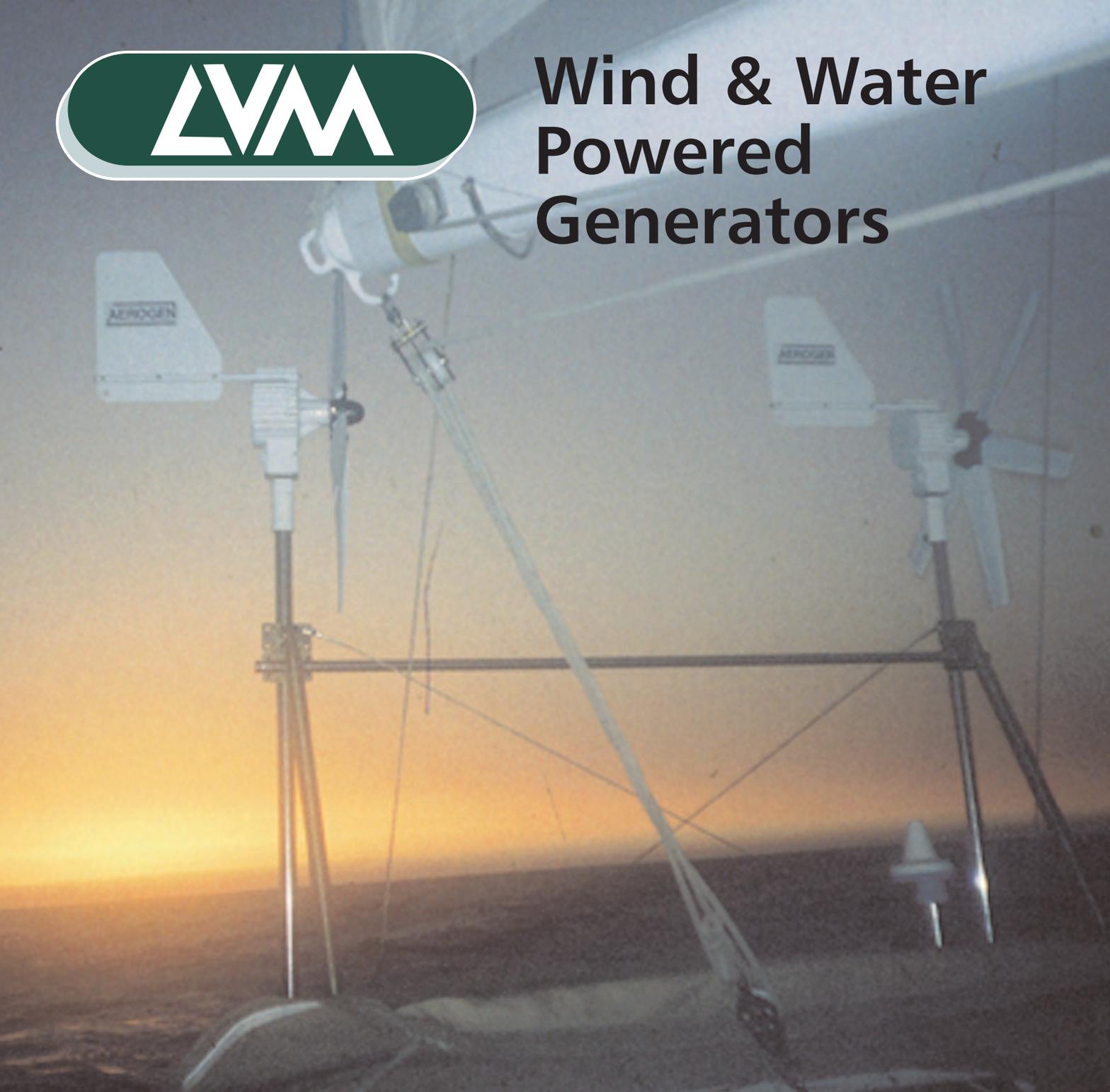




Wind & Water Powered Generators



ITT

Engineered for life

Aquagen Water Generators



AQUAGENS are towed water-driven generators suitable for all sailboats and sailing speeds in blue and coastal waters.

They can provide enough power to meet all on-board requirements while under sail. The towed turbine travels 1 to 3 metres (3 to 10 feet) below the surface. **AQUAGEN** can be used in shallow coastal waters as well as on ocean crossings. Yachtsmen who normally have shore-power when in harbour may find **AQUAGEN** a preferable alternative to a wind generator when sailing. It can provide more power than a wind generator when running with the wind, because the actual wind speed on a wind generator is reduced by the boat's speed through the water.

Powerful performance

- * The Aqua4gen starts to generate power at 2.5 knots and the Aqua6gen at 3.5 knots.

Adjustable, replaceable blades

- * The Aqua4gen is supplied with 90mm (3.5") and 115mm (4.5mm) turbine blades. The Aqua6gen is supplied with 90mm (3.5") blades. The blade length may be reduced to modify power output and drag to suit individual yachts. If the blades snag strongly on the sea bed or on objects, the blades will break away and release the turbine. New blades can quickly be bolted to the turbine.

Low drag

- * The well-proven alternator design produces power at low rotating speeds to reduce drag.

Simple, quick installation

- * The generator is attached by a rope (supplied) to the pushpit. It is quickly and easily mounted and de-mounted. No expensive mounting kits are required. The turbine is linked to the generator by a rope (supplied).

Robust, self-protecting, maintenance free

- * Corrosion-resistant materials are used throughout. Aquagens are maintenance-free. If speed becomes excessive Aquagen will break the surface and output will drop, preventing overheating.

Silent power

- * Neither the generator nor the towed turbine produces any discernible noise.



AQUA4GEN

AQ412 Aqua4gen 12 volt water generator & turbine

AQ424 Aqua4gen 24 volt water generator & turbine

Aqua4gen produces up to 11 amps continuously at 8 knots boat speed when fitted with the larger (115mm) turbine blades, and 10 amps at 10 knots when fitted with the smaller (90mm) blades. Both are included.

Weight

Generator – 5.7kg (12.5lb)

Turbine – 3.3kg (7.2lb)

AQUA6GEN

AQ612 Aqua6gen 12 volt water generator & turbine

AQ624 Aqua6gen 24 volt water generator & turbine

Aqua6gen produces up to a continuous 16 amps at 12 knots boat speed. It is fitted with 90mm blades.

Weight

Generator – 5.7kg (12.5lb)

Turbine – 3.3kg (7.2lb)

AQUAGEN PERFORMANCE

Boat	AQUA4GEN				AQUA6GEN	
	115mm		90mm		90mm	
	Turbine Blade		Turbine Blade		Turbine Blade	
Speed (Knots)	Amps	Drag	Amps	Drag	Amps @	Drag
	@ 12v	kg (lb)	@ 12v	kg (lb)	@ 12v	kg (lb)
2.5	0.1	-	0.1	-	-	-
3	1	4.5 (10)	0.3	-	-	-
3.5	1.5	5.4 (12)	0.7	6.4 (14)	0.1	-
4	2	6.8 (15)	1	7.7 (17)	1	1.8 (4)
5	4	9 (20)	2	10.4 (23)	2	3.6 (8)
6	8	13.6 (30)	4.5	13.6 (30)	3	7.2 (16)
7	10	18 (40)	7	15.8 (35)	4.5	8.2 (18)
8	11	22.7 (50)	8	18 (40)	6	12.2 (27)
9	✗	✗	9	20.4 (45)	10	18 (40)
10	✗	✗	10	22.7 (50)	12	20.4 (45)
11	✗	✗	✗	✗	14	24 (53)
12	✗	✗	✗	✗	16	27 (60)
14	✗	✗	✗	✗	✗	✗

✗ TURBINE OUT OF WATER

The Aqua4gen starts to generate power at 2.5 knots boat speed and the Aqua6gen at 3.5 knots. The Aqua4gen generates more power up to 8 knots boat speed and the Aqua6gen more power above 8 knots. At lower boat speeds, some yachtsmen may prefer Aqua6gen, which produces less power but with less drag.

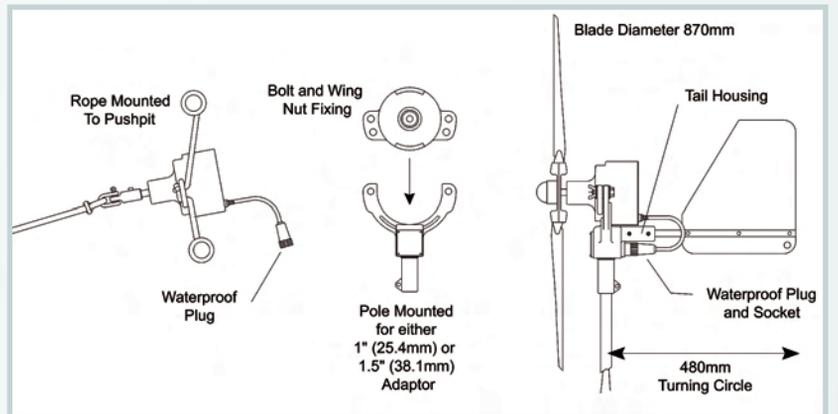
Aqua to Aerogen Wind & Water Generator

The **AQUA4GEN** can quickly and easily be converted into a wind generator, providing in a single unit a water generator when sailing and a wind generator when at anchor or sailing, with the same wind performance as **AERO4GEN**. Battery regulation is required, as for **AQUA4GEN** or **AERO4GEN**

From AQUA4GEN to AERO4GEN



Converting from water to wind mode



From one to the other in less than 5 minutes

Convert **AQUA4GEN** into wind mode in less than 5 minutes. Remove the mounting rope, bolt the unit into its pole-mounted cradle, add the fan assembly and tail fin, make the waterproof connections and that's it!
Convert **AERO4GEN** equally quickly into water-towed mode.

AQUA4AEROPEN

AQA412 AQUA4AEROPEN
12 volt, combined wind and water generator

AQA424 AQUA4AEROPEN
24 volt, combined wind and water generator

AC412-424

Retrofit wind conversion kit for **AQ412** and **AQ424** 25mm (1") fitting

AQ412-424-1-5

Retrofit Wind conversion kit for **AQ412** and **AQ424** 38mm (1 1/2") fitting

Aerogen Furled Inland Wind Generators

AEROGEN inland furling wind generators are designed for unattended applications. They will produce approximately the same output as their marine equivalent, but are automatically furled at wind speeds above 40 knots by the special pivoting tail assembly, which turns the generator side ways to the wind thus limiting its output and protecting the generator.

There are two models available

AERO4GEN-F and **AERO6GEN-F**.

They incorporate many of the same components as the marine models and operate continuously and safely in storm force winds. With the introduction of stainless steel tail fin and tube they are ideal for coastal inland sites. Furling generators have

been used successfully throughout the world in some of the most remote and extreme weather locations, often used in combination with solar panels.

Some typical applications include:

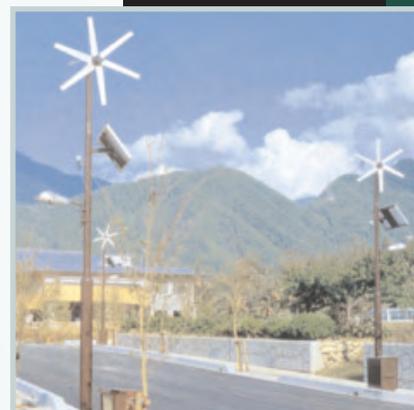
- * Street lighting
- * Data loggers
- * Remote telemetry
- * Electric fencing

Mounting

They have a flange to flange mounting arrangement. A flange is supplied with the generator, which must be welded to the top of a 2" diameter tube or scaffold pipe, the generator is then simply bolted to this flange.

They ARE NOT suitable for use on Yachts.

For more information please contact your local sales office or check www.lvm-ltd.com



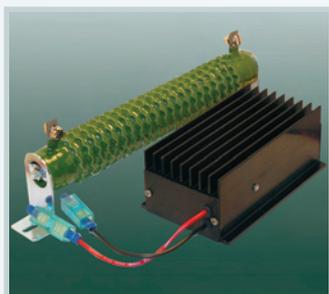
Battery Regulators



SB-SERIES

- LVM2SB12** 12v battery regulator
- LVM4SB12** 12v battery regulator
- LVM2SB24** 24v battery regulator
- LVM4SB24** 24v battery regulator

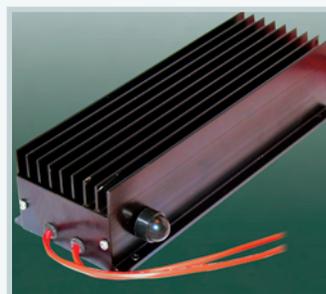
- * Simple, inexpensive regulator for a stand-alone power system
- * Suitable for installations in which an Aerogen or an Aquagen is the only power source
- * Not for systems that use additional power inputs such as a mains charger, shore power or a boat engine-driven alternator
- * Diverts charger output to a resistor when battery voltage reaches 14.2 (12v systems) or 28.4 (24v systems)
- * Takes 10 - 15mA continuous standby current



TB-SERIES

- LVM4TB12** 12v battery regulator
- LVM6TB12** 12v battery regulator
- LVM4TB24** 24v battery regulator
- LVM6TB24** 24v battery regulator

- * Suitable for installations with power input from more than one source, e.g. mains generator, shore power or engine-driven alternator, in addition to Aerogen or Aquagen.
- * Recommended for single or twin battery banks
- * Diverts charger output to a resistor when battery voltage reaches 14.2 (12v systems) or 28.4 (24v systems)
- * **Zero draw from battery when on standby**



DIODE UNITS

- LVM4DU** diode unit, 12/24 volt
- LVM6DU** diode unit, 12/24 volt

- * For additional battery banks
- * An extra diode unit enables an additional battery bank to be regulated while on charge

Example:
To charge 3 battery banks, select LVM4TB regulator plus LVM4DU diode unit





Selection Guide

Step 1

Choose a GENERATOR to suit your needs.



AEROGEN

Model	Typical Duty	Usage*	Power Generated**
AERO2GEN	Trickle charging a small battery	20-75	85
AERO4GEN	Moderate lighting load, small refrigerator or bilge pump	70-300	300
AERO6GEN	Heavier loads, including lighting, navigational equipment, medium-sized refrigerator or bilge pump	300-650	670

* Typical power usage per week, amp hours (at 12 volts dc)

** Power generated by Aerogen. Amp-hours per week at 12 volts dc (at average wind speed 12 knots)



AQUAGEN

Boat Speed (knots)	5	6	9	10	10	12
Model	AQUA4GEN			AQUA6GEN		
Blades (mm)	Large Turbine Blades 115			Small Turbine Blades 90		
Amps(@12v)	4	8	9	10	12	16
Amps Hours (per 24 hrs)	95	190	215	240	290	385



AQUA/AEROGEN

WIND Mode	Usage*	Power Generated**
Moderate lighting load, small refrigerator or bilge pump	70 - 300	300

* Typical power usage per week, amp hours (at 12 volts dc)

** Power generated by Aerogen. Amp-hours per week at 12 volts dc (at average wind speed 12 knots)

WATER-TOWED Mode		Large Turbine Blades 115		Small Turbine Blades 90	
		Boat Speed (Knots)			
Heavier loads, including lighting, navigational equipment medium size refrigerator or bilge pump	Boat Speed (Knots)	5	6	9	10
	Amps@12v	4	8	9	10
	Amp Hrs per 24 Hrs	95	190	215	240



AEROGEN INLAND

Application	Choice	Usage*	Power Generated**
Telemetry/Remote	Aero4gen-F	100-300	300
Extreme Conditions	Aero6gen-F	300-650	670
Summer/Remote Houses Alternative Lifestyle Possible Extreme Conditions	Aero6gen-F	300-650	670

* Typical power usage per week, amp hours (at 12 volts dc)

** Power generated by Aerogen. Amp-hours per week at 12 volts dc (at average wind speed 12 knots).
In winter these locations wind speeds can average over 25 knots with frequent gales.



Selection Guide

Step 2

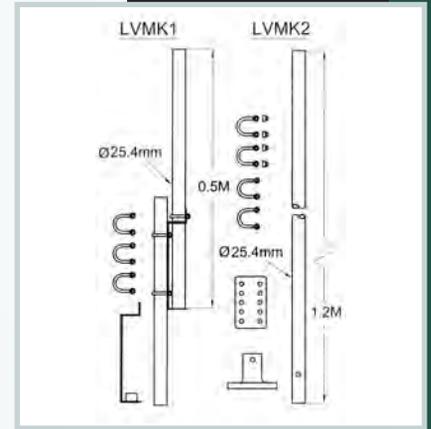
Choose a BATTERY REGULATOR.

AEROGEN	1 Battery		2 Batteries in parallel		3 Batteries in parallel	
	12 volt	24 volt	12 volt	24 volt	12 volt	24 volt
AERO2GEN	LVM2SB12	LVM2SB24	LVM2TB12	LVM2TB24	N/A	N/A
	LVM2TB12	LVM2TB24				
AERO4GEN	LVM4SB12	LVM4SB24	LVM4TB12	LVM4TB24	LVM4TB12	LVM4TB24
	LVM4TB12	LVM4TB24			+LVM4DU	+LVM4DU
AERO6GEN	LVM6TB12	LVM6TB24	LVM6TB12	LVM6TB24	LVM6TB12	LVM6TB24
					+LVM6DU	+LVM6DU

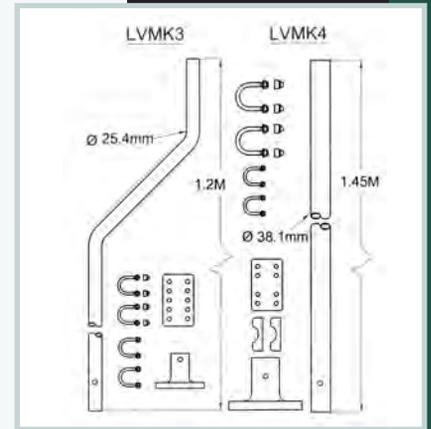
AQUAGEN	1 Battery		2 Batteries in parallel		3 Batteries in parallel	
	12 volt	24 volt	12 volt	24 volt	12 volt	24 volt
AQUA4GEN	LVM4SB12	LVM4SB24	LVM4TB12	LVM4TB24	LVM4TB12	LVM4TB24
	LVM4TB12	LVM4TB24			+LVM4DU	+LVM4DU
AQUA6GEN	LVM4SB12	LVM4SB24	LVM4TB12	LVM4TB24	LVM4TB12	LVM4TB24
	LVM4TB12	LVM4TB24			+LVM4DU	+LVM4DU

AQUA4AERO	1 Battery		2 Batteries in parallel		3 Batteries in parallel	
	12 volt	24 volt	12 volt	24 volt	12 volt	24 volt
AQUA4AERO	LVM4SB12	LVM4SB24	LVM4TB12	LVM4TB24	LVM4TB12	LVM4TB24
	LVM4TB12	LVM4TB24			+LVM4DU	+LVM4DU

AEROGEN



AQUAGEN

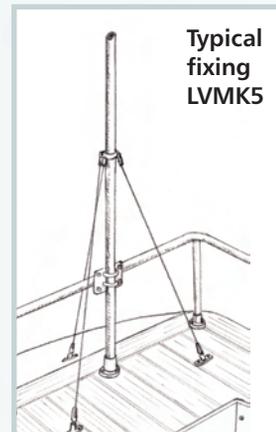
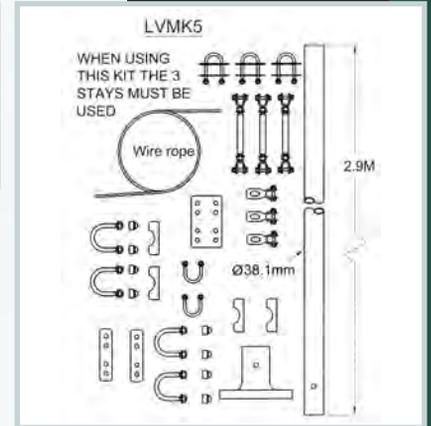


AQUAGEN/
AEROGEN

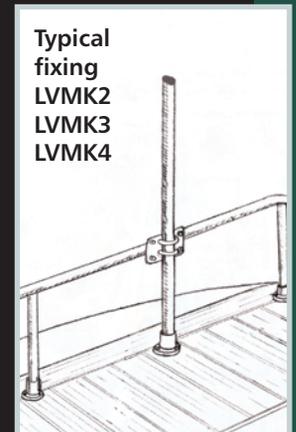
Step 3

Choose a MOUNTING METHOD (AEROGEN ONLY).

Part No	Description	AERO 2GEN	AERO 4GEN	AERO 6GEN
LVMK1	Bracket fixing to pushpit and 0.5m x 25mm dia (1") stainless steel tube	✓	✗	✗
LVMK2	1.2m x 25 mm dia (1") stainless steel tube complete with 1" stanchion mount: universal plate, to fix 1" mounting tube to 1" pushpit tube	✓	✓	✗
LVMK3	Offset 1.2m x 25 mm dia (1") stainless steel tube with 1" stanchion mount: universal plate, to fix 1" mounting tube to 1" pushpit tube	✓	✗	✗
LVMK4	1.45m x 38 mm dia (1.5") stainless steel tube complete with 1.5" stanchion mount: universal plate, to fix 1.5" mounting tube to 1" pushpit tube	✗	✓	✓
LVMK5	2.9m x 38 mm dia (1.5") stainless steel tube complete with 1.5" stanchion mount: universal plate, to fix 1.5" mounting tube to 1" pushpit tube: 4mm wire rope, stays and fixings	✗	✓	✓
LVM163	To fix 25mm dia (1") tube to 25mm dia (1") tube	✓	✗	✗
LVM168	To fix 25mm dia (1") tube to 38mm dia (1.5") tube	✗	✓	✓



Typical fixing LVMK5



Typical fixing LVMK2 LVMK3 LVMK4



LVM



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ITALY

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