

Background

Sonos DRIP is a revolutionary testing chamber that performs IPX1-5 tests giving Sonos confidence in the water resistance of their products before sending them out for official certification. By integrating three unique test fixtures into one robust machine, the Sonos DRIP combines the functionality of multiple machines into one for a fraction of the cost.

SONOS

DRIP

Determining Reliance of Ingress Protection

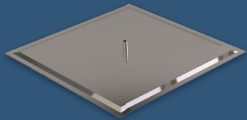


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IP Systems



IPX1/2: 16"x16" shower head dripping water at 1mm/min.

IPX3/4: L-bracket with angled nozzles designed to spray water at $\pm 60^\circ$ and $\pm 180^\circ$ at 2.64 gpm. Slider allows fixture to be adjusted to the height of various products.



IPX5: Pressurized jet that can be angled to directly hit any sized product at 4.12 gpm.

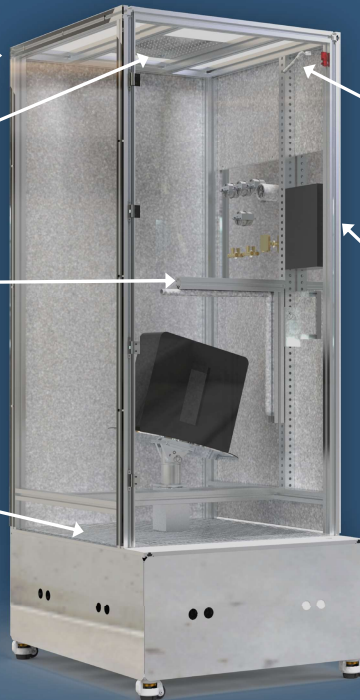
Size: 3' x 3'6" x 7'6"

IPX1/2: Shower head

IPX3/4: Position setting hinge allows fixture to be moved when not in use

Closed System: 30 gallons of water recycles through system via drip pan into tank

Support: Casters provide stability and movability.

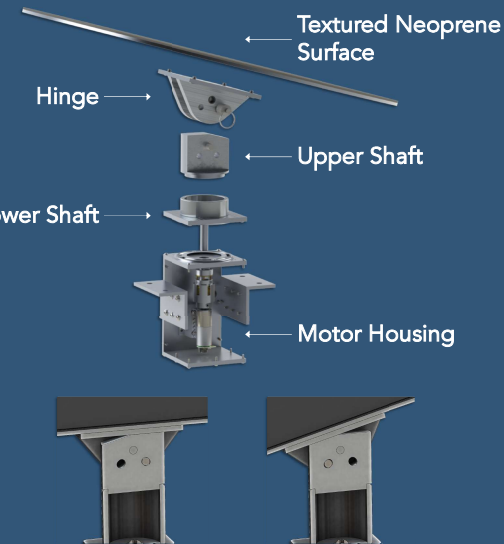


IPX5: Flow rate analysis allowed distance from product to be shortened from 3m to 1m

User Friendly: Directional control valves and LCD provide intuitive user interface

Accessible: Lower panels attached by magnetic strips for easy access to tank and electrical components.

Rotary Table



Textured Neoprene Surface

Hinge

Upper Shaft

Lower Shaft

Motor Housing

Detents in the upper shaft allow the table to be positioned at 0° and 15° .

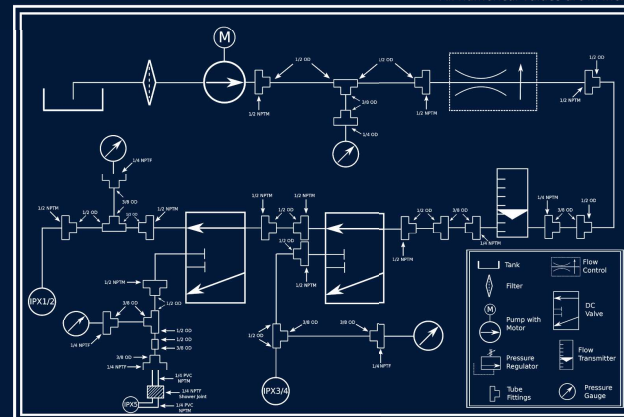
IP Standards

In industry, the widely accepted standards for judging a product's level of water resistance are known as Ingress Protection, or IP, standards. The following are the standards met by this test chamber:

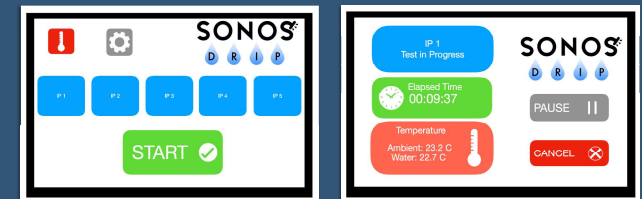
- IPX1: Light vertical drip while product rotates
- IPX2: Light vertical drip with product tilt at 15°
- IPX3: Spray from oscillating tube $\pm 60^\circ$ from vertical
- IPX4: Spray from oscillating tube $\pm 180^\circ$ from vertical
- IPX5: Water jet hose nozzle from a distance of $\sim 3m$

Fluids Network Schematic

*All numerical values are in inches



Graphical User Interface (GUI)



GUI allows the system to be controlled and monitored from LCD while in use. Features include test selection, pause/resume, elapsed time and temperature monitoring.