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Accessories for Compact XS and Compact S:	Width/tooth	Order no.
Combs, 1.0 mm thick		
8 wells, 30 µl/well, multichannel pipet compatible, 9 mm spacing	7.5 mm	025-001
11 wells, 20 µl/well	5.0 mm	025-002
13 wells, 16 µl/well	4.0 mm	025-003
16 wells, 12 µl/well, multichannel pipet compatible, 4.5 mm spacing	3.0 mm	025-004
Combs, 1.5 mm thick		
Preparative comb: 1 well (342 µl) plus 2 marker wells (30 µl/well)	31.8 mm	025-015
8 wells, 45 µl/well, multichannel pipet compatible, 9 mm spacing	7.5 mm	025-011
11 wells, 30 µl/well	5.0 mm	025-012
13 wells, 24 µl/well	4.0 mm	025-013
16 wells, 18 µl/well, multichannel pipet compatible, 4.5 mm spacing	3.0 mm	025-014

Accessories for Compact M:		Order no.
Combs, 1.0 mm thick		
11 wells, 36 µl/well	9.0 mm	025-201
13 wells, 30 µl/well, multichannel pipet compatible, 9 mm spacing	7.5 mm	025-202
18 wells, 20 µl/well	5.0 mm	025-203
21 wells, 16 µl/well	4.0 mm	025-204
25 wells, 12 µl/well, multichannel pipet compatible, 4.5 mm spacing	3.0 mm	025-205
Combs, 1.5 mm thick		
Preparative comb: 1 well (594 µl) plus 2 marker wells (30 µl/well)	53.3 mm	025-216
11 wells, 54 µl/well	9.0 mm	025-211
13 wells, 45 µl/well, multichannel pipet compatible, 9 mm spacing	7.5 mm	025-212
18 wells, 30 µl/well	5.0 mm	025-213
21 wells, 24 µl/well	4.0 mm	025-214
25 wells, 18 µl/well, multichannel pipet compatible, 4.5 mm spacing	3.0 mm	025-215

Accessories for Compact L and Compact XL:		Order no.
Combs, 1.0 mm thick		
22 wells, 36 µl/well	9.0 mm	025-301
26 wells, 30 µl/well, multichannel pipet compatible, 9 mm spacing	7.5 mm	025-302
36 wells, 20 µl/well	5.0 mm	025-303
42 wells, 16 µl/well	4.0 mm	025-304
52 wells, 12 µl/well, multichannel pipet compatible, 4.5 mm spacing	3.0 mm	025-305
Combs, 1.5 mm thick		
Preparative comb: 1 well (1284 µl) plus 2 marker wells (30 µl/well)	111.0 mm	025-316
22 wells, 54 µl/well	9.0 mm	025-311
26 wells, 45 µl/well, multichannel pipet compatible, 9 mm spacing	7.5 mm	025-312
36 wells, 30 µl/well	5.0 mm	025-313
42 wells, 24 µl/well	4.0 mm	025-314
52 wells, 18 µl/well, multichannel pipet compatible, 4.5 mm spacing	3.0 mm	025-315

Note: sample volumes mentioned per well refer to a standard gel thickness

From the manual of the COMPACT family

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3.4 Gel Preparation

3.4.1 Gel Concentration

Prepare an agarose solution according to the fragment sizes to be separated.
The following table gives an overview about the suggested agarose concentrations.

Agarose concentration (%)	DNA fragment size (Kb)	Recommended buffer
0.5	1 - 30	TAE
0.7	0.8 - 12	TAE
1.0	0.5 - 10	TAE
1.2	0.4 - 7	TBE
1.5	0.2 - 3	TBE
2.0	0.2 - 3	TBE
3.0	0.1 - 3	TBE

TAE: Tris-acetate/EDTA
TBE: Tris-borate/EDTA

3.4.2 Gel Volume Requirements

Please prepare an appropriate volume of agarose solution (see section 3.3.5). The prepared volume should be a bit larger than the required gel volumes per tray.

The type of buffer used for the preparation of the gel solution should always be the same as the running buffer in the buffer tank!

3.4.3 Electrophoresis Buffer

a. Resolution Effects

For electrophoresis of agarose gels of the same concentration and at a fixed voltage, TAE (Tris-acetate/EDTA) provides better resolution of fragments > 4 Kb in length, while TBE (Tris-borate/EDTA) buffer offers better resolution of 0.1 to 3 Kb fragments.

Agarose forms finer pores and a more compact matrix in TBE buffer than in TAE buffer. This reduces the electrical field depending diffusion of DNA and produces a better sharpness of bands.

TBE has a higher buffering capacity and lower conductivity than TAE and is therefore better suited for high voltage (> 150 V) electrophoresis. TBE buffer also generates less heat at an equivalent voltage and does not allow a significant pH drift.

Note: Because of its lower buffering capacity, TAE requires circulation or mixing periodically for full-length electrophoresis, particularly at higher voltages.

Band compression of fragments of high molecular weight (> 5 Kb) occurs as voltage increases. This effect is observed with both TBE and TAE buffers.

TAE buffer provides better results for analysis of supercoiled DNA. Anomalous migration of supercoiled DNA, particularly with high molecular weight (> 7 Kb) fragments, occurs when TBE buffer is used at > 75 V. Use of TBE buffer also reduces the ability to resolve supercoiled DNA from nicked circular and linear DNA in the absence of ethidium bromide. For accurate size determination with supercoiled DNA , supercoiled DNA of known sizes (such as the Supercoiled DNA ladder) must be electrophoresed in an adjacent lane of the gel.

b. Heating Effects

Electrophoresis at high voltages generates heat, and high conductivity buffers such as TAE generate more heat than low conductivity buffers. Caution should be exercised in agarose gel electrophoresis at > 175 V. Heat buildup can cause gel artifacts such as S-shaped migration fronts, and in prolonged electrophoresis, can melt the agarose gel. Low-melting-point agarose gels should never be electrophoresed at high voltages.

3.4.4 Electrophoresis Buffer Preparation

Electrophoresis buffers are usually prepared as concentrated solutions and stored at room temperature. Please refer to the tables in section 2.3.1 and 3.3.2 for required buffer volume per electrophoresis chamber and gel.

5x TBE (Tris-borate) stock (1 liter)

Tris base.....54.0 g
Boric acid.....27.5 g
0.5 M EDTA (pH 8.0).....20.0 ml
Deionized or distilled water to .....1000.0 ml

Dilute to **0.5x TBE** (45 mM Tris-borate, 1 mM EDTA) **working solution**.

50x TAE (Tris-acetate) stock (1 liter)

Tris base.....242.0 g
Glacial acetic acid .....57.1 ml
0.5 M EDTA (pH 8.0).....100.0 ml
Deionized or distilled water to .....1000.0 ml

Dilute to **1x TAE** (40 mM Tris-acetate, 1 mM EDTA) **working solution**.

3.4.5 Casting the Gel

1. Add the appropriate amount of powdered agarose (see 3.4.1) to a measured quantity of electrophoresis buffer in an Erlenmeyer flask. Heat it in a boiling water bath or a microwave oven until the agarose is completely dissolved. Distilled water may have to be added to replenish what has boiled off.
   Cool the solution to 45 °C - 60 °C.

2. Insert the gel tray into the gel casting system:

3. Place the comb(s) into the appropriate slot(s) of the tray.

4. Pour the 45 °C – 60 °C warm agarose solution onto the gel tray.
   Recommended gel height ist 5 mm.
   Check that there no air bubbles under or between the teeth of the comb.

   Warning: Hot agarose (> 60 °C) may cause the tray craze and will decrease the lifetime of the tray.

5. After 30 to 45 min at room temperature the gel should be solidified.

6. Carefully remove the tray from the casting system.

7. Place the tray in the electrophoresis chamber so that the comb slots are near to the cathode (black). DNA samples will migrate toward the anode (red) during electrophoresis.

8. To prevent drying of the gel and ensure an even voltage gradient across the gel bed, submerge the gel with electrophoresis buffer to a depth of only 1 to 2 mm. Submerging the gel at a depth > 2 mm is unneccessary and increases electrical current and heat.

   Don´t ecxeed the maximum buffer fill line graved at the chamber wall.

9. Carefully remove the comb(s) and if necessary adjust the buffer layer according to 8.

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Max. sample number

Model	Gel size (W x L)	Max. sample number
Compact XS	8.2 cm x 7.1 cm	32 with 2 combs
Compact S	8.2 cm x 10.5 cm	48 with 3 combs
Compact M	12.4 cm x 14.5 cm	100 with 4 combs
Compact L	23.9 cm x 20.0 cm	312 with 6 combs
Compact XL	23.9 cm x 25.0 cm	416 with 8 combs

Useful accessories

057-013 UV transparent gel scoop

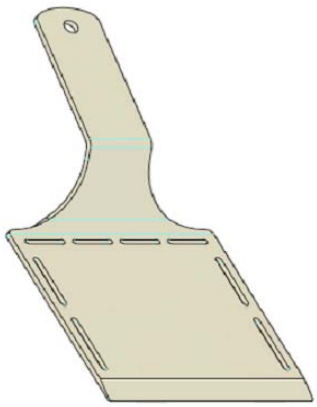
made of UV transparent acrylic glass

Disrupting gels when taking out gels from the staining bath is no longer a problem!

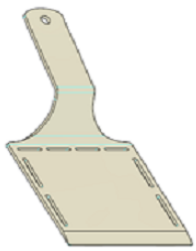
With the new scoop in

„Safe gel“ design

gels don´t float up and don´t slip from the scoop because liquid is drained by the slots on the side!



- For easy taking out of gels from staining bathes by „Safe gel“ design
- Suitable for gel documentation because of UV transparency
- Ergonomic handle
- No sharp edges
- Simple storing by hanging up



- Fits to Horizon 58/11.14, Compact XS/S/M
- Area for gel: 13 cm x 15 cm
- Documentation area (without drain slots): 13 cm x 13 cm

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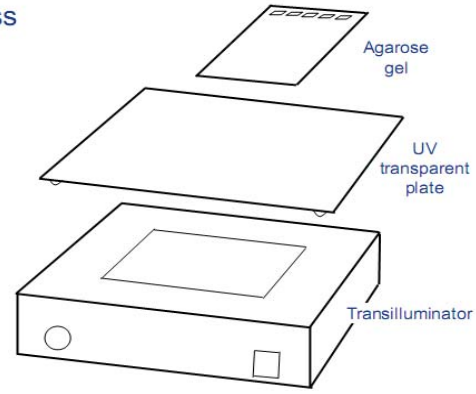
057-012 UV transparent plate

Useful for preparative tasks (= cutting bands from agarose gels)

- made of UV transparent acrylic glass
- robust (6 mm thick)
- 4 anti-slip rubber feet
- dimension: 31 cm x 26 cm (W x D)

⇨ 100% protection of the transilluminator's filter glass plate against scratching with scalpels !



Note: must not be cleaned with organic solvants (like ethanol, etc.)

Loading strips

Visualization guide for wells in the gel when pipetting samples

3 sheets with red, yellow and green adhesive strips

025-006 Loading Strips XS/S
4 strips per colour
8.6 cm x 1 cm

025-206 Loading Strips M
4 strips per colour
12.8 cm x 1 cm

025-306 Loading Strips L/XL
8 strips per colour
24.4 cm x 1 cm