Specifications for Western Blotting System

The western blotting unit should be a complete unit with an integrated electrophoresis and blotting unit along with a power supply for wet transfer and a separate Semi Dry Transfer System. The details of the specifications are given below.

1. Integrated Electrophoresis and Blotting Unit with Power supply

1A. Vertical Electrophoresis Unit
1. The electrophoresis unit should be interchangeable for both electrophoresis as well as for blotting.
2. The electrophoresis unit should be able to run up to 4 gels simultaneously with efficient cooling system to deliver side by side sample lanes with no smiling and using not more than 1000 ml buffer.
3. It should be able to run both precast and hand cast gels
4. The core design of the unit should facilitate easier assembly and prevent buffer leakage.
5. The unit should have sample loading guides to allow easy sample loading and help prevent skipping or reloading lanes.
6. The casting unit should have ground glass plates with bonded spacers to guarantee perfect alignment and leak free casting
7. The electrophoresis unit should have at least 5 glass plates and 5 notched plates of size 10 x 8 cm, with 1.0 mm spacer, casting stands and casting frames.
8. The casting frames should provide accurate alignment on any flat surface.
9. The combs should have ridges to eliminate air contact during gel casting for uniform gel polymerization
10. The electrophoresis unit should have a safety lid to prevent accidental operator contact.
11. The typical run time for SDS PAGE should be less than an hour at 200V
12. The electrophoresis unit should have EN-61010-1 safety certification.
13. Broad range pre-stained western protein molecular weight marker (10 to > 200 kDa, 10 or more separate proteins) appearing in gel, on the blot and on film or CCD image for 50 applications should also be supplied with the unit.

1B. Blotting Unit
14. The wet transfer unit should perform both protein and nucleic acid transfer.
15. It should transfer 2 mini gels with less than 500 ml buffer and in not more than 1 hour.
16. The wet transfer unit should have all components including gel cassettes, foam pads, wire electrodes, plate electrodes, heat exchanger, etc.
17. The wet transfer unit should be able to control transfer temperature with built-in heat exchanger super cooling coil and a water re-circulator without depletion of buffer.
18. The wet transfer unit should be able to setup transfer quickly with hinged and color coded cassettes to ensure proper orientation.
19. The wet transfer unit should assure uniform electrical field.
20. The blotting unit should have EN-61010-1 safety certification.
1C. Power Supply for Items 1A and 1B
21. The output range of the power supply should be 5-250V, adjustable in 1 V increments; 0.01-3.0 A adjustable in 0.01A increments; 1-300W adjustable in 1W increment
22. It should have the option to operate at constant voltage, current or power
23. It should have digital display with 16 characters and 2 lines.
24. It should have at least 4 output terminals for simultaneous electrophoresis run.
25. The output of the power supply must be isolated from external ground to ensure that the DC voltage output floats with respect to ground.
26. The power supply should have EN-61010-1 safety certification with safety features, such as no load detection, rapid resistance change, ground leak detection, overload/short circuit detection, over voltage protection and over temperature protection.

2A. Semidry Transfer Unit
27. The semidry transfer unit should use minimal buffer only to saturate blotting papers and membranes.
28. The electrodes of the semidry transfer unit should be made of platinum coated titanium and stainless steel to give consistent, reliable and contamination free transfers with great durability with years of use.
29. The transfer time should be between 15-60 mins.
30. The semidry system should accommodate at least 4 mini gels of 10 x 8 cm on a flat surface.
31. The transfer should stop automatically when buffer gets depleted to save transfer before overheating.
32. The semidry transfer unit should be limited to 30V for safety assurance.
33. The semidry transfer unit should include a roller to remove air bubbles trapped between gel, membrane and electrodes. It should also include sheets of blotting paper, cellophane sheets, solid masks, etc., for mini and midi gels.
34. The semidry transfer unit should also be able to transfer DNA and RNA.
35. The semidry system should have EN-61010-1 safety certifications

2B. Nucleic Acid Transfer System
36. Separate system for DNA/RNA transfer with accessories should be provided

All the above items, i.e., Electrophoresis Unit, Blotting Unit, Power Supply, Semidry Transfer Unit and Nucleic Acid Transfer System should be provided with detail brochures and 1-2 years of warranty.

Optional
1. Spares and accessories for all the above systems should be quoted separately.
2. Suitable online UPS for the above systems, if required, should be quoted separately.