JAR TESTER

INSTRUCTION MANUAL

CONTENTS

1. USER GUIDELINES

Congratulations on the purchase of your Platypus Jar Tester (Laboratory Flocculator).

This manual contains useful information for its operation, maintenance and technical specifications.

Please read and understand the manual before commencing jar testing.

2. DO NOTS

Operate Platypus Jar Tester with ambient temperatures > 40°C and < 0°C

Expose Platypus Jar Tester to extended periods of direct sunlight

Use solvents for cleaning body parts

3. DESIGN & FEATURES

Platypus Jar Testers facilitate pilot scale evaluation of optimum physical/chemical treatment for surface water, ground water and waste water treatment processes.

Illustrations below show the main features of the Platypus Jar Tester.

Platypus Jar Testers feature unique design elements that assist with jar testing function, facility and amenity, including:

- Lightweight, Durable Body

Easy to clean, water resistant, extensive use of corrosion resistant ABS, polycarbonate and acrylic materials.

- Program Setting for Flash Mixing & Flocculation Speed & Time

Four independent stations/drives each with independently programmed sequential speed and time settings for *Flash Mix* and *Flocculation* stages.

Individual station ***Automatic, Manual, Program, Idle*** and ***Test*** modes.

Retention of last RPM and TIME settings (***Automatic*** mode) for ongoing tests.

PWM motor speed controllers tied-back to actual speed (measured by Hall Effect speed sensors).

Each station's speed microprocessor controls paddle speed in accordance with the programmed set speed (setpoint).

Speed controllers ensure drive output speeds are controlled to set speed rather than inferred speed.

Paddle speed is relatively unaffected by variable test water viscosity, temperature conditions or jar size.

RS-232 connectivity provision for debug and in-circuit programming.

Fault diagnostics. LED and digital display messages.

Set and actual speed displays.

Automatic mode residual time countdown display for *Flash Mix* and *Flocculation* stages.

Manual mode count-up display for *Flash Mix* and *Flocculation*.

- Tactile, Membrane Keypads

State of the art water resistant, tactile keypads at each station incorporating programming touch buttons, control mode and stage selection indicators (LED's);

- Digital Displays

14mm 3 and 4 digit numeric LED displays - RPM and Time (minutes, seconds).

Each Speed and Time display is common for Stage 1 and Stage 2 – selectable.

4 digit display provides a clock for Stage time – selectable for *Flash mix* and *Flocculation*.

- Quiet Operation

Motor/gearboxes equipped with rubber power transmission type belts – vibration free operation and low noise.

- Backlighting

Extra low voltage, 2.4 Watt (total) LED lighting array.

Brilliant ice white light uniformly distributed across the bottom rear of the unit.

Suspended floc particles illuminated against a black colour backdrop maximises floc definition and contrast - facilitates accurate observation of floc size, floc density, floc settling rates and supernatant/subnatant clarity.

The unique position of, and low heat generated by the light source avoids thermal eddys that may interfere with floc settlement rate assessment.

- Unique Paddles

Radial flow clear Polycarbonate paddles have uniquely tilted blades to induce a component of axial flow - ensures homogeneous suspension of fast settling flocs.

Clip-on/clip-off easy clean paddle sets to suit 1L and 2L jars.

- Square Jars

1 Litre and 2 Litre clear Polycarbonate injection moulded jar accessories.

Easy-to-clean fillets at the floor and wall corner interfaces.

Anti slip top lips for secure handling in wet environments.

Square jar emulation of full scale plant flocculator geometry.

4. OPERATION

Typical set up:

- Set your Platypus Jar Tester on a flat, stable surface.

- Check the powerpack and its supply connector are suitable for the available power supply eg. 110V/60Hz or 230V/50Hz.

- Plug-in the power supply cable (provided) to the corresponding AC supply outlet and the other end to the IEC inlet socket on the Platypus Jar Tester powerpack.

- Plug-in the powerpack DC connector to the matching DC power inlet socket adjacent to the fuse carrier – see illustration on page 3.

- Fill jars with representative raw water.

- Lift paddle knobs/shafts and locate the jars centrally below each paddle shaft.

- Lower paddle shafts to engage the drive mechanism.

- Add measured volumes of test chemicals to each jar, typically after commencement of the *Flash Mix* stage.

For ***Manual*** control of *Flash Mix* and *Flocculation* speed and time:

- Select ***Manual*** mode - use the speed UP and DOWN buttons to select desired speed - typically 120 RPM for *Flash Mix* and 20-30 RPM for *Flocculation* settings.

- In ***Manual*** mode the time clock display count ascends (descends in ***Automatic*** mode).

For ***Automatic*** control of *Flash Mix* and *Flocculation* speed and time:

- Select ***Program***. Set *Flash Mix* (Stage 1) time and speed - use UP and DOWN keys.

- Select ***Program***. Select ***Pause Continue*** to toggle between pause ON or pause OFF.

- Select ***Program***. Set *Flocculation* (Stage 2) time and speed – use UP and DOWN keys.

- Select ***Program*** – returns to ***Idle*** mode.

- Select ***Auto Start*** to begin the programmed Stage 1 and Stage 2 sequences.

- If ***Pause*** mode has been selected between Stages 1 and 2, the program is suspended at the end of *Flash Mix* (Stage 1). Select ***Pause Continue*** to commence Stage 2.

- Programmed information is stored in memory until reprogrammed i.e. subsequent jar tests ***Program*** parameters are retained as previously set.

Typical jar testing record format;

OPERATOR: ……
SAMPLE FROM: …… **COLLECTION DATE:** ……
TEST DATE: ……..
RAW WATER CHARICTERISTICS:
APPEARANCE: ……
pH: …….. **TURBIDITY NTU:** …….. **COLOUR:** ……
TEMPERATURE: ……
TEST NUMBER: …… **JAR SIZE:** ……..

JAR 1 JAR 2 JAR 3 JAR 4
COAGULANT (mg/L)

ALKALI (mg/L)**:**

COAGULANT (mg/L)**:**
ALUM
ACH
FERRIC CHLORIDE

COAGULANT AID (mg/L)**:**
POLYMER

POLYMER DELAY (sec)**:**

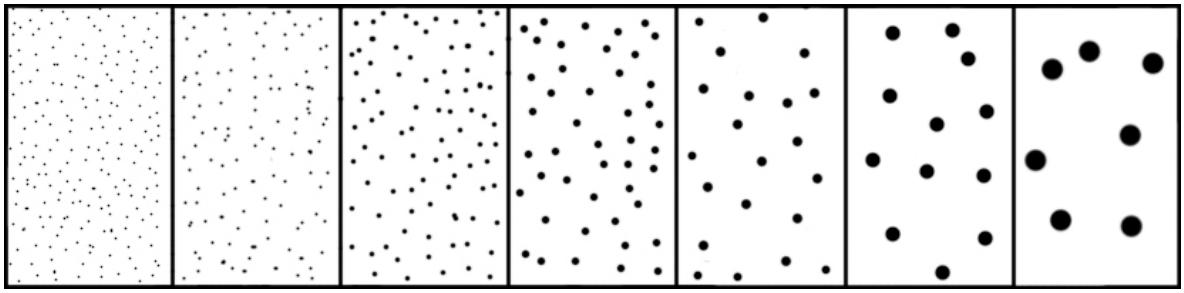
FLASH MIX (stage 1)
SPEED (rpm):
TIME (sec):
G (secs-1):

FLOCCULATION (stage2)
SPEED (rpm):
TIME (sec):
G (secs-1):

FLOC:
FIRST FORM (sec):
SIZE (mm):
FULL DEVELOPMENT (sec):
SETTLE RATE:(mm/min):
SUPERNATANT TURBIDITY:
SUBNATANT TURBIDITY:
SUPERNATANT ALUMINIUM (IRON) RESIDUAL (mg/L):
SUBNATANT ALUMINIUM (IRON) RESIDUAL (mg/L):
COLOUR:
pH:

COMMENTS:……
……

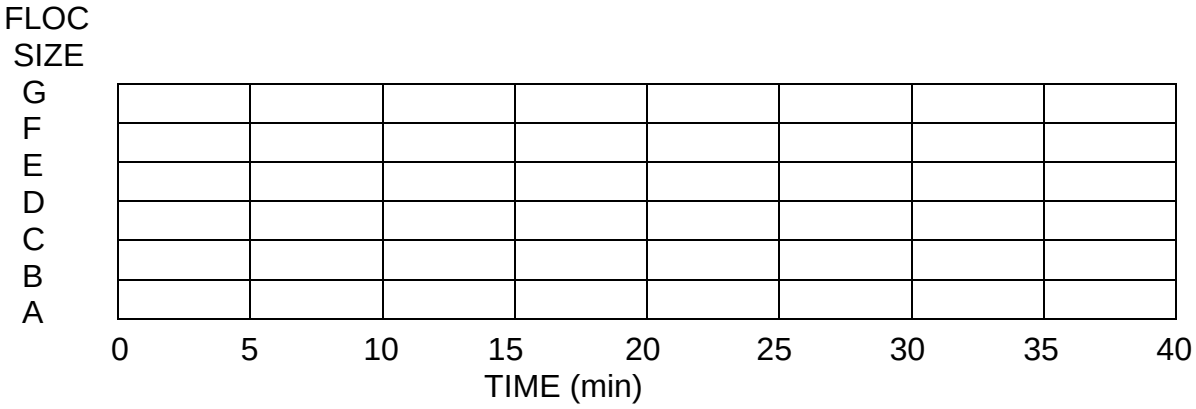
Typical floc comparator for jar test reference.



0.3 **A** 0.5 **B** 0.75 **C** 1.0 **D** 1.5 **E** 2.25 **F** 3.0 **G** 4.5

FLOC SIZE COMPARATOR (mm)

Typical floc development graph format - size/time.



5. TRANSPORT & STORAGE

Treat Platypus Jar Testers with care, in a manner consistent with commercial electronic equipment.

Store indoors in a dry, cool location.

Unplug the powerpack when stored for long periods.

6. DIGITAL DISPLAY MESSAGES

IDLE - The unit is not running awaiting input from the user. Select an operating mode by pressing either the ***Manual*** or ***Auto Start*** buttons or program operation by pressing the ***Program*** button.

PAUS - The unit is in pause mode and is therefore not running. Press the ***Pause Continue*** button to recommence operation.

ERR LO - Motor/paddle speed is significantly lower than the selected speed. Ensure there is no foreign object preventing the paddle or shaft turning. Select Speed UP to increase RPM of the shaft.

7. MAINTENANCE

Keep the unit clean and dry.

Carry out routine visual checks only.

If a mechanical or electrical fault occurs, return the unit to Aquagenics Pty Ltd for servicing.

Warranty: 12 months (warranty void if unit has been opened).

8. ACCESSORIES

1Litre injection moulded clear Polycarbonate square jars.

2Litre injection moulded clear Polycarbonate square jars.

Water resistant heavy duty PVC dust cover.

Replacement Injection moulded clear Polycarbonate paddles.

Replacement powerpack.

9. TECHNICAL DATA

Category:	4 station Jar Tester (Laboratory Flocculator)
EMC Compliance:	AS/NZS CISPR 11 (C-tick) EN 61326:2002 (emissions + immunity) to 61000 series including; EN 61000-4-2 (ESD) EN 61000-4-3 (Radiated field) EN 61000-4-4 (EFT/Burst) EN 61000-4-5 (Surge) EN 61000-4-6 (Conducted RF) EN 61000-4-8 (Magnetic field) EN 61000-4-11 (Voltage dips) EN 61000-3-2 (Harmonics) EN 61000-3-3 (Flicker) FCC Part 15 Class B
Powerpack:	15VDC/4.40Amp External Power Supply UL/CE/C-tick EN 60950 (safety) EN 55022 Class B (EMC) EN 61000-series (EMC) – relevant as above ENV 502040 UL 1950 (safety)
Housing:	Injection moulded computer grey ABS
Chassis:	Zinc coated steel sheet, powder-coated matte black (top & bottom chassis)
Paddle Shafts:	Stainless Steel
Paddles:	Clip-on injection moulded clear Polycarbonate with inclined paddle face (small and large sizes for 1 Litre and 2 Litre jars respectively)
Drive Motors:	12VDC geared motors, low noise
Transmission:	3M/6 low noise power transmission drive belt
Pulleys:	Injection Moulded Acetal
Bearings:	Shielded deep groove ball bearings
Keypad:	Polyester membrane tactile keypad Control mode and Stage indicating LED's
LED Displays:	14mm 4 digit amber alpha/numeric clock display 14mm 3 digit green alpha/numeric RPM display
Speed Control:	PWM with Hall Effect Sensor tieback
Illumination:	Diffused, low heat 2.4W 5500K LED array

Designed and manufactured in Australia.

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