



PROTEAN[®]
Plate
Washer/Holder

Instruction
Manual

Catalog Number

165-1991

165-1992

165-1993

BIO-RAD

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Section 1

General Information

1.1 Introduction

The PROTEAN II xi plate washer/holder consists of two plate holders, a washing tank, and a lid. The plate holders minimize operator handling of glass plates, which reduces the likelihood of chipping and cracking the fragile plates. The washing tank accommodates all PROTEAN II xi, PROTEAN II, and Mini-PROTEAN® II glass plates for washing, and makes an ideal storage holder for clean glass plates.

1.2 Specifications

Tank and Lid

Construction	Polypropylene
Wall thickness	1.5 mm (minimum)
Size	38 cm (W) x 38 cm (L) x 37.0 cm (H)
Weight	1.9 kg

Plate Holder

Construction	
Plate holder	Polypropylene
Handle	Stainless steel
Nuts and screws	Nylon
Size	7.9 cm (W) x 22.9 cm (L) x 12.7 cm (H)
Weight	0.5 kg

1.3 Chemical Compatibility

The plate holder, tank, and lid are constructed of polypropylene. Polypropylene is not compatible with halogens, fuming nitric acid, or aromatic and chlorinated hydrocarbons at high temperatures. These chemicals will attack and destroy these parts.

Chromerge will weaken these parts after extended exposure. We do not recommend using the plate holder with Chromerge. If you must use these holders for Chromerge cleaning, do not store the plate holders in Chromerge solutions. NEVER USE THE TANK TO STORE CHROMERGE SOLUTION. USE A GLASS HOLDING TANK FOR ALL CLEANING WITH CHROMERGE.

1.4 Equipment and Accessories

Catalog

Number	Product Description
165-1991	PROTEAN II xi Plate Washer/Holder , includes tank, lid, plate holders (2), instructions, and a 400 g sample of Bio-Rad's Cleaning Concentrate
165-1992	PROTEAN II xi Plate Holder , and instructions
165-1993	PROTEAN II xi Plate Washer Tank and Lid , and instructions
165-0722	Bio-Rad Cleaning Concentrate , 1 kg bottle

PROTEAN II xi Cells

Catalog

Number	Product Description
165-1801	PROTEAN II xi Cell , 16 cm, without spacers and combs
165-1802	PROTEAN II xi Cell , 16 cm, 1.5 mm spacers (4) 15 well comb (2)
165-1803	PROTEAN II xi Cell , 16 cm, 1.0 mm spacers (4) 15 well comb (2)
165-1804	PROTEAN II xi Cell , 16 cm, 0.75 mm spacers (4) 15 well comb (2)
165-1811	PROTEAN II xi Cell , 20 cm, without spacers and combs
165-1812	PROTEAN II xi Cell , 20 cm, 1.5 mm spacers (4) 15 well comb (2)
165-1813	PROTEAN II xi Cell , 20 cm, 1.0 mm spacers (4) 15 well comb (2)
165-1814	PROTEAN II xi Cell , 20 cm, 0.75 mm spacers (4) 15 well comb (2)

PROTEAN II xi Glass Plates

Catalog

Number	Product Description
165-1821	Inner Plate , 16 cm cell, 16 x 20 cm (2)
165-1822	Outer Plate , 16 cm cell, 18.3 x 20 cm (2)
165-1823	Inner Plate , 20 cm cell, 20 x 20 cm (2)
165-1824	Outer Plate , 20 cm cell, 22.3 x 20 cm (2)
165-1825	Frosted Inner Plate (Agarose Gels) , 16 cm cell, 16 x 20 cm (2)
165-1826	Frosted Inner Plate (Agarose Gels) , 20 cm cell, 20 x 20 cm (2)
165-1827	Beveled Inner Plate (2-D procedures, bevel length = 16 cm) , 16 x 20 cm (2)
165-1828	Beveled Inner Plate (2-D procedures, bevel length = 16 cm) , 20 x 20 cm (2)
165-1832	Notched Inner Plate (double-up procedures, bevel length = 16 cm) , 16 cm cell, 16 x 20 cm (1)
165-1833	Notched Inner Plate (double-up procedures, bevel length = 16 cm) , 20 cm cell, 20 x 20 cm (1)

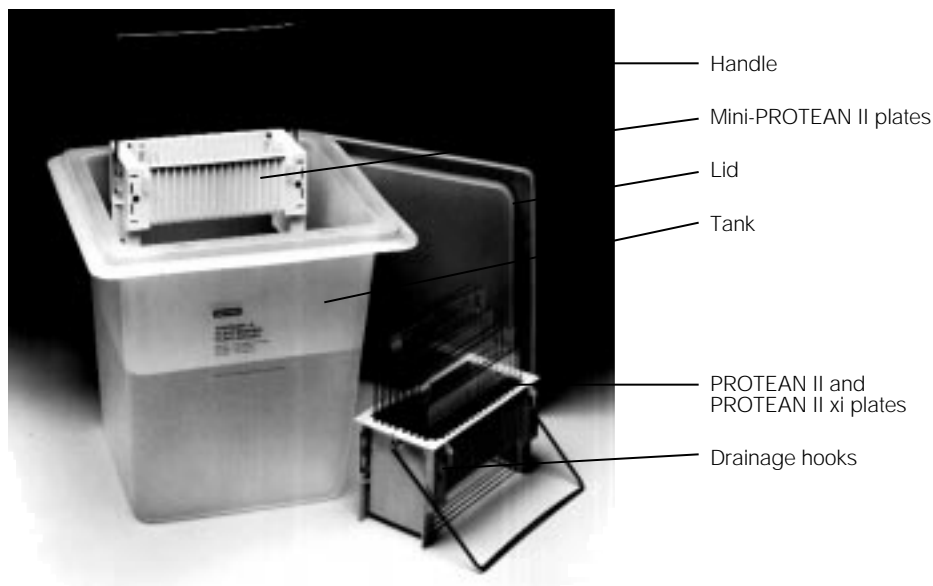
Mini-PROTEAN II Cell and Accessories

Catalog

Number	Product Description
165-2940	Mini-PROTEAN II Cell , 10 well combs, 0.75 mm spacers
165-2941	Mini-PROTEAN II Cell , same as 165-2940 without combs and spacers
165-2912	Glass Plates , 10 pairs of inner and outer plates
165-2907	Inner Glass Plates , 7.3 x 10.2 cm, 10
165-2908	Outer Glass Plates , 8.3 x 10.2 cm, 10

Section 2 Description of Major Parts

2.1 Plate Washer/Holder Components



2.2 Tank and Lid

The plate washer tank and lid can be used for both washing and plate storage. The polypropylene lid prevents accidental spillage of cleaning solution from the tank, and also provides a dust-free environment for plate storage.

Polypropylene plastic construction makes the tank resistant to the strong acid and base solutions commonly used in cleaning solutions. Any standard laboratory cleaning detergent will work well as a cleaning solution. See Section 1.3 for chemical compatibility before adding solutions other than detergents to the tank. Do not use the tank as a storage container for Chromerge.

Note: We recommend Bio-Rad's Cleaning Concentrate (catalog number 161-0722) for washing glass plates with the PROTEAN II xi plate washer/holder. The moderately alkaline cleaning concentrate is harmless to skin and clothing, and cleans by solubilizing and emulsifying contaminants in the glass surface. A 400 g sample bottle is provided with each plate washer/holder.

2.3 Plate Holder

The plate holder accommodates all types and sizes of PROTEAN II xi, PROTEAN II, and Mini-PROTEAN II glass plates. Lengthwise, each plate holder will accommodate 8 PROTEAN II xi and PROTEAN II plates; widthwise they can hold 18 Mini-PROTEAN II plates.

A unique plate holder feature is its drainage hooks. These hooks are used to hang the holder on the edge of the tank to drain the wet plates following cleaning and soaking. This eliminates messy transfer of plates.

The plate holder also has a convenient fold-down stainless steel handle for raising and lowering the holder without immersing your hands in the cleaning solution. The handle allows safe transportation of the plates to and from the tank or a drying oven.

Note: The handle is shipped separately from the plate holder and must be installed prior to use.

Section 3 Operating Instructions

1. Fill the tank with enough diluted Cleaning Concentrate (1:50 dilution with water) to completely submerge the glass plates. The approximate volume of cleaning solution and amount of cleaning concentrate required for each type of glass plate is given below. The maximum amount of solution that should be added is 15 liters. This will cover the 22.3 cm long PROTEAN II xi and PROTEAN II plates and still leave room to reach the handle without having to touch the cleaning solution.

<u>Type of glass plate</u>	<u>Quantity of cleaning solution required</u>
Mini-PROTEAN II plates	8 liters (use 160 ml of cleaning concentrate)
PROTEAN II xi and PROTEAN II 16 cm cell	12 liters (use 240 ml of cleaning concentrate)
PROTEAN II xi and PROTEAN II 20 cm cell	15 liters (use 300 ml of cleaning concentrate)

Note: We do not recommend the use of the strongly caustic Chromerge cleaning solution with the plate washer/holder due to the hazards associated with this highly corrosive material.

2. Insert up to 8 PROTEAN II xi or PROTEAN II (20 cm width) glass plates, or up to 18 Mini-PROTEAN II (10 cm width) plates into each holder.

Note: Each plate holder can be filled with either PROTEAN II and PROTEAN II xi, or Mini-PROTEAN II plates; both types of plates cannot be held simultaneously in a single plate holder.

3. Lower the holders into the cleaning solution and soak the plates overnight. Two holders can be washed at a time. For more rapid washing, or to help remove traces of polymerized acrylamide from glass surfaces, repeatedly raise and lower a single plate holder into and out of the cleaning solution.
4. After soaking has been completed, withdraw the plate holder(s) and hook them onto the upper edge of the tank using drainage hooks. This allows the plates to drain completely before they are transferred to a sink for rinsing.
5. Rinse the plates thoroughly, first with tap water, then with distilled water. A final ethanol rinse is optional.
6. Air dry plates or place the plate holder(s) into a drying oven for rapid drying.
7. The clean glass plates are conveniently held upright in the plate holder. To protect the plates from dust or accidental breakage, we recommend that you store them in a clean, dry tank with lid (catalog number 165-1993).

Section 4 Maintenance

Bio-Rad's Cleaning Concentrate is a moderately alkaline solution. When diluted it has a pH of approximately 10.5. Replace the cleaning solution when the time required for cleaning begins to increase or when the pH of the solution drops. No general maintenance of the plate washer/holder is required with normal use.

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