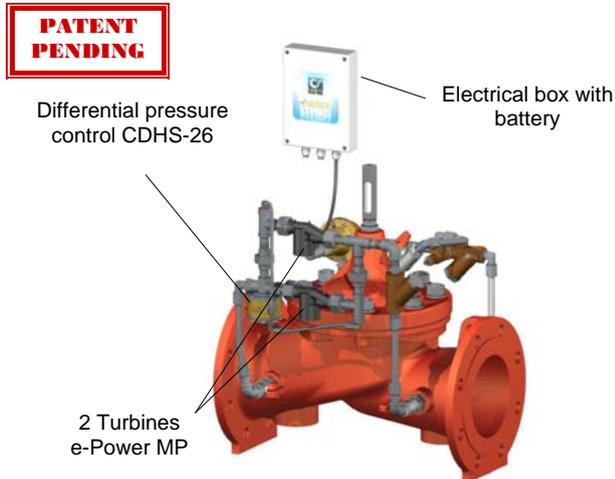


## ▶ Power from Flowing Water



The e-Power MP combines an electrical generator and a CDHS-26 differential pressure control pilot limiting differential pressure across the e-Power MP.

The electrical box combines a rechargeable battery and an electronic battery charge management system with a 6 V power supply. The terminal allows the connection of device for 6 V and 12 V (Step-up).

The management of the differential pressure and the production of energy within a single compact product is a CLA-VAL innovative patented idea.

**Note:**

The PCB allows connecting on the terminals for 6 V and 12 V. If you use both output voltage at the same time, it is important to consider to total power supplied by the battery of 600 mW.

## ▶ Description

- **Autonomous system combined with a lead acid battery supplying 12 VDC**
- **Continuous 600 mW power supplied by the lead acid battery with a differential pressure of 6 mhd and flow 13 l/min**
- **The e-Power 2MP generates 750 mW to the battery using the pressure drop across the valve**

The CLA-VAL e-Power 2MP is an electrical generator utilising available hydraulic energy directly from the water distribution network. The e-Power MP is installed into the by-pass of the CLA-VAL valve.

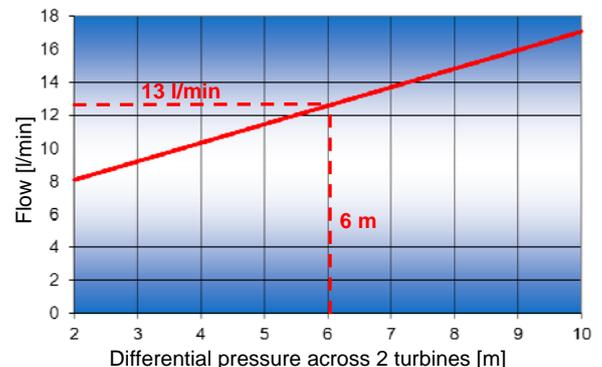
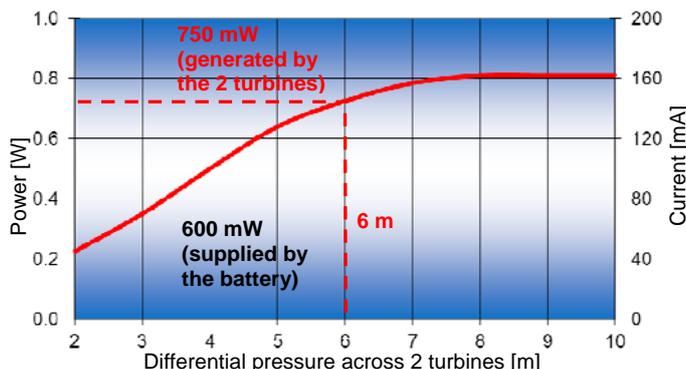
The e-Power 2MP powers various devices located within close proximity of the valve. For example GSM-GPRS communication systems, sensors or valve controllers such as CLA-VAL e-Smart/L11 or e-Timer.

At the optimum operating point of the turbine, (dP = 6 mhd), the rechargeable battery delivers the following voltage, output voltage, current and power:

Output voltage	A continuous (60 min/h)	A peak (1 min/h)
12 V	50 mA 600 mW	2.0 A 24 W

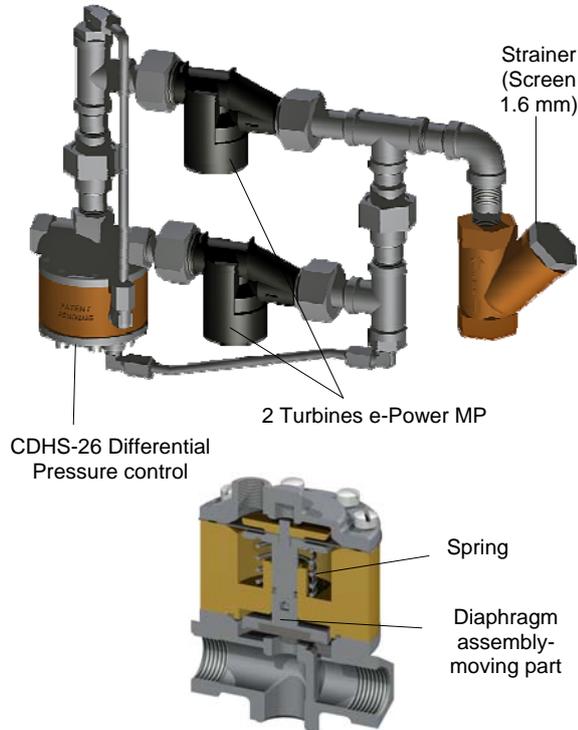
## ▶ Performance Curves of the 2 e-Power MP

The electrical power produced by the e-Power 2MP recharges the battery. The power (mW) to charge the battery is the multiplication of the current (mA) and the voltage (V). The efficiency between the power supplied by the battery and the generated power by both turbines is 80%.



**Note:** The power supplied in the graph above is achieved by optimizing the power supplied by the turbine for each differential pressure. The connection to the valve is recommended with size 1/2" to limit the head loss.

## ► e-Power 2MP Operation



**Differential pressure control:** The 2 e-Power MP turbines combined with a differential pressure control CDHS-26. This pilot controls differential pressure across the e-Power MP, hence controls the electrical power generated.

**Diaphragm assembly:** The differential pressure is factory set at 0.6 bar (6 mhd).

The diaphragm assembly is the moving part, which regulates the e-Power MP by maintaining a constant differential pressure across the turbine. The hydraulic system is completely balanced.

**Printed Circuit Board (PCB):** Designed with the latest technology and manufactured from high quality electronic components the PCB is fully tropical coated to ensure maximum humidity protection.

## ► Electrical Management

**Power Management:** The electrical power of the e-Power MP varies depending on system conditions (see performance curves of the 2 e-Power MP). 3 mhd differential pressure generates 360 mW power

A sophisticated algorithm called "Maximum Power Point Tracker (MPPT)" adjusts voltage and current to generate maximum power at all times. As voltage generated by the turbine, varies with differential pressure conditions, the MPPT algorithm 'Tracks' and optimises delivered charging power.

**Charging mode:** The battery is charged by the e-Power MP using the PCB for energy optimisation. The "Floating" charging mode permanently adjusts charging voltage. It significantly extends battery life cycle.

**Battery characteristics:** The lead acid waterproof battery VRLA (Valve Regulated Lead Acid), according to IEC 60896-2 standard, is trouble-free transportation for rail, road, sea and air transportation in accordance with IATA, DGR clause A67.

Lifetime (20°C) is between 5 and 7 years according to the type of use (after 2000 cycles remaining capacity is 80%). Shipped factory charged, the discharge rate is around 2% per month for a period of 24 months (20°C) allowing prolonged storage prior to use. Battery is completely recyclable.

## ► Technical Data



Output voltage 12 V:

### Electrical Specifications

- A continuous 50 mA (600 mW)
- A peak 1 min/h 2.0 A (24 W)
- 6 V / 1.2 Ah (standard)
- Charging voltage 6.7 Volt
- Gelled lead acid waterproof battery VRLA, maintenance free
- Maximum operating temperature 55°C

Battery 6 V:



Electrical connection:

- Moulded 3 meters cable

Temperature range:

- - 10°C to + 80°C (PCB only)



Operating pressure:

PFA 16 bar

Type de vanne et DN (mm):  
(Tubulure 3/8")

- GE/AE DN 32-50 bosses tapped Rp 3/8"
- NGE DN 50-80 bosses tapped Rp 3/8"
- NGE DN 100 bosses tapped Rp 1/2"
- NGE DN 125-200 bosses tapped Rp 3/4"
- NGE DN 250-600 bosses tapped Rp 1"
- GE/AE DN 65-80 bosses tapped Rp 1/2"
- GE/AE DN 100-150 bosses tapped Rp 3/4"
- GE/AE DN 200-400 bosses tapped Rp 1"

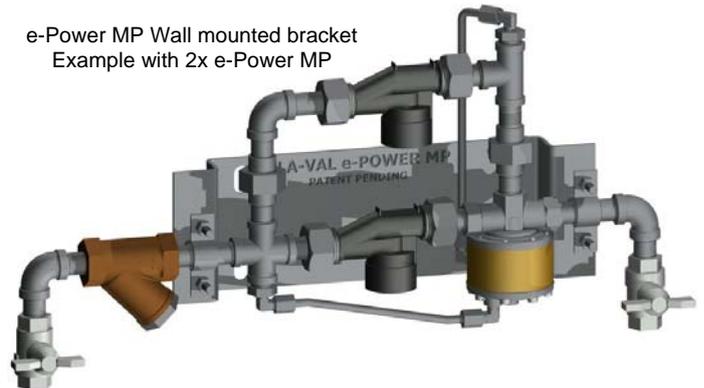
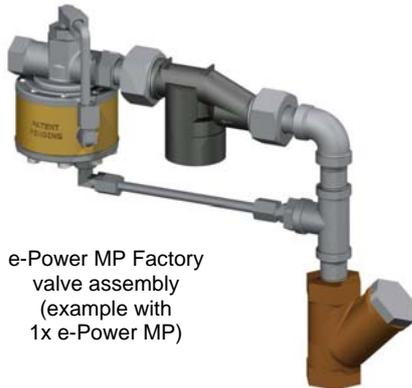
Protection:

IP68

## ► Typical e-Power 2MP Assembly

The e-Power MP can be assembled in different configurations: directly factory build on the valve or wall mounted bracket. CLA-VAL's quality assembly is constructed from totally rigid piping of diameter 3/8".

CLA-VAL's quality field retrofit includes an assembly kit, piping and fittings. CLA-VAL provides standard retrofit kits for all valve sizes. Kits are designed for simple and easy retrofit assembly.



## ► Typical Applications

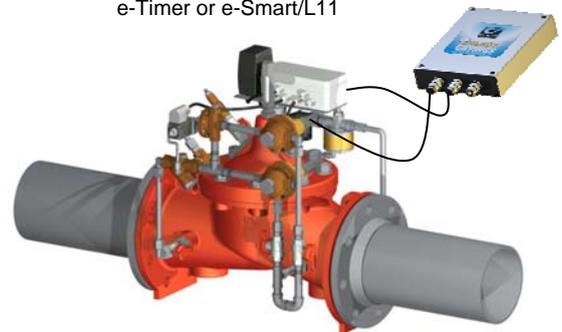
### Powering the CLA-VAL SERIES ECO

The e-Power 2MP powers all CLA-VAL ECO series products. For example a CLA-VAL valve controlled by a CLA-VAL e-Timer or e-Smart/L11 electronic controller.

The CLA-VAL e-Timer is a time based controller which is easy to use and IP68 rated.

It can be operated in manual mode with a magnet. This is the perfect product for chambers with high flooding risks.

e-Timer or e-Smart/L11



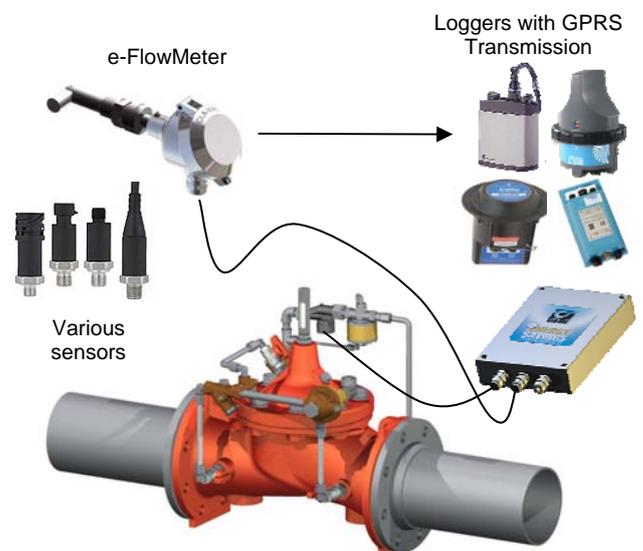
### Powering data loggers, sensors and GSM-GPRS transmission

The e-Power 2MP allows data loggers with GSM-GPRS transmission to become fully autonomous.

Powering various sensors such as pressure, reservoir level or flow when combined with a GPRS system the e-Power 2MP allows multiple daily transmission and/or dial in possibilities. This offers tremendous added value for system monitoring.

The e-Power 2MP provides autonomous power to all measurement systems requiring power 12 V, hence avoiding battery issues and related environmental impact.

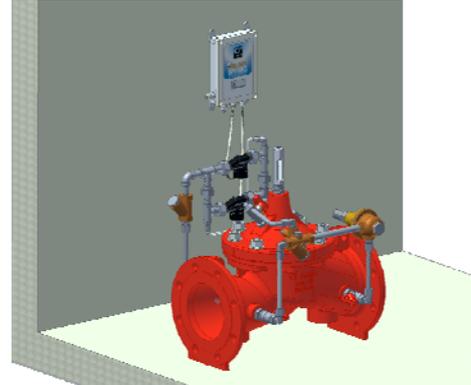
The CLA-VAL e-FlowMeter is a Vortex flow meter connected to a pulse reading data logger for very simple flow monitoring. This system is autonomous and retrieves flow information if the logger has a GSM-GPRS communication feature.



► How to Order an e-Power 2MP?



Version FM2

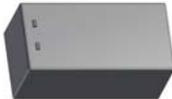


Version WM2

<b>300048</b>	Main family product							Numéro
	<b>FM2</b>	Factory mounted (2x turbine + electronic box + 3 meters cable)					Mounting version	
	<b>WM2</b>	Wall mounted (same as FM2 + bracket + screws)						
		<b>V12</b>	Output voltage 12 V				Output voltage	
			<b>L03</b>	3 meters cable (turbine to junction box)			Electrical cable	
			<b>L10</b>	10 meters cable (turbine to junction box)				
			<b>N</b>	Valve NGE			Valve model	
			<b>G</b>	Valve GE				
			<b>A</b>	Valve AE				
				Indicate valve size (mm) 032 / 040 / 050 / 065 / 080 / 100 125 / 150 / 200 / 250 300 / 350 / 400 / 450 / 500 / 600			Valve fittings / adapter	
				<b>XXX</b>	Without downstream pressure control (AQUA 80-451)			Options
				<b>DPC</b>	With downstream pressure control (AQUA 80-451)			
				<b>Code version</b>	<b>WM</b>	<b>T02</b>	2x 2 meters pressure steel wire armored hose size 3/4" (1 turbine) or 1" depending on DN	
						<b>TXX</b>	For longer supply line contact CLA-VAL	
<b>300048</b>	<b>WM2</b>	<b>V6</b>	<b>L10</b>	<b>N</b>	<b>100</b>	<b>XXX</b>	<b>TXX</b>	<b>300048-WM1-V6-L10-N-100-XXX-TXX</b>
								Exemple No.
<p><b>Example customer choice:</b> e-Power 2MP, wall mounted with (2 turbine + electronic box + 3 meters cable + bracket + screws), output voltage 12 V, 10 meters cable (turbine to junction box), valve NGE, valve size 100 mm, without downstream pressure control (AQUA 80-451): <b>300048-WM1-V6-L10-N-100-XXX-TXX</b></p>								

⚠ Spare parts or mounting tools are not included.

► How to Order an Additional Component?

No. CLA-VAL	Modèle CLA-VAL		
*CKCDHS26-STD-01	Including diaphragm, disc assembly and o-rings		Repair kit for CDHS-26 control
970692	6 V / 1.2 Ah		Lead acid rechargeable battery
MEXMPCARTE-6V-12V	Output 6V and 12 V		PCB
MEXSILIC-04	5 g		Silica gel crystal sachet
MEXPOW02-03 MEXPOW02-10	With 3 meters electric cable With 10 meters electric cable		e-Power MP turbine
 CLA-VAL	2 meters 3/8", with connections + 1 meter additional hose 3/8" 2 meters 1/2", with connections + 1 meter additional hose 1/2"		Pressure steel wire armored hose

«CLA-VAL Sales Conditions and Warranty» (document 000001DE) applies until otherwise agreed.