

GroX – The Grok Box - The Grox Grow Box System – Technical Description

The Grox is a shippable and easily assembled closet grow box and microclimate system, along with the complete instructions for a wide variety of plant growth techniques, including organic and hydroponics. The system is designed to fit into a 16" by 24" inch closet space, with the socket light array suspended by several nylon lines and/or pendant lamp cords, from a securely fastened closet hanger dowel, or by suitable ceiling hooks, or by some other specialized means of suspension. The GroX plant growing box container system consists of readily available 24 quart clear plastic shelf storage containers, used as the floor protectors, which contain up to 15 close packed 32 ounce large yogurt containers. Each individual plant growing container is drilled with a small quarter inch hole very near the bottom of the side, which serves as a water weeping hole for any organic soil, or as a threaded entry for a 1/8" NPT nipple fitting. This configuration allows for a many different approaches to all stages of plant growth; for connection to a plant grid, or for simple watering or hydroponic nutrient solution immersion within the grow box. If the light array is ceiling suspended properly, the grow box may be tabled for plant growth viewing, observation and examination, and thus presents itself as the ideal demonstration device and a teaching vehicle for a variety of STEM related subjects - such as physics, chemistry, biology and engineering.

The lightweight 3 by 3 socket lighting array is integrated into the white plastic cover of the plant grow box, layered with a metal reflector and thermal radiator, and surrounded by easily adjustable reflective surfaces. It can accept up to 9 compact fluorescent CFL or solid state LED bulbs, and any combination of socket Y adapters, and includes socket to plug adapters to safe any unused sockets. Corner and/or center sockets consist of long pendant lamp cords for secure suspension of the array, and are also used as backup to nylon cord suspension, bundling and routing the cords to GFCI protected multiple outlet strips. The light array itself is raised and lowered by a 4-point nylon cord attachment, connected to two suspension lines, for safe incremental raising and lowering of the lighting assembly. The lighting array assembly is also designed for future incorporation of modern direct current LED diode array modules, powered directly from external solar panels and a 36-48 VDC power supply - in full winter conditions. Ventilation of the grow box is provided by computer legacy 5 VDC computer fans and fan controllers, making the GroX compatible with any modern computer based instrumentation and control systems. Automation is easily added with hydroponic nutrient solution reservoir winching or pumping systems.



GroX – The Grok Box – The Grox Grow Box System – Parts List

Corded Pendant Lamp Sockets

18” by 15” Aluminum Foil Oven Liners

Sterlite 28 Qt. Clear Plastic Shelf Storage Boxes with White Lids

One Quart 32 Ounce Polypropylene Yogurt Style Plant Containers

15 to 25 Watt CFL or LED Light Bulbs, 65 and 80 Watt CFL Bulbs, 2700-3000 K and 5000-6000 K.

Phenolic Lamp Sockets With Threaded Rings

Socket to Plug Adapters

Socket Y Adapters

White Woven Nylon Cord

Heavy Duty Lamp Cord and Plugs

Junction Boxes

Terminal Strips

Rubber Grommets, Wire Terminals, Wire Nuts, Cord Clamps, Bolts, Nuts, Washers

Velcro Stick

Reflective Foam Duct Insulation and Foil Tape

24 Hour Interval Timer Switches

5 Volt Computer Fans

5 Volt USB Power Adapters

USB Power Cords

5 Volt Fan Controllers

Six Plug Multiple Outlet Strips

Ground Fault Circuit Interrupter (GFCI) Master Plug Adapters



GroX – The Grok Box – The Grox Grow Box Hydroponics – Parts List

Three Gallon 12 Liter Square Pails with Lids

Precision Double Pulleys

White Woven Nylon Cord

1/4” ID by 3/8” OD Black Polyethylene Tubing

1/8” NPT by 1/4” Black Polyethylene Threaded Barbed Nipple Fittings

1/8” NPT by 1/4” Black Polyethylene Threaded Barbed Tee Fittings

1/4” Black Polyethylene Barbed Elbow Fittings

1/4” Black Polyethylene Barbed Tee Fittings



Double Action Fitting and Tubing Pliers Press

5/16” Drill Bit

1/8” NPT Tap

1/8” NPT Fitting Wrench



Potassium Nitrate

Potassium Phosphate

Magnesium Sulfate

Calcium Nitrate

Trace Elements and Minerals



Robotic Nutrient Solution Reservoir Winching Mechanism

Automated Nutrient Solution Reservoir Pumping System