



JAR TESTER

4G Platypus Jar Tester Manual





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JAR TESTER

1. DESIGN and FEATURES

4G Platypus Jar Tester improvements summary:

- Less weight
- Three (3) flash mix/flocculation stages (previously two)
- Advanced tracking speed controls
- Pause mode setting deleted
- Simplified decals



Independent Human Interface tactile decals

Three flash mix/flocculation stages

Program Up/Down tactile pushbuttons for stage Time and Speed settings (tapered flocculation), Manual, Auto and Programming mode set pushbuttons/LED indicators

- Four independent stations/drives each with independently programmed sequential speed and time settings for each *Flash Mix/Flocculation* stage
- Individual station **Automatic**, **Manual**, **Program**, and **Idle** mode setting
- Retention of last RPM and TIME settings (**Automatic** mode) for ongoing tests
- Motor speed is independently measured by Hall Effect speed sensors
- Each station's speed microprocessor controls **output** speed to **set** speed (i.e. is not inferred)
- Speed is relatively unaffected by commonly experienced test water viscosity, temperature conditions or jar size
- Fault diagnostics - LED and digital display messages



- SET speed digital display at each station
- **Automatic** mode residual time countdown display for each *Flash Mix/Flocculation* stage.
- **Manual** mode count-up display for each *Flash Mix/Flocculation* stage.

Lightweight, durable body materials

- Extensive use of corrosion resistant ABS, polycarbonate acetyl and acrylic materials

Quiet Operation

- Motor/gearboxes equipped with rubber power transmission belts – vibration free

Backlighting

- Extra low voltage, 2.4 Watt LED lighting array to facilitate observation of floc size, floc density and settling rates
- Light is distributed across the rear of the unit to maximise floc definition and contrast and avoid thermal eddy currents that may interfere with floc settlement rate assessment

Unique Paddles

- Selectable Axial and Radial Flow polycarbonate paddle sizes to suit 1L and 2L jars and velocity gradient requirements
- Clip-on/clip-off easy clean



Square Jars

- Durable 1L and 2L capacity clear polycarbonate Jars
- Sample tap option for supernatant collection
- DAF Jars fitted with subnatant sample taps
- 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 geometrics

2. OPERATION

Prepare stock solution

To prepare a 1% Stock solution for Alum:

1. Find out Alum strength in %w/v (=Specific Gravity x %w/w)
2. Volume (mL) of liquid alum required for making 1L Stock Solution
3. Add this amount in to a Jar, mix thoroughly with water and make it to 1L.

Calculate stock solution online at: <http://jartestsolution.s3-website-ap-southeast-2.amazonaws.com/>

A similar procedure may be used for preparing stock solution for other chemicals using the Stock Solution Calculator.

Each mL of this stock solution will provide dosages as given in the following table:

Stock Solution Added	0.5L Jar	1L Jar	2L Jar
1 mL	20 mg/L	10 mg/L	5 mg/L
2 mL	40 mg/L	20 mg/L	10 mg/L
3 mL	60 mg/L	30 mg/L	15 mg/L
4 mL	80mg/L	40mg/L	20mg/L



Typical set up:

- Set your **Platypus Jar Tester** on a flat, stable surface
- Check the power-pack and its supply connector are suitable for the available power supply
- Plug-in the power supply cable (provided) to the corresponding AC supply outlet and the other end to the IEC inlet socket on the power-pack.
- Plug-in the powerpack DC connector to the matching DC power inlet socket adjacent to the fuse carrier
- Fill Jars with representative raw water (including temperature)
- 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, at the 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 the desired speed for *Flash Mix* and subsequent *Flocculation* stages
- 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 Stage 1 Time and Speed - use UP and DOWN keys
- Select **Program** to confirm Stage 1 Speed and Time settings made
- Set Stage 2 Time and Speed –use UP and DOWN keys
- Select **Program** to confirm Stage 2 Speed and Time settings made
- Set Stage 3 Time and Speed –use UP and DOWN keys
- Select **Program** to confirm Stage 3 Speed and Time settings made



- Select **Auto Start** to begin the programmed Stage 1, Stage 2 and Stage 3 sequences

Programmed parameters are stored in memory until reprogrammed.

3. TRANSPORT & STORAGE

Treat 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.

4. 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.

ERR LO - Motor/paddle speed is significantly higher or lower than the selected speed setting.

Minimum controllable speed setting: 15 RPM.

5. MAINTENANCE

Keep the unit clean and dry.

Carry out routine visual checks only.

If a mechanical or electrical fault occurs, return the unit to the relevant distributor for repair or component replacement.

Return costs to the relevant distributor: - buyer's account.

Return costs to the purchaser after repair: - vendor's account

Warranty: 24 months.

6. ACCESSORIES

1L injection moulded clear Tritan ® square Jars.

2L injection moulded clear Tritan ® square Jars, with or without sample taps.

Water resistant PVC dust cover.



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Replacement clip-on radial and axial flow paddle packs.

Replacement powerpack.

7. DO NOTS

Operate with ambient temperatures $> 40^{\circ}\text{C}$ and $< 0^{\circ}\text{C}$

Expose to extended periods of direct sunlight

Use solvents for cleaning body parts



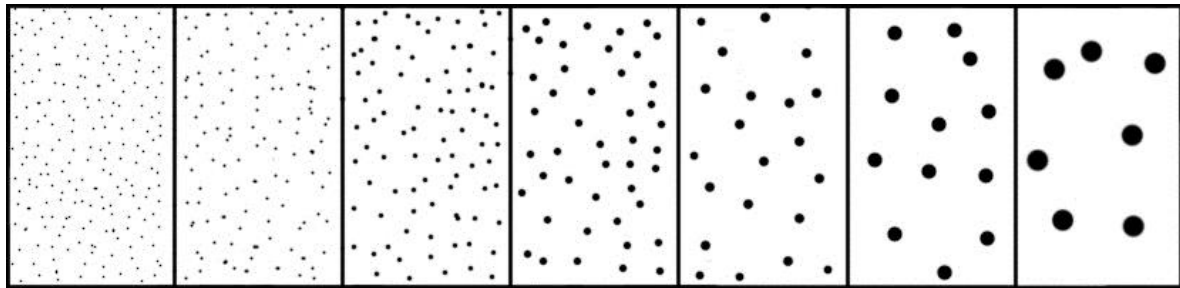
8. TECHNICAL DATA

Category:	4 station Jar Tester (Laboratory Flocculator)
EMC Compliance:	FCC Part 15 Class B 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)
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:	Computer grey ABS
Chassis:	Steel, powder-coated matte black
Paddle Shafts:	430 Stainless steel
Paddle Packs:	Clip-on/off, clear polycarbonate; Small, large and butterfly type radial flow and axial flow options
Drive Motors:	12VDC geared motors, counter clockwise rotation
Transmission:	Fabric reinforced rubber drive belts
Pulleys:	Acetyl
Bearings:	Shielded deep groove ball bearings
Decals:	Polyester membrane tactile keypad with control mode and stage status indicators (LED's)
Elapsed Time and Speed Displays:	14mm 4-digit amber alpha/numeric clock 14mm 3-digit green alpha/numeric RPM
Speed Control:	PWM with Hall Effect speed sensor speed controller tieback
Illumination:	Diffused, low heat, 12Volt, 2.4W, 4500K LED array



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9. TYPICAL FLOC SIZE 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.

FLOC
SIZE

G
F
E
D
C
B
A

0 5 10 15 20 25 30 35 40

TIME (min)



10. TYPICAL JAR TESTING FORMAT

Operator:
 Sample source: Collection Date: Test
 Date:

Raw water Characteristics:

Appearance:
 pH: Turbidity: Colour:.....
 Temperature:
 Test Number: Jar Size:

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

Alkali (mg/L):

Coagulant aid (mg/L):

Coagulant aid addition delay (sec):

Stage 1 Flash Mix RPM

Time (sec):

G (secs⁻¹):

Stage 2 Flocculation RPM

Time (sec):

G (secs⁻¹):

Stage 3 Flocculation RPM

Time (sec):

G (secs⁻¹):

pH:

FLOC:

First formed (sec):

Size (mm):

Full development (minutes):

Settlement rate:(mm/min):

Supernatant Turbidity:

Subnatant Turbidity:

Supernatant aluminium (Fe) residual (mg/L):

Subnatant aluminium (Fe) residual (mg/L):

Colour:



Settling rate estimate

Settling Rate is estimated from the settling of 90% flocs in the top layer to fall through 25mm (1") from the surface

Settling Rate (m/h) = 90/Settling time in sec

COMMENTS:

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11. VELOCITY GRADIENT TABLES

Velocity gradient Tables correlate the calculated velocity gradient for various paddle sizes and types - at various speeds and water temperature.

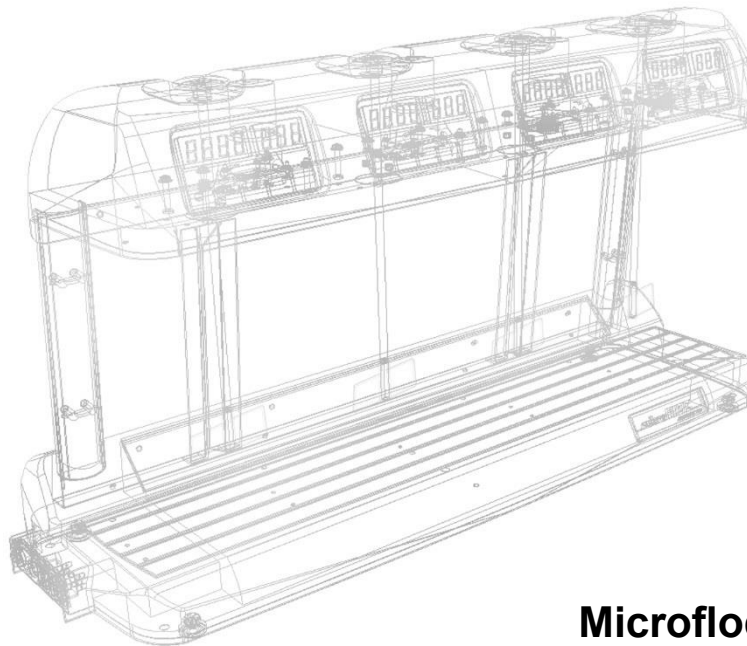


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