44B4**

Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Z Height (mm)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
44B4	10	12.5	45	0.450	15	44B4-G-10Z15	44B4-I-10Z15	44B4-Q-10Z15
44B4	10	12.5	45	0.450	20	44B4-G-10Z20	44B4-I-10Z20	44B4-Q-10Z20

PathLengths of 1, 2, 5, 20, 40, 50, 100mm are available on request

**Flow Through Micro Self Masking Cells (aperture 11 x 6.5mm), Type 44B6.5**

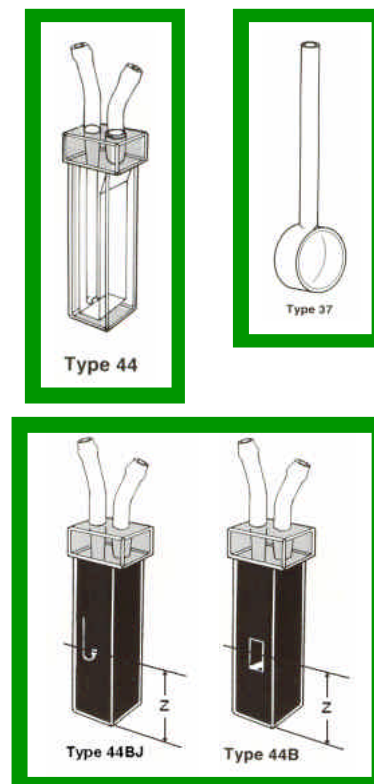
Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Z Height (mm)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
44B6.5	10	12.5	45	0.720	15	44B6.5-G-10Z15	44B6.5-I-10Z15	44B6.5-Q-10Z15
44B6.5	10	12.5	45	0.720	20	44B6.5-G-10Z20	44B6.5-I-10Z20	44B6.5-Q-10Z20

PathLengths of 1, 2, 5, 20, 40, 50, 100mm are available on request

**Flow Through Micro Self Masking Cells, Round (3mm) Aperture, Type 44BJ**

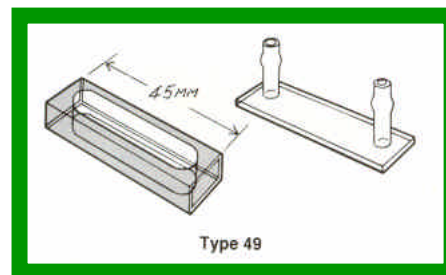
Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Z Height (mm)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
44BJ	10	12.5	45	0.070	15	44BJ-G-10Z15	44BJ-I-10Z15	44BJ-Q-10Z15
44BJ	10	12.5	45	0.070	20	44BJ-G-10Z20	44BJ-I-10Z20	44BJ-Q-10Z20

PathLengths of 1, 2, 5, 20, 40, 50, 100mm are available on request



**Flow Through Demountable Type Cells, Type 49**

Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
49	0.1	12.5	45	0.03	49-G-0.1	49-I-0.1	49-Q-0.1
49	0.5	12.5	45	0.15	49-G-0.5	49-I-0.5	49-Q-0.5
49	1	12.5	45	0.3	49-G-1	49-I-1	49-Q-1
49	2	12.5	45	0.6	49-G-2	49-I-2	49-Q-2
49	5	12.5	45	1.56	49-G-5	49-I-5	49-Q-5



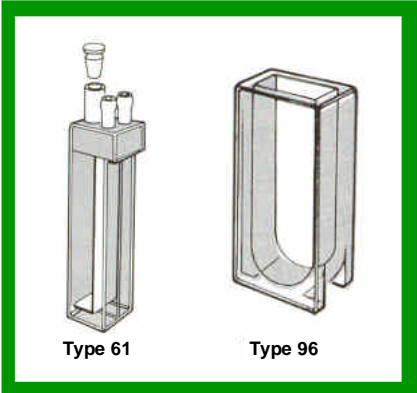


**Jacketed Type Cells. Type 61**

Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
61	10	12.5	45	1.8	61-G-10	61-I-10	61-Q-10
61	20	12.5	45	3.8	61-G-20	61-I-20	61-Q-20
61	40	12.5	45	7.2	61-G-40	61-I-40	61-Q-40

**Absorptiometer Rectangular Cells. Type 96**

Cell Type	Path length	Width (mm)	Height (mm)	Capacity (ml)	Code Optical Glass	Code UV-VIS-NIR	Code UV-VIS
96	2.5	28	40	1.8	96-G-2.5	96-I-2.5	96-Q-2.5
96	5	28	40	3.6	96-G-5	96-I-5	96-Q-5
96	10	28	40	7.2	96-G-10	96-I-10	96-Q-10
96	20	28	40	14.0	96-G-20	96-I-20	96-Q-20
96	40	28	40	28.0	96-G-40	96-I-40	96-Q-40
96	50	28	40	35.0	96-G-50	96-I-50	96-Q-50
96	100	28	40	70.0	96-G-100	96-I-100	96-Q-100



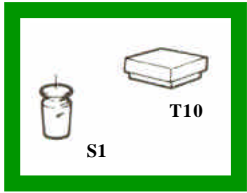
**Accessories for Cells**

**Teflon Lids:**

Pathlength	1mm	2mm	5mm	10mm	20mm	30mm	40mm	50mm	100mm
	T1	T2	T5	T10	T20	T30	T40	T50	T100

**Stoppers:** S1

**Spare Boxes:** SPB/2 For storage of 2 x Type 1 10mm Cells  
SPB/4 For storage of 4 x Type 1 10mm Cells




**Custom Designed Sample Cells**  
Your own Sample Cell design can be created using our Custom Design Service.  
Simply send us you dimensions and specification and we will supply aprice and a delivery time.

**Useful Materials Information**

(Use this when selecting Cells for an application )

Material	Code	Wavelength Range (nanometres)	Usual spectral range of Application
Special Optical Glass	G	334nmto 2300nm	Visible Light Region
Infrasil Quartz	I	220nm to 3800nm	Near Infrared Region
Spectrosil Quartz	Q	170nm to 2600nm	UV Region

**Sample Cell / Cuvette Holders**



A range of Sample Cell Holders for Rectangular and Cylindrical Cells. These Holders slide into the sample compartment of the Spectrophotometer. Compatible with most types of Instrument.

**Ordering Information:-**

- 5708** 10mm Pathlength Rectangular Cell Holder
- CHR 1/50** 50mm Pathlength Rectangular Cell Holder
- CHR 1/100** 100mm Pathlength Rectangular Cell Holder
- 5710** 50mm Pathlength Cylindrical Cell Holder
- 5707** 100mm Pathlength Cylindrical Cell Holder

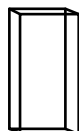


**Polished Optical Discs**



	13 x 2mm	25 x 4mm	32 x 3mm	32 x 3mm Drilled	38 x 6mm	49 x 6mm
<b>NaCl</b>	500A1	500A3	500A4	500A4D	500A5	500A6
<b>KCl</b>	500B1	500B3	500B4	500B4D	500B5	500B6
<b>KBr</b>	500C1	500C3	500C4	500C4D	500C5	500C6
<b>CaF2</b>	500D1	500D3	500D4	500D4D	500D5	500D6
<b>BaF2</b>	500E1	500E3	500E4	500E4D	500E5	500E6
<b>CsI</b>	500F1	500F3	500F4	500F4D	500F5	500F6
<b>KRS-5</b>	500G1	500G3	500G4	500G4D	500G5	500G6
<b>AgBr</b>	500H1	500H3	500H4	500H4D	500H5	500H6
<b>ZnS *</b>	500J1	500J3	500J4	500J4D	500J5	500J6
<b>ZnSe *</b>	500K1	500K3	500K4	500K4D	500K5	500K6
<b>SiO2</b>	500N1	500N3	500N4	500N4D	500N5	500N6
<b>AgCl</b>	500S1	500S3	500S4	500S4D	500S5	500S6

**Other Sizes of Discs are available on request**



**Polished Optical Rectangles**

	30 x 15 x 4mm		38 x 19 x 4mm		41 x 23 x 6mm		50 x 25 x 6mm	
<b>NaCl</b>	511A2	<b>Drilled</b> 511A2D	511A3	<b>Drilled</b> 511A3D	511A4	<b>Drilled</b> 511A4D	511A6	<b>Drilled</b> 511A6D
<b>KCl</b>	511B2	511B2D	511B3	511B3D	511B4	511B4D	511B6	511B6D
<b>KBr</b>	511C2	511C2D	511C3	511C3D	511C4	511C4D	511C6	511C6D
<b>CaF2</b>	511D2	511D2D	511D3	511D3D	511D4	511D4D	511D6	511D6D
<b>BaF2</b>	511E2	511E2D	511E3	511E3D	511E4	511E4D	511E6	511E6D
<b>CsI</b>	511F2	511F2D	511F3	511F3D	511F4	511F4D	511F6	511F6D
<b>KRS-5</b>	511G2	511G2D	511G3	511G3D	511G4	511G4D	511G6	511G6D
<b>AgBr</b>	511H2	511H2D	511H3	511H3D	511H4	511H4D	511H6	511H6D
<b>ZnS *</b>	511J2	511J2D	511J3	511J3D	511J4	511J4D	511J6	511J6D
<b>ZnSe *</b>	511K2	511K2D	511K3	511K3D	511K4	511K4D	511K6	511K6D
<b>SiO2</b>	511N2	511N2D	511N3	511N3D	511N4	511N4D	511N6	511N6D
<b>AgCl</b>	511S2	511S2D	511S3	511S3D	511S4	511S4D	511S6	511S6D

Note: Zinc Selenide (ZnSe) and Zinc Sulphide (ZnS) are supplied in half the specified thickness, except for 2 mm and 3mm thick Discs.



**ATR Trapezoid Reflection Plates**

	KRS-5		ZnSe		Ge	
	45°	60°	45°	60°	30°	45°
50 x 20 x 2mm	645G4	660G4	645K4	660K4	630Q4	645Q4
50 x 20 x 1mm	645G3	660G3	645K3	660K3	630Q3	645Q3
50 x 10 x 2mm	645G9	660G9	645K9	660K9	630Q9	645Q9
50 x 10 x 3mm	645G10	660G10	645K10	660K10	630Q10	645Q10
50 x 20 x 3mm	645G13	660G13	645K13	660K13	630Q13	645Q13

**ATR Parallelogram Reflection Plates**

	KRS-5		ZnSe		Ge	
	45°	60°	45°	60°	45°	60°
25 x 10 x 3mm	545G4	560G4	545K4	560K4	545Q4	560Q4
25 x 20 x 3mm	545G7	560G7	545K7	560K7	545Q7	560Q7
50 x 10 x 3mm	545G10	560G10	545K10	560K10	545Q10	560Q10
50 x 10 x 2mm	545G9	560G9	545K9	560K9	545Q9	560Q9
50 x 20 x 3mm	545G13	560G13	545K13	560K13	545Q13	560Q13
50 x 20 x 2mm	545G12	560G12	545K12	560K12	545Q12	560Q12
60 x 6 x 6mm	545G17	N/A	545K17	N/A	545Q17	N/A

**Calibration and Accuracy Test Pieces**

**BS186 - 0449 Polystyrene Test Film (0.05mm thickness).**

Polystyrene is a generally accepted test film for performing the following tests on infrared spectrophotometers:- Performance, Resolution, Frequency, Accuracy and Stray Light tests. The Test Film thickness is 0.05mm. It is pre-mounted for easy insertion into the sample slide / holder of the instrument

**BS186 - 0450 Neutral Density Filter (0.5 Absorbance units).**

The Neutral Density Filter is used for performing absorbance accuracy tests on a spectrophotometer. The Neutral Density Filter is set to measure 0.5 Absorbance units and comes pre-mounted for easy insertion into the Instrument Sample Slide / Holder.

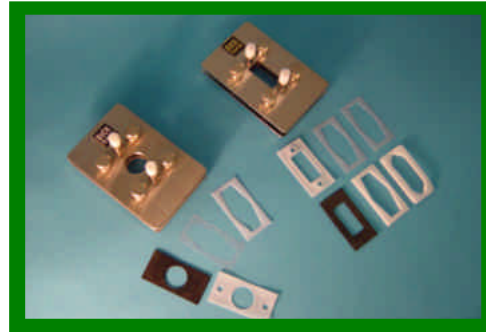


## Demountable Cell Holders

The Demountable Cell Holder is Ideal for use when analysing Liquids, Mulls and Capillary Films. Since the windows that are used in this holder are not amalgamated together (as they are in Permanently Sealed Cells), the Cell is easily convertible to accommodate many sample types.

**Cell Assembly:**

When analysing Mulls or Capillary Films, the Cell is assembled with one or two un-drilled Windows and when analysing Liquids, the cell can be assembled with one un-drilled window, a Teflon® spacer and a drilled window to create a cell with a specific Pathlength. A Teflon Gasket is used to help prevent leakage.



\* Windows are not included in the Kit. Select the 38 x 19 x 4mm Rectangles from the Infrared Crystals page.

**Ordering Information:**

- 6500C Demountable Cell Holder Kit (FTIR)**  
(Bottom Left of picture).
- 14mm Circular Aperture.
  - Window size: 38 x 19 x 4mm\*
  - Consists of the Stainless Steel Holder, Rear Neoprene Gasket, Two Teflon Plugs and a packet of assorted Teflon Spacers

- 6500 Demountable Cell Holder Kit (Dispersive)**  
(Top Right of picture).
- 10 x 22mm Aperture
  - Window size: 38 x 19 x 4mm\*
  - Consists of the Stainless Steel Holder, Rear Neoprene Gasket, Teflon Gasket, Two Teflon Plugs and a packet of assorted Teflon Spacers.

**Demountable Cell Spacers** (12 per package) Select material type and thickness for pathlength required.

Thickness (mm)	Teflon		Lead		Copper	
	Dispersive	F TIR	Dispersive	F TIR	Dispersive	F TIR
0.015	5209	5209C			5209CO	5209COC
0.025	5210	5210C			5210CO	5210COC
0.050	5211	5211C	5211L	5211CL		
0.10	5212	5212C	5212L	5212CL		
0.20	5213	5213C	5213L	5213CL		
0.50	5214	5214C	5214L	5214CL		
1.00	5215	5215C	5215L	5215CL		
Assorted	5216	5216C	5216L	5216CL		

**Replacement Parts:**

- |                 |                                    |              |                           |
|-----------------|------------------------------------|--------------|---------------------------|
| <b>5233</b>     | Neoprene Gasket (Pack of 12)       | <b>5234L</b> | Lead Gasket (Pack of 12)  |
| <b>5234T</b>    | Teflon Gasket (Pack of 12)         | <b>5235</b>  | Teflon Plugs (pack of 12) |
| <b>LB999-41</b> | Knurled Machined Screw (Pack of 4) |              |                           |

## Precision Amalgam Cells

The Precision Amalgam Cell comes pre-assembled and ready to use with the Demountable Cell Holders P/N:6500 (dispersive) and 6500C (FTIR). They provide an inexpensive alternative to the Permanent Sealed Cell. This Cell consists of one drilled window and one un-drilled window, amalgamated together with a metal spacer of a specifically selected pathlength.



Material	Pathlength (mm)						
	0.015	0.025	0.050	0.10	0.20	0.50	1.0
NaCl	5097	5098	5099	5100	5101	5102	5103
KBr	5104	5105	5106	5107	5108	5109	5110
CaF2	5111	5112	5113	5114	5115	5116	5117
BaF2	5118	5119	5120	5121	5122	5123	5124
KRS-5	5139	5140	5141	5142	5143	5144	5145
ZnSe	7360	7361	7362	7363	7364	7365	7366

**Web:** [www.lightpathoptical.com](http://www.lightpathoptical.com)  
**email:** [sales@lightpathoptical.com](mailto:sales@lightpathoptical.com)

C1

**Telephone:** +44 (0)1297 - 33200  
**Fax:** +44 (0)1297 - 33213





**Lightpath**

Optical (UK) Ltd.

## Permanently Sealed Liquid Cells

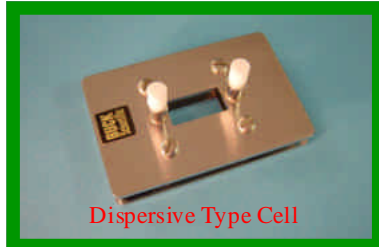
**Liquid Analysis**

The Permanent Sealed Liquid Cell consists of a Stainless Steel body, which is corrosion resistant. Each cell is permanently mounted and sealed inside the main body of the cell. The specific pathlength and the window material to be used are both selected when Purchasing the Cell (using the selection table below). Permanent Sealed Liquid Cells are Calibrated with the interference fringe calculation before leaving the factory. Since the cell thickness is fixed, it provides the user a means for accurate, reproducible results, making it ideal for performing quantitative measurements. The Cell is filled through the Luer-Lok filling ports. Permanent Sealed cells cannot be disassembled without destroying the cell. Should the Cell become damaged, it can be returned to us for repair.

**Important:** When Ordering Cells for FTIR add the letter "C" to the Parts Number. For example, a 1.0 mm path KBr Cell for FTIR would be **5166C**



FTIR Type Cell



Dispersive Type Cell

Material	Pathlength (mm)						
	0.015	0.025	0.050	0.10	0.20	0.50	1.0
NaCl	5153	5154	5155	5156	5157	5158	5159
KBr	5160	5161	5162	5163	5164	5165	5166
CaF2	5167	5168	5169	5170	5171	5172	5173
BaF2	5174	5175	5176	5177	5178	5179	5180
KRS-5	5195	5196	5197	5198	5199	5200	5201
ZnSe	7216	7217	7218	7219	7220	7221	7222

## Circular Demountable Cell Holders

The Circular Demountable Cell Holder is ideal for use when Analysing Liquids, because these Cells are leak-proof and provide an even pressure around the O-ring seal.

Since the Windows that are used in this holder are not Amalgamated (as in permanently sealed cells), the cell is easily convertible to accommodate many sampling types, including Mulls and Capillary Films. Luer-lok filling ports make filling and clean-up easy.

### Cell Assembly:

When Analysing Mulls or Capillary Films, the Cell is assembled with one or two un-drilled windows. When analysing liquids, the cell can be assembled with one un-drilled window, a Teflon Spacer and a drilled window to create a cell with a specific pathlength. A Teflon gasket is used to prevent leakage.

### 6500SD

#### Demountable Cell Holder (Dispersive Instrument Type)

- 10 x 22mm Aperture
- Window Size: 32 x 3mm \*
- Stainless Steel Holder, two sealing gaskets, Teflon "O"-rings, two Teflon plugs, Compensating Ring, Teflon Spacers, Needle Plate and a pack of assorted Spacers.



### 6500S

#### Demountable Cell Holder Kit (FTIR Instrument Type)

- 14mm Aperture
- Window Size: 32 x 3mm \*
- Stainless Steel Holder, two sealing gaskets, Teflon "O"-rings, two Teflon plugs, Compensating Ring, Teflon Spacers, Needle Plate and a pack of assorted Spacers.

\* Windows are not included in the Kit. Select the 32 x 3mm Disc from the Infrared Crystals page.

Spacers (12 pieces per Pack)			
Size (mm)	Teflon	Lead	Copper
0.015	5209S		5209SC
0.025	5120S		5210SC
0.050	5211S	5211SL	
0.10	5212S	5212SL	
0.20	5213S	5213SL	
0.50	5124S	5214SL	
1.00	5125S	5215SL	
Assorted	5216S	5216SL	

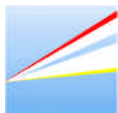
Replacement Parts	
5235	Teflon Plugs (12 pieces)
6505	Needle Plate (6500SD Dispersive Type)
6506	Needle Plate (6500S FTIR Type)
6507	"O"- Ring (6 Pieces)
6503	Teflon Gasket (6 pieces) 6500SD Type.
6504	Teflon Gasket (6 Pieces) 6500S Type.

**Note:** The Spacers listed above are for use with both Styles of the Circular Demountable Cell.

Web: [www.lightpathoptical.com](http://www.lightpathoptical.com)  
email: [sales@lightpathoptical.com](mailto:sales@lightpathoptical.com)

C2

Telephone: +44 (0)1297 - 33200  
Fax: +44 (0)1297 - 33213



## Circular Amalgam Cells

The Circular Amalgam Cell is a ready to use and pre-assembled for use with the 6500 Circular Cell Holder.

They Consist of a pair of windows (one drilled) amalgamated together with a metal spacer of specific thickness, this determines the cell pathlength. The assembly is then amalgamated to the Needle Plate, through which the sample can be injected via the Luer-Lok Filling ports. Teflon Plugs are provided to seal the filling ports after sample injection.

### Ordering Information:

Use the table below to select the required Window Material and cell Pathlength.

Add either "S" for FTIR type, or "SD" for Dispersive type, to the end of the Parts Number selected from the table.

For Example: - If you require a KBr cell with a pathlength of 0.10mm for a FTIR Instrument. The parts number will be **5107S**

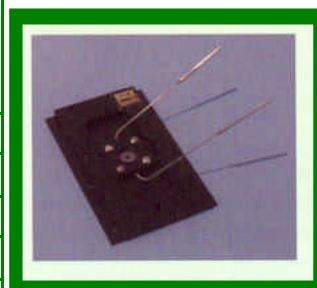


Material	Pathlength (mm)						
	0.015	0.025	0.050	0.10	0.20	0.50	1.0
NaCl	5097	5098	5099	5100	5101	5102	5103
KBr	5104	5105	5106	5107	5108	5109	5110
CaF2	5111	5112	5113	5114	5115	5116	5117
BaF2	5118	5119	5120	5121	5122	5123	5124
KRS-5	5139	5140	5141	5142	5143	5144	5145
ZnSe	7360	7361	7362	7363	7364	7365	7366

## Micro Flow Through Cells

These Cells are designed for use with both Dispersive and FTIR Spectrophotometers. Used for analysing very small volumes or analysing HPLC / LC Liquid Fractions. Two 13 x 2 mm windows are permanently amalgamated to the Cell body forming a leak-proof seal. This Cell is NOT designed to be taken apart and will be destroyed if it is disassembled. **The Complete assembly includes the Cell body, Leads, Windows and mounting plate.**

Pathlength	1.5 mm	1.5 mm	3.0 mm	3.0 mm
Volume	4.5 µl	25 µl	9 µl	50 µl
Clear Aperture	2 mm	2 x 7 mm	2 mm	2 x 7 mm
NaCl	5A01	5A02	5A03	5A04
KBr	5C01	5C02	5C03	5C04
CaF2	5D01	5D02	5D03	5D04
BaF2	5E01	5E02	5E03	5E04
KRS-5	5G01	5G02	5G03	5G04
ZnSe	5K01	5K02	5K03	5K04



## Beta Cell

The Beta Cell is the most convenient, low-cost, easiest to use Demountable Cell available.

Assembly is accomplished by placing the Sample between two undrilled windows that are separated by a spacer (which determines the Cell Pathlength).

The Windows are then placed into the holder and held secure with the threaded retaining ring. This type of cell is ideal for student use and durable enough for continuous use.

The Cell uses 25 x 4mm Discs. (see Infrared Crystals section brochure B1).



- 6401 Beta Cell Kit** - Includes Demountable Cell Holder, Teflon Spacers, Slide Plate, Holder and Instructions.
- 6402 Beta Cell Holder** - Demountable Cell Holder, Spacers and Instructions.
- 6404 Beta Cell Only**
- 6105 Slide Plate**

## Teflon Spacers (12 pieces per Pack)

Parts Number	Thickness (mm)
5244	0.015
5240	0.025
5241	0.05
5242	0.1
5245	0.2
5246	0.5
5247	1.00
5237	Neoprene Gasket



**Pre-Spaced Mini Cell**

The pre-Spaced Mini Cell is the most economical approach for obtaining qualitative Infrared spectra of Paste or Mull samples. Each Silver Chloride Window has a circular depression of 0.025mm. A pathlength of either 0.025mm or 0.05mm can be set depending on the orientation of each of the two windows (see below). The Cell body is made from Delrin material and supplied with sample holder / slide plate.

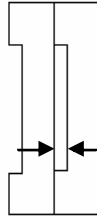
**018 - 4041 Mini Cell Kit**

- Complete with Delrin Cell Holder, Slide Plate holder and six AgCl windows.

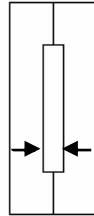
**018 - 4045** Mini Cell AgCl Windows (pack of six)

**018 - 4044** Delrin Cell Holder.(without windows).

**6105** Slide Plate Holder



**0.025mm**  
Pathlength



**0.050mm**  
Pathlength



**Solids Analysis**

**Solid Sampling Accessories**

<b>Agate Mortars &amp; Pestles :-</b>	<b>5311</b>	35mm OD Mortar & Pestle
	<b>5312</b>	65mm OD Mortar & Pestle
	<b>5313</b>	95mm OD Mortar & Pestle

<b>6109</b>	<b>Nujol</b>	High Purity Mineral Oil (60ml)
<b>6610</b>	<b>Fluorolube</b>	Per-fluorinated Hydrocarbon Oil (30ml)
<b>5231</b>	<b>KBr Powder</b>	Potassium Bromide Powder ( 100g)
<b>6107</b>	<b>Micro Spatula</b>	



**Magnetic Film Holders**



<b>6111</b>	13mm Magnetic KBr Slide Holder.
<b>6300C</b>	Magnetic Film Holder (FTIR) Aperture 20mm diameter.
<b>6300</b>	Magnetic Film Holder (Dispersive) Aperture 10 x 20mm.
<b>KB-DH-3</b>	KBr Disc Holder / Mounting Plate for 3mm KBr Discs.
<b>KB-DH-5</b>	KBr Disc Holder / Mounting Plate for 5mm KBr Discs.
<b>KB-DH-6</b>	KBr Disc Holder / Mounting Plate for 6mm KBr Discs.
<b>KB-DH-8</b>	KBr Disc Holder / Mounting Plate for 8mm KBr Discs.
<b>KB-DH-10</b>	KBr Disc Holder / Mounting Plate for 10mm KBr Discs.
<b>KB-DH-13</b>	KBr Disc Holder / Mounting Plate for 13mm KBr Discs.
<b>KB-DH-16</b>	KBr Disc Holder / Mounting Plate for 16mm KBr Discs.

**Disc Holder / Mounting Plates**



**KB-DH-13 KB-DH-5 KB-DH-3**

**Demountable Cell Mount: DCM-1**

For qualitative analysis of liquids and Nujol Mulls. Three slip-nuts apply uniform pressure onto two windows located into the backplate of the cell. Windows front and rear are sealed by two standard neoprene O-rings front and rear of the cell mount. The cell takes 25mm diameter x 4mm thick windows. The mount has a 20mm clear aperture. Windows must be ordered separately. See Brochure B1 for windows.

**DCM-1 Kit**



**Grinding Mill**

The Grinding Mill is extremely useful for grinding difficult Samples, or when a large number of Mulls, Pellets or Diffuse Reflectance Samples have to be prepared.

The Sample is placed into a Vial containing a Ball Pestle and then vibrated rapidly by the machine, producing a well ground sample, without the effort of manually grinding, using a typical Mortar and Pestle.

**Grinding Mills: (Note: Capsule Sets Sold Separately)**

<b>S6800</b>	Grinding Mill (only) for use with 110v, 60Hz mains supply (US)
<b>S6000</b>	Grinding Mill (only) for use with 240v, 50Hz mains supply (UK)
<b>S6001</b>	Grinding Mill (only) for use with 220v, 50Hz mains supply (EU)

**Capsule Sets:**

<b>S6100</b>	Stainless Steel Capsule and Ball Set
<b>S6200</b>	Agate Capsule and Ball Set





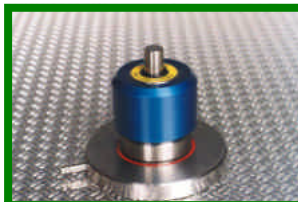
The 15 Ton and 25 Ton Manual Hydraulic Laboratory Presses are primarily designed for the Preparation of KBr Discs in solids Analysis, although they are frequently used in multiple applications where an extreme force is required to compress or form a substance into a pellet. Both Presses are of a lightweight four pillar construction. They are manufactured to precision engineering tolerances and carry the CE mark.

The Upper Lead Screw allows adjustment between surfaces, saving time in sample preparation. The Ram, which has a stroke of 23mm incorporates a safety cut-out valve. The valve operates when maximum stroke is reached, thus preventing damage to internal components. The 25 Ton Press incorporates an audible warning alarm, which is activated when the maximum working pressure is reached.

Both Presses are supplied with polycarbonate safety guards, which are designed to give easy access to the operating Anvils.

**Optional Extras:-**

1. A pressure release handle with a built-in pressure limiter is available as an option at extra cost. This allows the user to pre-set maximum tonnage to the operating limit, applicable to certain types of Die.
2. Pelleting System; An internal Vacuum Pump is connected to special evacuable 13mm Die. The vacuum tube fits to the Die base which remains fitted to the press. The sample is loaded into the Die which is then placed onto its base. This removes the need to continually disconnect and re-connect a vacuum tube to the Die set. A useful tool when processing multiple samples.



**Pelleting System Die  
LP15-VP**

**Includes:**

- LP-15 Press with internal 12v dc vacuum pump.
- 110v - 240v 50Hz to 12v External power adapter.
- Interconnecting vacuum tube.
- Special 13mm evacuable pelleting Die Set

**Features:-**

- **Lightweight Construction 33kg**
- **Safety Cut-out Valve**
- **Max Pressure Audible Warning Alarm (LP-25)**
- **Optional Regulator LP-PL**
- **Optional Pelleting System with internal Vacuum Pump.LP15-VP.**
- **Large Lead Screw Adjustment**
- **All Moving Parts Enclosed**
- **Safety Guards**

Specifications	LP-15	LP-25
Maximum Load on Ram	15 Metric Tons	25 Metric Tons
Standard Gauge Resolution	1 Ton	1 Ton
Readout Type	63mm Bourdon Tube Pressure Gauge	Large Digit LCD Backlit Display
Piston Cylinder	108mm diameter	108mm diameter
Lower Bolster	101mm diameter	101mm diameter
Ram Stroke	23mm	23mm
Top Bolster	38mm diameter	38mm diameter
Top Bolster Vertical Adjustment	116mm	116mm
Maximum Daylight (distance)	134mm	134mm
Minimum Daylight (distance)	50mm (Ram fully retracted) 27mm (Ram fully extended)	50mm (Ram fully retracted) 27mm (Ram fully extended)
Base Dimensions	268 x 286mm	268 x 286mm
Distance between Pillars	165mm	165mm
Overall Height	475mm	475mm
Net Weight	33kg	34kg
Finish	Two-Tone Light Grey / Oxford Blue	Two-Tone Light Grey / Oxford Blue

## Evacuatable KBr Die Sets

### KBr Disc Technique

This widely practiced method consists of grinding and mixing a sample with dry KBr or KCl powder. It is then compressed within one of the Evacuatable Dies to produce a transparent Disc of appropriate size.

KBr and KCl Crystals have good light transmission from the Ultra- Violet region right through into the Infrared regions this is why they are more commonly used for Analysis Applications which require use of this part of the light Spectrum. These Die Sets are suitable for producing Discs of 3, 5, 6, 8, 10, 13 and 16mm diameters. They are available as standard within the size range of the KBr Series.

Non-Standard sizes are available on request.

To facilitate the extraction and handling of the Discs, purpose made Paper Rings can be supplied for use with the range of KBr Dies.

All Dies in the series are constructed entirely of Stainless Tool Steel, all parts are precision machined. Pellets are optically flat and mirror polished. Tungsten Carbide Pellets and Component Parts can be supplied to special order.

Parts Number of Die Set	KBr Die Set disc size	Max Loading Limit
LP-3	3mm	0.5 Tons
LP-5	5mm	2 Tons
LP-6	6mm	3 Tons
LP-8	8mm	5 Tons
LP-10	10mm	7 Tons
LP-13	13mm	10 Tons
LP-16	16mm	15 Tons



### Evacuatable X-Ray Dies



Parts Number of Die Set	Die Set Pellet size	Max Loading Limit
LP-20	20mm	24 Tons
LP-25	25mm	30 Tons
LP-32	32mm	30 Tons
LP-35	35mm	30 Tons
LP-40	40mm	30 Tons

### X-Ray Disc Technique:-

The LPX Series of X-Ray Dies provide a standard size range, producing Discs of 20, 25, 32, 35, and 40mm diameter for X-Ray Fluorescence study of powders and materials. Other sizes are available on request.

Die Spare Parts	Spare Set of Pellets	Spare Plungers	Spare "0" - Rings (2)
For LP-3	LP-30 (1 pellet only)	LP03 (upper pellet)	LP-003
For LP-5	LP-50	LP05	LP-005
For LP-6	LP-60	LP-06	LP-006
For LP-8	LP-80	LP-08	LP-008
For LP-10	LP-100	LP-010	LP-0010
For LP-13	LP-130	LP-013	LP-0013
For LP-16	LP-160	LP-016	LP-0016
For LPX-20	LPX-200	LPX-020	LPX-0020
For LPX-25	LPX-250	LPX-025	LPX-0025
For LPX-32	LPX-320	LPX-032	LPX-0032
For LPX-35	LPX-350	LPX-035	LPX-0035
For LPX-40	LPX-400	LPX040	LPX-0040





**Beta Gas Cells**

The Beta Gas Cell is Available in Two Pathlengths, 5cm and 10cm. The Cell consists of a Pyrex Body and Two Pyrex Filling Ports fitted with replaceable rubber septa, Viton O-rings, Window holders and Beta Cell Holder (for mounting into Instruments sample compartment). Two 25 x 4mm windows (which are not included) are required to complete the Cell Assembly (these can be chosen from our IR Crystals Section of this Catalogue). Window materials are interchangeable and the procedure can be performed quickly due to the demountable Cell design.

**Ordering Information**

- |                     |              |                                   |
|---------------------|--------------|-----------------------------------|
|                     | <b>6801</b>  | <b>10cm Beta Gas Cell</b>         |
|                     | <b>6802</b>  | <b>5cm Beta Gas Cell</b>          |
| <b>Spare Parts:</b> | <b>6806</b>  | <b>Pyrex Body, 10cm</b>           |
|                     | <b>6808</b>  | <b>Pyrex Body, 5cm</b>            |
|                     | <b>6803</b>  | <b>Septa (pack of 6)</b>          |
|                     | <b>6804</b>  | <b>Viton O-Rings (Pack of 6)</b>  |
|                     | <b>6804T</b> | <b>Teflon O-Rings (Pack of 6)</b> |
|                     | <b>6805</b>  | <b>Teflon Gaskets</b>             |

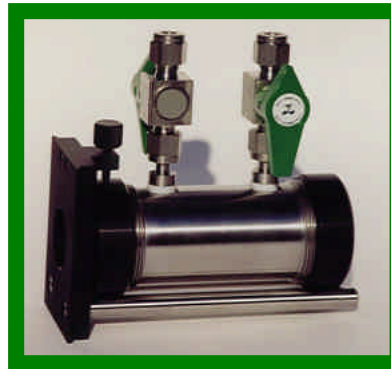


**10cm Demountable Gas Cells**

This Gas Cell provides the Spectroscopist with a high quality yet relatively inexpensive method for performing gas studies by Infrared. It is available in Pyrex Glass, Teflon and Stainless Steel versions. The Cells can be operated at either under reduced or positive pressures. Two end windows (which are not included) are required to complete the Cell Assembly (these can be chosen from our IR Crystals Section of this Catalogue). The **Pyrex Cell uses 49 x 6mm Windows** and the **Teflon and Stainless Steel Cells use 38 x 6mm Windows**. Window materials are interchangeable and the procedure can be performed quickly due to the demountable Cell design.

**Ordering Information:**

Parts Number	Cell Body Material and Volume	Stopcock Material / Fittings	End Window Size
<b>7200</b>	Pyrex (166cc)	Pyrex / 18/9 Spherical Ball and Socket Joints	49mm diameter. 6mm Thickness
<b>GC-100SS</b>	316 Stainless Steel (50ml)	316 Stainless Steel 1/4" (6.35mm) O.D. Swagelok Tube	38mm diameter 6mm Thickness
<b>TG C-10</b>	Teflon (PTFE) (50ml)	PFA 1/4" (6.35mm) O.D. Swagelok Tube	38mm diameter 6mm Thickness



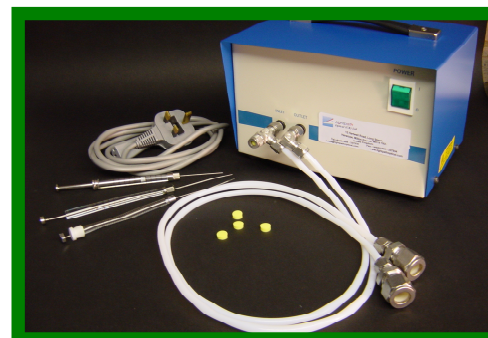
**14.5metre and 20metre folding Pathlength Gas Cells**

We can refurbish and re-align Long Path Gas Cells including Recoating of Mirror Surfaces with gold or aluminium Infrared coatings.

**CLCS-100 Closed Loop Gas Calibration System.**

Used for Gas Analyser Calibration or Routine Checks of Analysers where dangerous Gases cannot be exposed to the atmosphere. This method contains the Sample within a closed Loop so there is no risk of exposure. Graduated Gas Samples of known concentration are produced through the use of this Closed-Loop System. The System is totally portable and consists of a sealed Teflon diaphragm pump, interconnecting 1/4" tubing with 316 grade Stainless Steel Swagelok fittings and a Septum Adaptor to inject the Samples. The Closed Loop System is connected to the Inlet and Outlet Ports of Any Sealed Gas Cell. Thus creating a Closed volume of circulating gas. Through simple procedures an almost infinite number of sample concentrations can be generated by introducing a measured volume of Liquid or Gas into the Fixed Volume of the Closed Loop via a Gas-Tight or Liquid Syringe.

- CLC-100 Gas Calibration System** Note: Please specify Mains Voltage / Frequency required and Your Gas Cell Port Fitting Size required
- SPTA-100 Spare Septa (pack of 50)**





**Crystal Polishing Kit**

Polishing Kit PK-100 is designed to provide a means of re-polishing NaCl and KBr Windows which have been scratched or fogged. The Kit contains all the necessary materials to re-polish and buff windows with the minimum of skill.

- Kit includes:-**
- PK-110 Glass Smoothing Lap**
  - PK-120 Polishing Lap**
  - PK-130 Pack of Selvyt Pads (6)**
  - PK-140 Bottle of Polishing Rouge**
  - PK-150 Abrasive 400 Grit**
  - PK-160 Abrasive 600 Grit**
  - OK-170 One Pair of Brushes**



**Die Starter Kit**

**LP-13ST Die Starter Kit for producing 13mm Discs**

Manufactured from 440 C Stainless Steel. Vacuumed Hardened.  
Internal Parts honed and ground.  
Pellets Optically polished.  
Physical Size of Die: 50mm Diameter  
overall height excluding Plunger - 55mm

The Start-up Kit is supplied in it's own case and includes:-

- LP-130 1 Pair of 13mm Pellets
- LP-013 Plunger
- LP-0013 2 sets of O-rings
- LP-DH13 Stainless Steel Disc Holder
- 5231 100g KBr Powder

**Chart Paper and Recorder Pens**

Pens See Picture	Red Parts Number	Black Parts Number
1	BS-211-9006 (3 pieces)	BS-211-9007 (3 pieces)
2	BS-211-9004 (5 pieces)	BS-211-9005 (5 pieces)
3	LP-800-401 (4 pieces)	LP-800-402 (4 pieces)
4	LO 120/2 (5 pieces)	LO 120/5 (5 pieces)
5	BS-211-0670 (3 pieces)	BS-211-0671 (3 pieces)



Charts Part Numbers	Ordinate	Abscissa 4,000 - 200cm <sup>-1</sup>	Instrument Model
BS-51 00-43 66	Absorbance	40 Charts 8.5"x 23.5"	Perkin Elmer:- X57, X67, X97, X98, 68 X, 78X, 13XX, 14XX.
BS-51 00-43 67	% Transmission	40 Charts 8.5"x 23.5"	Perkin Elmer:- X57, X67, X97, X98, 68 X, 78X, 13XX, 14XX.
BS-199-104 3	Linear A	40 Charts 8.5"x 23.5"	Perkin Elmer:- X99, 68X, 78X
BS-199-104 2	% Transmission	66 Charts 8.5"x12"	Perkin Elmer:- X98, X99, 68X, 78X, 13 XX, 14XX.
BS-199-104 1	Absorbance	66 Charts 8.5"x12"	Perkin Elmer:- X98, X99, 68X, 78X, 13 XX, 14XX.
BS-28 3-125 9	%Transmission	75 Charts 8.5"x12.5"	Perkin Elmer:- 281, 281B, 283, 283B
BS-28 3-126 0	Linear A	75 Charts 8.5"x12.5"	Perkin Elmer:- 281, 281B, 283, 283B
		Continuous Roll 25m	Black Thermal Writing - Khaki Grid
BS-L- 106-1433	5 divisions / cm	5 divisions / cm	Perkin Elmer:- 983, 983G, PP-1 printer.
500-113 7B	% Transmission	50 Charts 10"x22"	Buck Scientific :- M500

Note: All Charts have 2:1 scale change at 2,000cm<sup>-1</sup>.





**Chart Recorder Paper, Discs and Pens for most Recording Instruments.**

Check below for the manufacturer and then contact us with the Instrument Model and serial number. we will then supply to you a price and the availability of the items.

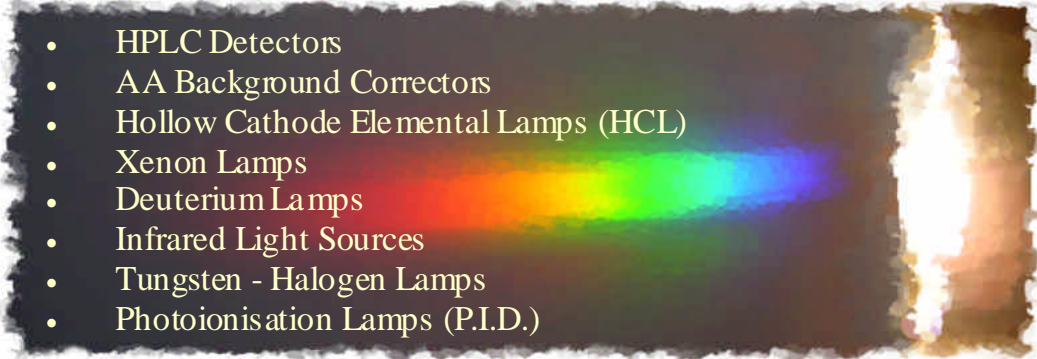
ABB Instrumentation	Camille Bauer	Fisher Scientific	Kent Industrial Measurement	Novocontrol	Siemens
ADOS	Carl Zeiss	Flowsheet Panels	KentLea	Numonics	Smiths Industries
Advance Bryans	Carlo Erba	Foster Cambridge	Kent Process Controls	Oakton	Solec
AGA	Cassella	Fournier - Eward	KentTiegli	Observator	Soncebøz
Airflow	Cecil	Foxboro	Keteer	Omega Engineering	Sony
AlexanderWright	C.G.S	Franz Keteer	Kipp & Zonen	Ortec	SparlingEnvirtech
Allen Datagraph	Chauvin - Arnoux	Fuji	Kontron	OTA	Tandy
Alltech Associates	Chessell	Gallenkamp	Lab Data Control (Mbytek)	Otic - Fischer & Potter	Taylor
American Meter	Chino	Gebr Pflorner	Lambert	Oxford Instruments	T.D.S. Numonics
Aminco	Cleveland Controls	General Radio	Laumann	Oximetrics	Technicon
A.M.P.	Clifford Instruments	Geratotyp	Laumonier	Palmer BioScience	Tekman
Amrein	Cole Palmer	Gilson (Anchem)	L.D.C Latex	Pantos	Tektronix
Anachem	Comark	Giroux - Mesures	Leeds & Northrup	Parlow	Teledyne
Anaspec	Comeueg	Glaser	Leopold & Stevens	Peelforce	Templey
Anderson Instruments	Commadore	Goez	Leopold Sybron	Penman	Tewdata
Anpico	Corning Glass	Gossen	Linear	Penny & Giles	Texas Instruments
Aristo	Curkin Scientific	Gould Bryans	Linear Graphics	Perkin Elmer	Therm (Ahlborn)
Arkon	Data Mut	Gould Bush	Linæis	Phillips	Thies
Avery	Dermatherm	Gould Medical	Lloyd Instruments	Picom	Tiris Olsen
Badger Meter	Devar	Graphmate	Lode	Pignone	TOA
Baily	Dickson	Graphtec	Mannesman Tally	Princeton Applied Research	Toshiba
Barby & Kuhner	Digital	Grason Stadler	Markson	Pye Unicam	Truichter
Barber Colman	Dr. Friedrichs	Gulton (Rustrak)	Masorelan	Qualimetrics	Ultrakust
Baton Instrument Systems	Dr. Händchen	Haake	Max	Radometer	United Electric
Bausch & Lomb	Dr. Hrn	Haemi	Maxant	Ratona	Ulster
Beckman	Dr. Knauer	Hartmann & Braun	Machtron	Record Electrical	Valmet
Belfort	Dr. Muller (Fuess)	Hays Republic	MECI	Rheumat	Van Essen
Bender & Hübner	Drayton Controls	H.C. Electronics	Mercury	Richard & Pelly	Varian
Bendix	Du Pont	Heath Consultants	Messtechnik Reinhardt	Rikadenki	V.D.Q
Benson	Duro	Hewlett Packard	Metawatt	Robertshaw	Vitatron
Berrut	Eckard	Hilder Analytical	Metrohm	Rockwell	Walker & Crossweller
B.I.F.	Edgecombe Peeble	Hirschmann	Metrosonics	Rohde & Schwarz	Wang
Bio - Optonics	Electroflo	Hitachi	M.F.E	Roland	Watanabe
Bio - Rad	Elkey	Honeywell	Molytek	R.W. Munro	Weathereasure
Bitronic	Elmes Staub	Houston	Monsanto	Saitron	W.E.C
Boyle Industrial Gauging	Elvi	IBM	Moore Oregon	Salmoraghi	Weksler
Brabender	Elliot	Illec	Moore Products	Sanford	Well Reconnaissance
Brainard	Endess & Hauwer	Instron	Mount Sopris	Sarofus	Westronics
Bristol Babcock	Enerlec Schlumberger	Instrument Specialties (ISCO)	Mutoh	SCAN	White Box
British Rotothem	Enter Computer	Ioline Corporation	Naoko Sphrer	Schlegel	Wurtronic
Brown (S.G)	Esterline Angus	I.P. & T.	Noaco Biosystems	Schott Geräte	W & W Elektronik
Browne	Eurotherm	Isuzu	National Matsushita	Scientific Atlanta	Yamatoku - Honeywell
Brud & Kjær	Facit	ITT Baton	N.B.N. Electronics	Scitrag	YEW
Bruler Physik	Fareg	Jaeger	Neuberger	Sefram	Yokogawa
Bruning	Farnell	Jaquet	Neutix	Sekonic	ZEAL
Bryans Instruments	Fischer & Potter	Jules Richard Instruments	Nicdet Zeta	Sereg Schlumberger	ZIESS
Burger	Fielden Instruments	Jumo / Juheim	Nixdorf	Servis	ZWICK
Cakcamp	Fisher Controls	Kent	NORMA	Shimadzu	



**Source Lamps for Ultra-Violet, Visible Light and Infrared Spectrophotometers**

(Nearly ALL Models of Commercially Available Instruments)

- HPLC Detectors
- AA Background Correctors
- Hollow Cathode Elemental Lamps (HCL)
- Xenon Lamps
- Deuterium Lamps
- Infrared Light Sources
- Tungsten - Halogen Lamps
- Photoionisation Lamps (P.I.D.)



**UV Broad band Ultra-Violet Deuterium Lamps**

**Spectrophotometers - Gas Analysers - Medical Instruments - HPLC Colorimeters - Research Instruments.**

These Lamps are used as Light Sources in conventional Spectrophotometers and Background Correction in Atomic Absorption Systems where high intensity and stability are required in the 180nm to 370nm spectral region. They have been dimensioned to fit most Instruments as a high quality continuum spectral source. These Lamps feature special filament coatings and electronic tube processing to provide a minimum of 500 Hours useable lifetime. Their Quartz windows provide maximum spectral output.


**To Order please specify:- Instrument Make , Model and Serial Number (if known).**

**Tungsten - Halogen Lamps**

**Most commonly used in Analytical Instrumentation and Visible Range Spectrophotometers.**

The lamps are manufactured to a higher Mechanical and Optical Specification than those normally associated with these applications. Tungsten - Halogen Lamps commonly used as general lighting have their envelopes doped to restrict the Ultra - Violet component of their output. This renders them useless in Spectrophotometer applications.

Our Lamps are specifically manufactured for use in all types of Spectrophotometers and do not have the quartz envelopes doped. This gives a broad band performance not generally found in other lamps. They are available in Transverse, Axial and Solid Filament types.



**To Order please specify:- Instrument Make , Model and Serial Number (if known).**

**Infrared Light Sources**

**A new line of improved replacement Sources for Infrared Spectrophotometers. Generally superior to original equipment sources with no change in power requirements.**

- Lifetime exceeds 1250 hours even with "ON / OFF" duty cycles.
- Silver or Platinum electrodes insure minimum resistance.
- Constant output in Infrared Radiation
- Guaranteed uniform physical and electrical characteristics.
- 

**To Order please specify:- Instrument Make , Model and Serial Number (if known).**

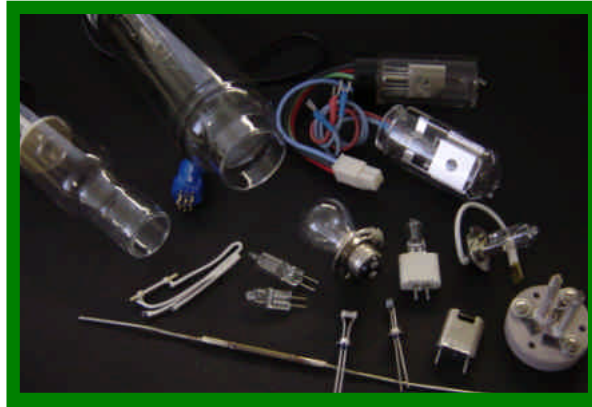


**Xenon Arc Lamps**

- UV-Visible Spectrophotometers
- Fluorescence Analysers
- Liquid Chromatographs
- Colour Analysis
- Photo - Acoustic Spectrophotometers
- Medical Analysis

Bulb Type and Continuous Arc high performance, high quality Lamps with improved lifetime specifications.

**To Order please specify:-  
Instrument Make , Model and Serial Number**



**Photo - Ionisation Lamps (P.I.D.)**

**Gas Analysis and Chromatography - Trace Gas Monitoring - Mass Spectrometry**

DC and RF Type Lamps are available with magnesium Fluoride, Lithium Fluoride, Sapphire or Spectrosil Quartz Windows, providing excellent transmission properties with a good lifetime.

**To Order please specify:- Instrument Make , Model and Serial Number (if known), Lamp diameter (mm) and Photon Energy (eV)**

**Hollow Cathode Elemental Discharge Lamps**

**Atomic Absorption Spectrophotometers - Atomic Fluorescence Spectroscopy  
Environmental Analysers - Medical Analysers - Multi-Component Analysers**

**Perkin Elmer - Unicam - Varian - AAnalyst**

These Gas Discharge Lamps produce a unique line spectrum output of great intensity, suitable for highly specific and sensitive metals analysis. They are designed to be used in most Instrument configurations currently available. Many sizes and adaptations are offered including **Coded** and **Non-Coded** types of **1.5 inch** (37mm) and **2 inch** (50mm) diameter Lamps. Adapter Leads are supplied where necessary at extra cost.

**Hollow Cathode Lamp Manufacturer Checklist**

Analytik - Jena	Phillips Analytical	Varian
Aurora Instruments	Perkin Elmer	UltrAA
Baird Atomic	Rank - Hilger	Varian Techtron
Buck Scientific inc.	Scintrex	Visimax I
Chemtech Analytical	Sedico	WAS Worldwide Analytical Systems
Corning E.E.L. (Evans)	Seiko	Zeiss
Fisher Jarrel - Ash	Shandon Southern	
GBC	Shimadzu	
Hamamatsu	Thermo Elemental	
Hitachi	Thermo Jarrel - Ash	
IL (Instrumentation Laboratory)	TJA Solutions	
Jenopnik	Unicam	

**To order please specify: Instrument Make, Model and Serial Number, Lamp diameter (mm),  
Coded or Non-Coded and Element(s) required.**



**Buck Model M500 IR**

Quick-scan Dispersive Infrared Scanning Spectrophotometer.

The combination of fast scan speed and high energy throughput of a single beam FT-IR unit with the rugged capability of a Monochromator-based Optical system. The M500 can achieve equivalent Resolution and Speed of an FTIR instrument *WITHOUT* employing expensive beam splitters made of Moisture-sensitive KBr, moving Mirrors and costly Bearings, or delicate Lasers prone to Vibration damage. The M500 consistently proves its quality, performance and economical reliability making it an outstanding and most durable IR system available.

The M500's design and User friendly software make it an ideal Instrument for multiple applications. Choose among an extensive range of Infrared sampling accessories to make the M500 a complete system, all at an affordable price.

**Specifications:**

Wavelength Range - 4000 - 600 cm<sup>-1</sup> (2.5 - 15microns)  
Optics - 4 - Position long pass filter, F/5 aperture Ratio, 0.5Mm monochromator, Left Hand Focus

Diffraction Gating 75L/mm, blazed at 4 microns  
Pre-Sample Chopper Chops at 23.6 cycles per second  
Slit Program Continuously Variable

Scan Speeds: 3, 6, 12, and 24 minute over full wavelength range.  
Data presentation Built-in LCD screen for wavenumber display, with %T or Absorbance readings, 4,250 data points per 3 minute scan, 8,500 data points per 6 minute scan, 17,000 data points per 12 minute scan, 34,000 data points per 24 minute scan.

Sample compartment 150mm square  
Outputs: RS-232 and recorder outputs  
Resolution Nominally - 4000cm<sup>-1</sup>—2000cm<sup>-1</sup> < 3m-1, 2000cm<sup>-1</sup>—600cm<sup>-1</sup> <2cm-1

Dimensions: 26.25" W x 15.25" D x 7.25" H  
Weight: 38lbs  
Power: 115 / 240VAC, 50 / 60 Hz, 150 watts.



**Buck Scientific Model HC-404  
Total Hydrocarbon Analyser**

A fixed filter Infrared Analyser designed for rapid, accurate analysis of Total Petroleum Hydrocarbons in Water, Soil and Sludge Samples.  
Perfect for: EPA methods 418.1, 413.2, 1664 Hexane method.

**Specifications:**

Wavelength 2924m-1 (3.42microns)  
Ranges: 0—100% Transmittance, 0—2 Absorbance Units, 0—1, 0—0.01 Concentration.

Readout: Digital Display  
Recorder o/p: Optional (Analogue voltage).  
Noise: Signal to noise ratio better than 2500 : 1.

Drift: 0.01 Absorbance Units/ Hour.  
Accuracy: +/- 1 Percent  
Response: Damping Range 1=10 seconds, Damping Range 2=40 seconds.

**Typical Applications:**

Environmental- Water and Soil Quality Analysis  
UST Closure testing.  
Laboratories- Screening samples for expected organic content prior to analysis  
Oil Sites- Monitoring discharge of Storage Tank washings  
Industrial- Waste Water Discharge Monitoring  
Petroleum- Monitoring Service Station Waste and water discharge.  
Marine- Testing Bilge and ballast discharge.

**Buck Model 910 / 310**

**Gas Chromatographs**

The 910 series perform routine industrial analyses and complicated research separations easily, generating accurate and reproducible results.

Designed to be durable and portable, the compact 310 series is ideal for operation in the field. EPA and ASTM methods can be easily performed on-site, even in adverse field environments.

The Unique architecture of the Buck GC systems allow various detector and injector combinations, so each GC can be configured to meet specific requirements



**Specifications:**

Oven dimensions: 7.5" x 8" x 3"  
Oven Temperature: Ambient to 450 degrees centigrade  
Temp Programming: Column oven temp is controlled by PeakSimple software. Unlimited ramp and steps  
Temp/Pressure: LCD display indicates set and actual temperatures for heated zones, detector outputs.  
Carrier Gas Flow: High Precision pressure regulator with thermostat flow controller. Calibrated in psi.

Weight: 40 to 70lbs depending on configuration. Dimensions: 18"(w) x 14"(d) x 13"(h)  
Power requirements: 110VAC 60Hz, or 230VAC 50Hz 750W, or 12VDC for isothermal operation.

**Buck Model 100 / 105 UV / Visible Spectrophotometers**

These are compact and economical units, ideal for routine analysis. Pertinent readout of Wavelength, Absorbance, Transmittance or Concentration is displayed on a large LCD. A cavernous sample compartment supports a wealth of cell holders to accommodate Cuvettes of 10mm to 100mm path lengths and test tubes ranging from 10mm to 25mm in diameter.  
An RS232 interface allows connection to a printer or PC, remote instrument control and downloading to an ASCII file for spreadsheet work.

**Specifications:**

Model 100: Wavelength Range: 320 - 1000nm  
Model 105: Wavelength Range: 190 - 1000nm

Resolution: 1nm  
Accuracy: +/- 2nm  
Bandwidth: 8nm

Absorbance: Range -0.300 to 1.999A Resolution 0.001A  
Transmittance Range 0 to 199.9% Resolution 0.1%

Stray Light < 0.5%  
Photometric Accuracy +/- 1%  
Concentration: Range -300 to 1999 Resolution 0.1 / 1 units ppm, mg/l, g/l, M %, Blank

Factor: 0 to 999.9, 1000 to 9999  
Photometric noise < 1%  
Stability: 1% / 1 hour warm-up.  
Outputs: 0-1999mV analogue, RS232  
Light Source: model 100 - Tungsten Halogen, model 105 - Xenon Lamp

Power Supply: 115 / 240VAC 50/60Hz <50W  
Size: 14.4" (w) x 10.7" (d) x 6.3" (h)  
Weight: 13.2lbs



**Buck 210/211 Atomic  
Absorption Spectrophotometer**

A powerful, compact and cost effective solution to all Atomic Analyses. It has been designed to offer great performance and flexibility in order to meet not only today's, but tomorrow's requirements in any modern laboratory. All operating conditions are pre-loaded into the Instruments internal Computer. Including Hollow Cathode Lamp settings secondary wavelengths, and alternate methods of analysis for over 60 elements by flame, furnace, or hydride techniques. A three lamp turret has individual controls for alignment and "stay warm" operating facilities for each lamp. Direct report generation to a printer or data linking to the optional AAnalyze software package is easily accomplished using the parallel and RS232C Ports.

**Specifications:**

Wavelength Range: 190 to 900nm +/- 0.2nm  
Precision +/- 0.1nm

Monochromator / Optics: 250mm Ebert mount, 600 lines per mm grating 0.2-0.7-2.0nm bandpass.

Hollow Cathode PSU: Triple HCL supply, 3 to 75mA peak in normal mode, 3 to 750mA in Giant Pulse mode.

Background Correction: D2-line configuration pulsed illumination hot cathode, variable frequency, corrects from 190nm to 850nm (0.7nm slit). Variable Giant Pulse - self reversing HCL currents up to 750mA with pulse time from 10 to 200 microseconds, corrects from 190-900nm.

Burner / Nebulizer: Polypropylene spray chamber with pre-mix burner and high efficiency adjustable nebulizers, Titanium burner heads for Air/Acetylene, Argon/Hydrogen and N2O/Acetylene operation

Microprocessor: Computer Control by 80C188 chip 8/16 bit operation, 12/24MHz non-volatile SRAM storage of 200 method files.

Integration / Response: 0.5 to 10 seconds.  
Automatic, weighted least squares fit to 1st, 2nd, 3rd or 4th order functions.

Calibration: LCD IEEE 488 parallel port, RS232, 16-line backlit LCD for text/graphics

Output modes: LCD IEEE 488 parallel port, RS232  
Display: 16-line backlit LCD for text/graphics



**Perfect for EPA method 245.1**

The **410** and **400A** Analyser systems incorporate the Hatch & Ott Cold Vapour Technique for the analysis of trace levels of Mercury in drinking, surface and saline waters, as well as domestic and industrial wastes.

**Buck Model 400A Mercury Analyser**



**Specifications:**

Sensitivity: Equal to 0.01 micro gram of Mercury  
 Absorption Line: 253.7nm  
 Range (scale): 0 - 9 micro gram (x1 scale)  
 Response time: 0 - 100% Transmission scale  
 0 - 0.028 micro gram (x5 scale)  
 Absorption Made - less than 0.5 minutes over entire scale range.  
 Reproducibility: +/- 0.05 micro gram at 1 micro gram level.  
 Flow rate: 1.8 litres per minute.  
 Absorption Cell: 150mm path length with silica windows  
 Recorder Output: Variable from 1 to 30mV  
 Power Requirements: 115/240 VAC 50/60Hz 80W  
 Weight: 18lbs

**Buck Scientific Model 410 Cold Vapour Mercury Analyser**

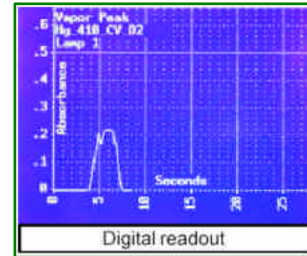


**Features:**

- Detection Limit 10 PPT.
- Complete Analytical System includes Hg Cold Vapour Kit.
- Up to eight point Calibration Curve.
- Push-Button *Quick Purge* for flow cell Flushing.
- D2 Background Correction
- Simple to use.
- Quick Analysis and recovery time.
- Affordable price.

**Specifications:**

Detection Limits: 10 parts per trillion (ppt).  
 Absorption Cell: 400mm Path length with silica windows  
 Background Correction: In-Line Deuterium Lamp  
 Output: RS-232 and Analogue Voltage.  
 Delivery System: Includes Air Dryer and Activated Carbon Filter.  
 Power Requirements: 115/240Vdts 50/60Hz, 80 watts.  
 Dimensions: 39"(w) x 17"(d) x 12"(h).  
 Weight: 45lbs



**Servicing and Spares.**

Our purposely built Service facility is fully equipped to perform Routine Maintenance, Calibration and Repairs on a variety of Optical Instruments and Spectrophotometers.

We pride ourselves in giving a Fast turn-around, Good Value Service.

All of our Engineers are fully qualified and have many years experience working on Scientific Instrumentation.

**Services:-**

- Routine Servicing.
- Maintenance Contracts.
- Instrument Repair and Refurbishment.
- Specialist Long Pathlength Gas Cell Refurbishment / Alignment / Installation.
- Traceable Wavelength Calibrations (UV-VIS)
- Instrument Gas Calibrations.
- Instrument Performance Testing.
- System and Accessory design Service

**Instrument Spares:-**

We stock a comprehensive range of spare parts and Accessories for the following Instruments:-

**Buck Scientific inc.** - All Instruments

**Foxboro / Wilks** - All **MIRAN** Analysers (and gas Analysers) - Century OVA.

**Bausch & Lomb / Milton Roy / Thermo Spectronic** - All **UV-Vis Spectrophotometers.**

Web: [www.lightpathoptical.com](http://www.lightpathoptical.com)  
 email: [sales@lightpathoptical.com](mailto:sales@lightpathoptical.com)

H2

Telephone: +44 (0)1297 - 33200  
 Fax: +44 (0)1297 - 33213



### PLC-11M Universal ATR Bench Sampling Accessory



A versatile, easy to use Attenuated Total Reflectance system for analysis of soluble powders, liquids, gels and films, with virtually no sample preparation. The PLC-11M slides into a standard sample holder fitted to most Instruments, inside the sample compartment. It is easy to clean and impervious to all liquid matrices.

**PLC-11M Single Reflection Prism Cell with:-**  
Transfer Optics, One single Reflection ZnSe Prism (45°),  
Flow-through Plate and Pressure Plate.

**Replacement Items**

- PLC-100** Transfer Optics.
- EM11B4-M** Single Reflection ZnSe Prism (45°) mounted.
- EJ11B4-M** Ge Prism (45°) mounted.

### Model 56 Horizontal Specular Reflectance Accessory

Used for the analysis of coatings on reflective surfaces and epitaxial measurements. The accessory consists of a simple fixed, two mirror optical system with a 30° angle of incidence. No mirror alignment is necessary, making this accessory easy to use.

**Ordering information**

- Model 56** Horizontal Specular Reflectance Accessory (including flat mirror)
- 103-1102** Replacement Flat Mirror.



### Model 57 ATR Accessory

Ideal for analysing Solids, Plastics, Adhesives, Surface Films, Coatings Etc. Three sampling positions (30°, 45° and 60°) can be configured allowing you to enhance the intensity of your spectrum. Greatest penetration into the sample is obtained when the sample holder is mounted in the 30° position, while the least penetration into the sample is obtained when the sample holder is mounted in the 60° position. Window materials used with this accessory are generally KRS-5, ZnSe and Germanium trapezoidal crystals with dimensions of :-  
50mm x 20mm x 2mm for dispersive Instruments.  
50mm x 20mm x 3mm for FTIR Instruments.  
These are cut with a face angle of 30°, 45° or 60°.

**Ordering Information:**

**Model 57** ATR Accessory includes  
Optical Bench, Delrin and Solids Holders.



**Delrin Holder**



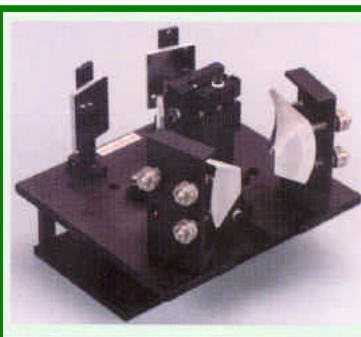
**Solid Holder**



**Liquid Holder**

- 5401** Delrin fixed plate holder- used for self-adhering samples such as Adhesives.
- 5402** Solids Sample holder- used for solids such as moulded plastics etc. (requires the 5401 holder to complete the assembly).
- 5403** Liquids Sample holder- used for liquid samples (requires 5401 to complete assembly).

### 4 x Beam Condenser



### 0010-345 4x Beam Condenser

This accessory concentrates an Infrared Light Beam by a factor of four. For instance, a typical 8mm beam will be concentrated to form a 2mm beam at the Sample. A selection of three types of sample holders allowing the micro-analysis of Liquids, Mulls or Solids are available. A unique micro X-Y-Z translation stage is used for mounting cells, prisms and micro cell holders. The device is useful for KBr micro-pellets, micro volumes of liquids, particulates, paint chips, micro flow-through studies and micro ATR measurements. The Beam condenser accessory easily fits into the sample compartment of most Instruments.

- 0010-345 4x Beam condenser Includes:-**
- 4x base optical unit
  - 10 x 5 x 1mm KRS-5 ATR Crystal (45°)
  - KBr micro pellet holder
  - Micro ATR holder
  - X-Y-Z Micro positioning stage and alignment tools.



**Variable Angle Specular Reflectance Accessory**

Useful for measuring Films and Coatings on Reflective Surface.  
The Sample is rotated to obtain the desired angle to be measured. Reflectance measurements can be made at angles from near normal incidence (20°) for highly reflective surfaces to near grazing (85°) for extremely thin films.

**Ordering information:-**

**0041-011S** Model 501 Variable Angle Specular Reflectance Accessory.

**Spare Parts: 3000-230** 13mm Slot Mask

**3000-231** 6mm Slot Mask

**7004-001** Alignment Mirror



**MIRacle HATR (Solids and Liquids analysis)**

MIRacle is the first Single Reflection Horizontal Attenuated Reflectance Accessory (HATR) which combines the functionality of other single reflection products with the economy and flexibility of standard, multi-reflection horizontal ATR's. This accessory offers several unique features including:

- Choice of Crystal Materials.**  
This is important for experiments requiring different spectral ranges.
- Single crystal plate design for analysis of solid and liquid samples.**  
An approach which lowers the cost of the accessory, for those Customers who have to deal with many types of samples.

The Accessory is an economical solution for users who want the flexibility of a single reflectance HATR. MIRacle - Single Reflection Horizontal ATR uses a "Building-Block" principle. The Accessory consists of the universal Optical Base which can be fitted with a wide selection of sampling plates equipped with different crystal materials.

The crystal plates are kinematically mounted to eliminate the need for alignment and can be exchanged in a matter of seconds.

The side of the plate features threads for a mounting ring designed to accept multiple sampling attachments.



**Features :-**

- High Optical throughput providing excellent sensitivity for analyses of a wide range of samples.
- Economical, single crystal configuration for Solid, Semi-liquid and Liquid Samples.
- Pinned-in-place, removable crystal plate for effortless clean-up and alignment-free placement.
- ZnSe, AMTIR, Germanium, Silicon and Diamond (see Diamond MIRacle) crystal options.
- Standard set of sample holding devices.

**Ordering Information:**

<b>025-13xx</b>	<b>MIRacle HATR with Ge Crystal and Compression clamp.</b>
<b>025-5012</b>	<b>Flow-through attachment</b>
<b>025-3052</b>	<b>Powder Press</b>



**Multi-Reflection HATR**

This Accessory is ideal for Liquid, Gel and Powder Samples. It requires little or no sample preparation.

The Sample Clamp allows for even, reproducible pressure, which in turn provides intimate contact between the sample and ATR Crystal plate.

The Accessory is supplied with a ZnSe crystal plate. Other Crystals are available and include Ge and Si.

**Ordering Information:**

<b>022-12xx</b>	Complete 45° ZnSe system with Flat Plate, Voatile cover, Powder Press and Trough Plate.
<b>022-11xx</b>	45° ZnSe System with Trough Plate and Powder Press.
<b>022-10xx</b>	45° ZnSe System with Flat Plate and Flat Plate Sample Clamp.

**"EasiDiff" Diffuse Reflectance Accessory**

This Accessory is designed for analysing most types of Solid materials (with the exception of mirror-like substances) such as Powders, Tablets, Minerals and even polymers, without the need for pressing KBr Pellets.

**Ordering Information:**

<b>042-10xx</b>	Complete EasiDiff System.
<b>042-2010</b>	Micro Sample Cup
<b>042-2020</b>	Macro Sample Cup

