FLOJET
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TOP MOUNT AGITATOR SERIES

TMA[U]-[V][W][X][Y][Z]

INTRODUCTION

The Top Mount Agitator (TMA) series are semi-submersible devices with nylon agitators, driven by shaded pole or fixed capacitor motors, designed for continuous operation in chillers, coolers, vending, and general water applications to prevent ice formation.

If there is any doubt regarding the equipment suitability or content of this manual, please contact your local distributor or customer service team.

APPLICABLE MODEL NUMBERS

TMA[U]-[V][W][X][Y][Z]		
Motor Series		
U	3	Series 3, 8 mm Shaded Pole 20 / 25 mm Stack
	4	Series 4, IPX4, 8 mm Shaft Shaded Pole / Canned Motor
	5	Series 5, IPX5, 8 mm Shaft PC Motor / Canned Motor
	6	Series 6, IPX5, 8mm Shaft PC Motor
Motor Type		
V	Alpha-numeric character denoting voltage, phase, and supply cable of motor.	
Cable Length		
W	Alpha-numeric character denoting supply cable length.	
Mounting Plate		
X	Alpha-numeric character denoting the type of mounting plate included.	
Motor Shaft		
Y	Alpha-numeric character denoting motor shaft length.	
Packaging Code		
Z	Alpha-numeric character denoting type of packaging material and quantity.	

MANUFACTURER

This equipment was manufactured by, or on behalf of:

Company: Xylem Inc. - Specialty Flow Control

Address: Bingley Road, Hoddesdon, Hertfordshire, EN11 0BU, United Kingdom

Phone: +44 (0)1992 454150

Technical Support: res_technical.support@xyleminc.com

Product Compliance: engineering.compliance@xyleminc.com

Please contact your local distributor or customer services for assistance in the first instance.

HEALTH & SAFETY

GENERAL

⚠WARNING

Failure to observe the safety requirements, ratings and instructions given in this manual can lead to serious injury / death and / or material damage.

- Do not attempt to use the equipment for liquids with a flash point below 38°C.
- Do not attempt to install or operate the equipment if damage is present.
- A suitable lock-out procedure shall be in place to prevent inadvertent power / liquid provision.
- Only use original equipment manufacturer parts and accessories.

- Compliance to any local standards or regulations is the responsibility of the installer, operator, or maintainer.
- Any equipment returned to the supplier must be fully cleaned, decontaminated and accompanied by details of what fluids it has been in contact with. A Safety Data Sheet (SDS) must be provided for any hazardous fluids.

MECHANICAL

⚠WARNING

DANGER: Significant risk of cutting / laceration from rotating parts

Care must be taken to avoid contact / entrapment with rotating parts. The equipment is designated a partial machine, designed to be installed within a larger assembly which incorporates suitable casing / guards to prevent access to the rotating parts.

- Do not insert fingers or other objects into the equipment ports / openings.
- Where the equipment is under mains supply:
  - Removable casing and guards shall remain in place at all times.
  - Installation activities shall not take place.
  - Maintenance activities shall not take place unless specifically for testing operation of the equipment, and suitable protective measures are in place.
- Where the equipment is isolated from mains supply, the risk of contact / entrapment is considered low.
- All casing and guards, where originally fitted by the manufacturer, must be replaced following completion of activities within this manual.

ELECTRICAL

⚠WARNING

The mains supply will be 12V or 24V DC (±10%). These voltages are considered Extra-Low Voltage (ELV) and are deemed to carry a low risk of electrical shock*.

All supplies must be disconnected prior to working on the equipment. Where a plug is fitted, it must be disconnected from the mains supply and positioned such that it is visible during all work. If no plug is fitted, or the plug cannot be made visible at all times, a suitable disconnect device and lockout procedure must be implemented.

- Do not immerse any part of the motor in fluid. Maximum fluid height is 40 mm below the mounting plate.
- The supply cord cannot be replaced. If damaged, the equipment shall be scrapped.

The supply cord is fitted with a pre-wired plug that incorporates an earth / ground conductor, as identified in section 4.3.2. This must be connected to a suitable earth / ground point prior to mains supply being connected. The equipment plug is designed to ensure this occurs and must not be altered / damaged to prevent the connection being made.

Exposed Motor

Where the motor supplied exposed (without a case), a suitable enclosure must be provided to ensure a minimum IPX4 protection.

Do not mount the enclosure in direct contact with the motor.

Wiring Color Code

240V AC	
Cable Color	**Description**
Green & Yellow	Earth
Blue	Neutral
Brown	Live
110V AC	
Cable Color	**Description**
Green or Green & Yellow	Ground
White or Blue	Power Supply
Black or Brown	Power Supply Ground

ENVIRONMENT

- Do not release the mounting screws during operation.
- Do not cover / block / restrict the motor cooling fan.
- Do not touch the equipment surfaces during use, or for 15 minutes after operation, as it may become hot.

Motor

Enclosed: A minimum air gap of 10 mm must be maintained around the motor case to allow adequate cooling.

Exposed: A suitable enclosure must be provided. Refer to section 4.3.1.

Hazardous Area Use

- This equipment is not designed for use in hazardous areas.

PERSONAL PROTECTIVE EQUIPMENT

- There are no specific PPE requirements for this equipment.
- Eye protection is recommended when working with pressurized equipment.

PERSONNEL

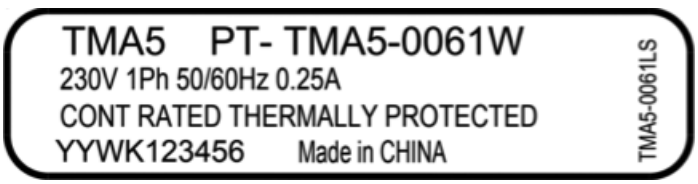
- The equipment shall only be worked on by experienced and competent personnel, suitably qualified with the installation of equipment.
- Good working practice shall be followed at all times, where specific regulation is unavailable.
- This equipment shall not be operated or maintained by children.

EQUIPMENT

A general tool kit is suitable for the requirements of installation, operation and maintenance.

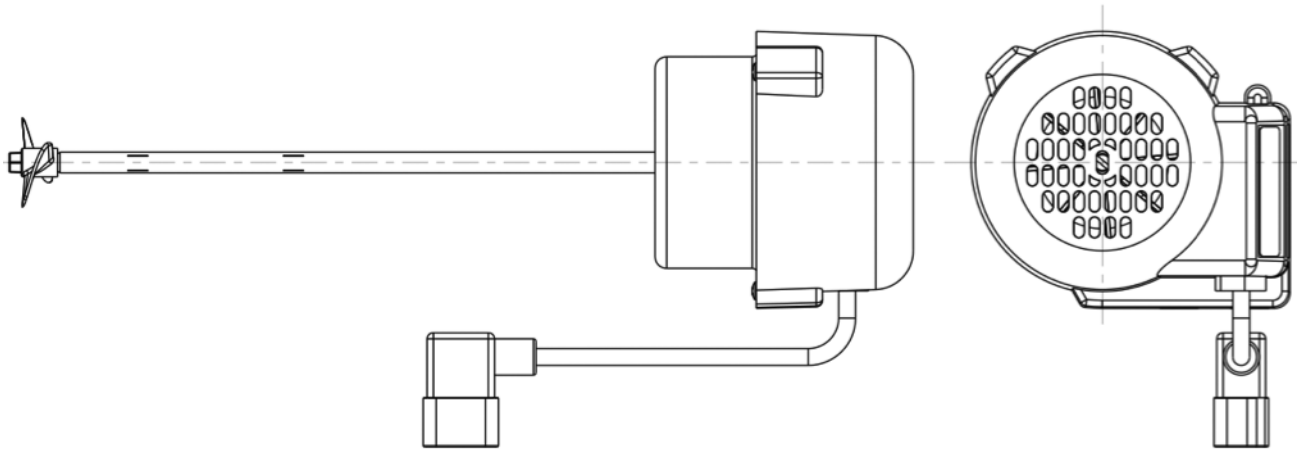
NOTICES & MARKINGS

The equipment is supplied with a label containing important information about the equipment. These notices / markings shall not be removed or defaced.

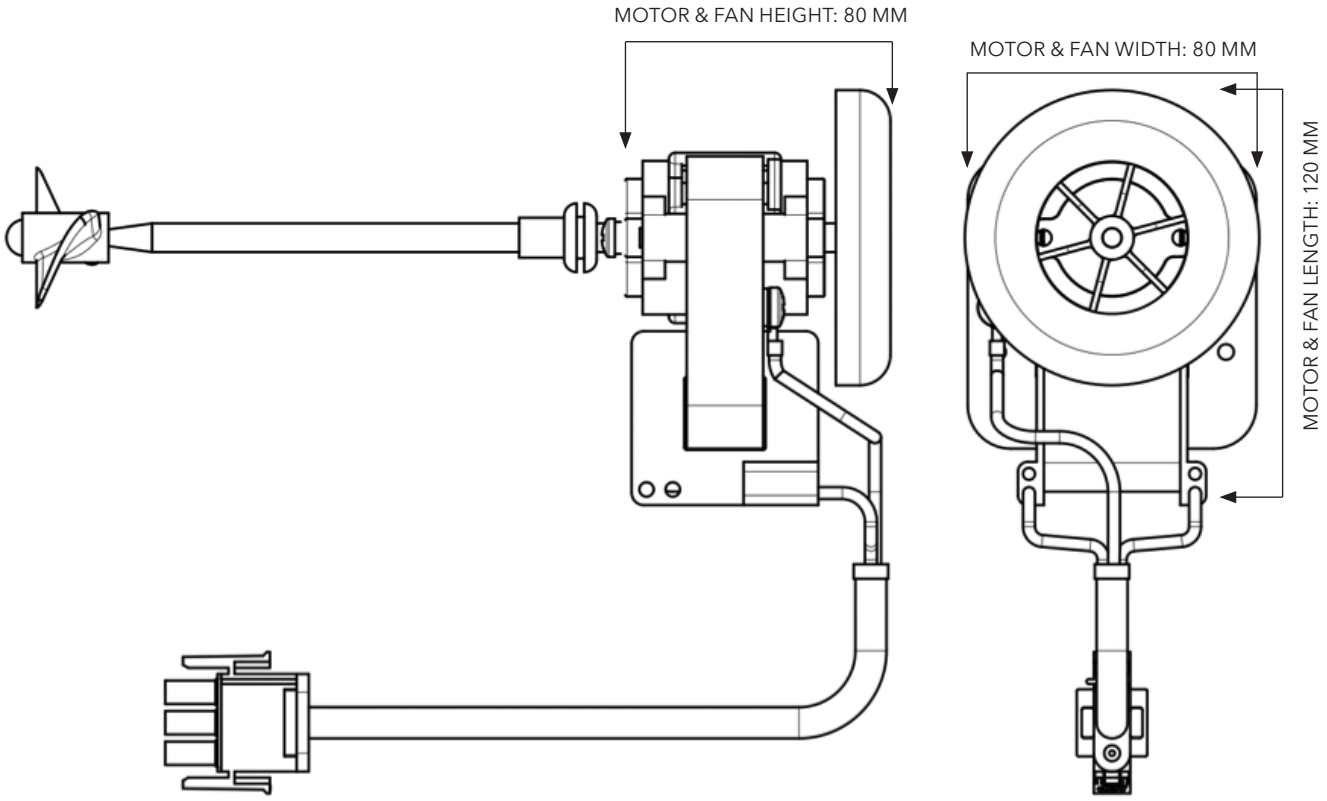


DRAWINGS

GENERAL ARRANGEMENT
(ENCLOSED MOTOR, FIXED STATIONARY APPLIANCE)

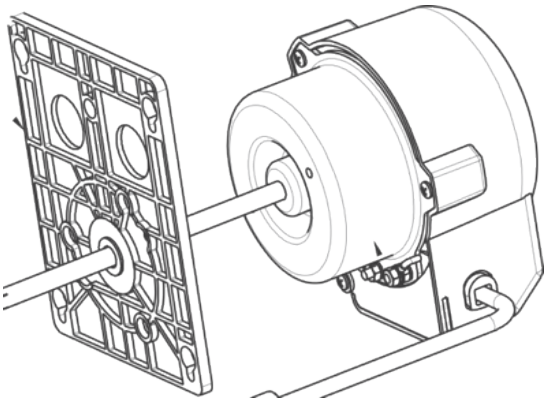


GENERAL ARRANGEMENT
(EXPOSED MOTOR, BUILT-IN APPLIANCE)



MOUNTING

- Equipment may be supplied with a pre-fitted bespoke mounting plate, as depicted in the example exploded view.
- Refer to drawings for dimensions and mounting detail or alternatively, use the plate as a template.
- Ensure the equipment is securely fixed using all available mounting screws / slots / tabs prior to operation. Screws shall be tightened to 3 Nm.



TECHNICAL DATA

Description	Unit	TMA3		TMA4		TMA5		TMA6	
Voltage (AC)	V	110	230	110	230	110	230	110	230
Phases	-	1							
Frequency	Hz	60	50	60	50	60	50	60	50
Power	W	5		30					
Speed	RPM	2750							
Ingress Protection	-	N/A		IPX4		IPX5			
Operating Ambient									
Temperature	°C	**Minimum**		-20		**Maximum**		60	
Humidity	%	**Minimum**		10		**Maximum**		80	
Storage Ambient									
Temperature	°C	**Minimum**		-20		**Maximum**		60	
Humidity	%	**Minimum**		10		**Maximum**		80	
Fluid Temperature	°C	**Minimum**		-5		**Maximum**		85	
Specific Gravity (Max)	-	1.2							
Solids									
Hard	-	No							
Soft	-	No							
Duty Rating	-	Continuous							

CERTIFICATION & APPROVAL

Mandatory (CE Marking)	
2006/42/EC Machinery (MD)	**EN ISO 12100:2010** Safety of machinery - General principles for design - Risk assessment and risk reduction.
2014/35/EU[1] Low Voltage (LVD)	**EN 60335-1:2012 + A13:2017** Household and similar electrical appliances. Safety. General requirements.
2011/65/EU Restriction on Hazardous Substances (RoHS 2) (2015/863, 2017/2102)	**EN 50581:2012** Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Mandatory (Non-CE Marking)	
2001/95/EC General Product Safety (GPSD)	
2012/19/EU Waste Electrical & Electronic Equipment (WEEE)	**Environmental Protection**  Products marked with the WEEE symbol should not be mixed with general waste. Correct disposal of these products will help saving valuable resources and preventing any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling. Contact your local authority, sales representative, or customer service team for information on the correct disposal of this equipment.
Voluntary	
2014/30/EU Electromagnetic Compatibility (EMC)	**EN 61000-6-1:2007** Electromagnetic compatibility (EMC). Generic standards. Immunity for residential, commercial and light-industrial environments. **EN 61000-6-3:2007+A1:2011** Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light-industrial environments.
UL PRGY2[2] Motors for Appliance Applications - Component	**UL 1004-1** Standard for Rotating Electrical Machines - General Requirements.

[1] Ingress protection requirement must be met to comply with the standard in full. [2] Only specific models. Contact your local supplier / distributor for further detail.

PRE-INSTALLATION

1. Check the equipment for any signs of damage. Cables should be free of wear / deformation.
2. Ensure the intended mounting point is suitable to support the equipment mass.
3. Check the mounting site has sufficient clearance to allow a minimum 10 mm air gap around the equipment for ventilation. Inadequate ventilation may cause the equipment to overheat.

If any of the above points are not deemed a "pass", do not proceed with installation and rectify as required.

INSTALLATION

1. Secure the equipment to the mounting location.
2. The mains supply cord must be routed and supported in such a way that it doesn't come into contact with any parts of the equipment or interconnecting pipework.
3. It is recommended to install a suitably rated protective device, such as a residual current device (RCD), ground-fault circuit interrupter (GFCI), or earth-leakage circuit breaker (ELCB).
4. Ensuring the mains supply is isolated; connect the equipment to a suitably rated supply point. Refer to Section 6 for fuse sizing.
   a. Equipment fitted with a UK plug has a pre-installed fuse that is suitably rated for the equipment requirements.
   b. Equipment fitted with an EU / North American plug is not provided with a fuse. Suitable protection must be in place upstream of the equipment prior to mains connection.
   c. Equipment without a plug must have a suitable fuse and disconnect device installed upstream of the equipment prior to mains connection.

COMMISSIONING

1. Confirm the equipment has sufficient ventilation space.
2. Ensure the fluid is clean and the equipment is not obstructed by ice. Solids can cause jamming, and abrasives can reduce equipment lifespan.
3. Power up the equipment and check for correct operation.
   a. The equipment should stabilise within 10 seconds of initial operation.
   b. If the equipment does not function as expected, discontinue use and refer to Section 0 for troubleshooting.

OPERATION

The equipment is designed for continuous duty. Intermittent running may reduce the life-span of the equipment.

MAINTENANCE

Prior to any maintenance activities, ensure the equipment is de-energised both electrically and hydraulically.

The equipment is does not require maintenance; however, it is recommended to check the electrical connections and cables are in good connection on a monthly basis.

The equipment is not designed to be disassembled for maintenance.

END OF LIFE / DISASSEMBLY

Prior to any decommissioning activity, ensure the equipment is de-energised both electrically and hydraulically.

1. Allow the device to cool for a minimum of 15 minutes following shut-down.
2. Remove power supply cable routing.
3. Remove all mounting screws / clips holding the mounting plate to the mount point, and carefully lift the equipment out of the mount point.
4. Dry the equipment and ensure it is clear and free of fluid prior to storage / return / disposal.

Storage: Refer to Section 6 for requirements.

Return: Pack the equipment carefully and securely, ensuring it is not free to move about during transport. Mark the package as unsuitable for carrying load, unless specifically designed to do so - load must not be applied to the equipment at any time.

Disposal: Equipment must be disposed of responsibly. EU customers refer to Section 7 for disposal detail. Outside the EU, contact your local authority for disposal requirements.

SPARES AND REPLACEMENTS

There are no spare parts available for this equipment. Please contact your local distributor or customer services for assistance.

TROUBLESHOOTING

Prior to any troubleshooting activities, ensure the equipment is de-energized both electrically and hydraulically.

Symptom	Possible Causes	Corrective Action
Equipment not starting.	Power supply unavailable.	Check that a mains supply is available and connected correctly.
	Power supply not correctly rated.	Check that a mains supply is available that is suitably rated in accordance with the technical data in Section 6.
	Power supply protection (fuse / RCD) tripped.	
	Shaft / rotor jammed.	Check that the agitator blade and shaft are free from debris / solids and able to rotate freely.
Equipment shutting down on start-up.	Power supply protection (fuse / RCD) tripped.	Check that a mains supply is available that is suitable rated in accordance with the technical data in Section 6. Protective device ratings must account for current draw of all connected equipment. Start-up current draw can cause spurious leakage current tripping.

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