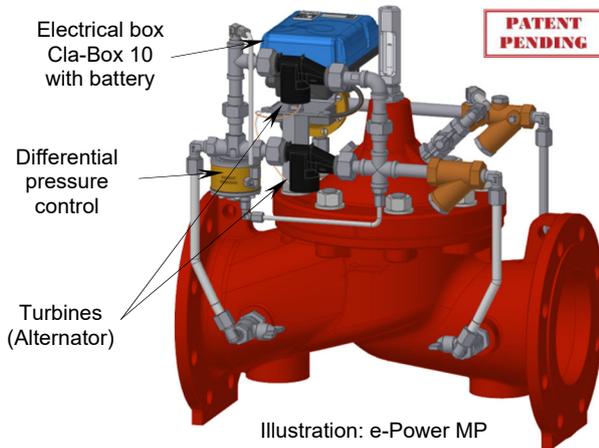


▶ Power from Flowing Water



Product components :

- e-Power MP: One electric power generator (alternator)
- e-Power 2MP: Two electric power generators

The associated CDHS-26 hydraulic pilot limits the differential pressure across the turbine(s).

The electrical box combines a rechargeable battery and an electronic battery charge management system providing a 6 VDC power supply. The terminal box allows the connection of 6 V (MP) and 12 V (2MP) devices.

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

Note 2MP: 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 implementing a lead acid battery supplying 6 VDC (MP) and 12 VDC**
- **Continuous 360 mW (MP) or 600 mW (2MP) power supplied by the lead acid battery with a differential pressure of 6 mhd and a flow of 6.5 l/min (MP), or 13 l/min (2MP)**
- **The e-Power MP/2MP converts the hydraulic energy of the valve into electrical power supplied to the accumulator.**

The CLA-VAL e-Power MP/2MP is an electric power generator utilising available hydraulic energy (Differential Pressure: dP). The e-Power MP is installed in by-pass of a CLA-VAL valve.

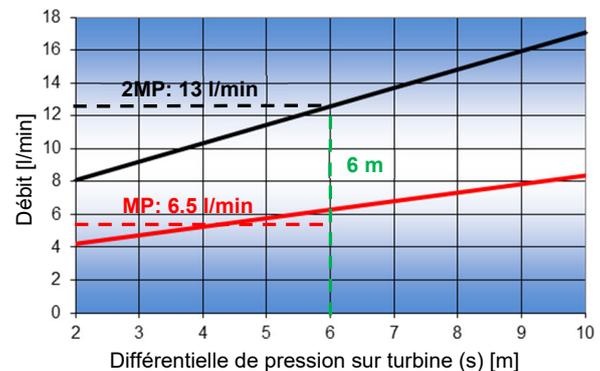
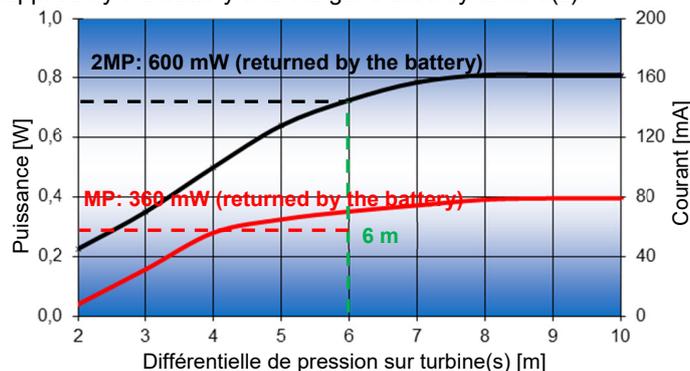
The e-Power MP/2MP powers various devices located within close proximity of the valve. For example GSM-GPRS communication systems, sensors or valve controllers such as CLA-VAL D12.

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

Output voltage	A continuous (60 min/h)	A peak (1 min/h)
6 V	60 mA 360 mW	4.0 A 24 W
12 V	50 mA 600 mW	2.0 A 24 W

Performance Curves of Turbine(s) e-Power MP/2MP

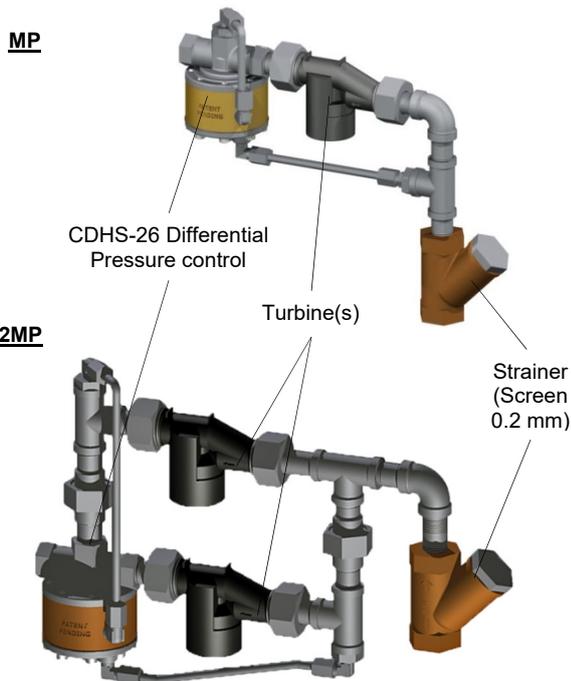
The electrical power produced by the turbine(s) recharges the battery. The power (mW) to charge the battery is the multiplication of the current (mA) and the voltage (V). The efficiency is 92% (MP) and 80% (2MP) between the power supplied by the battery and the generated by turbine(s).



Note: The power supplied in the graph above is achieved by optimizing the power supplied by turbine(s) for each differential pressure. To limit the head loss, the connection to the valve is recommended with size 3/8" (MP) and 1/2" (2MP).

▶ E-POWER MP/2MP OPERATION

Factory Mounted on Valve

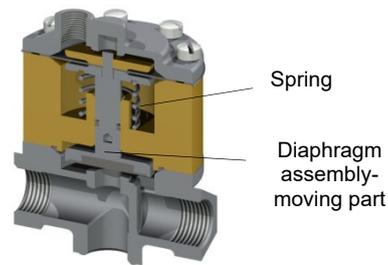


Differential pressure control: e-Power MP turbine(s) combined with a differential pressure control CDHS-26. This pilot controls differential pressure across turbine(s), hence controls the electrical power generated by e-Power MP/2MP.

CDHS-26 Pilot: 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/2MP by maintaining a constant differential pressure across the turbine(s). 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 varies according to the pressure differential (see turbine performance curves). A very low pressure differential of 3 m will already generate a power of 180 mW (MP) 360 mW (2MP).

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 turbine(s) thanks to 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), complies to IEC 60896-2 standard, for transportation via rail, road, sea, or air in accordance with IATA, DGR clause A67.

Lifetime (20°C) is between 5 and 7 years depending on usage (remaining capacity after 2000 cycles is 80%). When 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 6 V :

Electrical Specifications

- A continuous 60 mA (360 mW)

- A peak 1 min/h 4.0 A (24 W)

Output voltage 12 V:

- A continuous 50 mA (600 mW)

- A peak 1 min/h 2.0 A (24 W)

Battery 6 V:



- 6 V / 1.2 Ah (standard)

- Charging voltage 6.7 Volt

- Gelled lead acid waterproof battery VRLA, maintenance free

- Maximum operating temperature 55°C

Electrical connection:

- Moulded 3 meters cable

Temperature range:

- - 10°C to + 80°C (PCB only)



Operating pressure:

PFA 16 bar

Valve model and DN

DN (mm):

(MP: Tubulure 3/8")

(2MP: Tubulure 1/2")

- 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



CLA-VAL e-Power MP/2MP

Power: 360 mW (MP) / 600 mW (2MP)

Voltage: 6 V (MP) / 6 V-12 V (2MP)

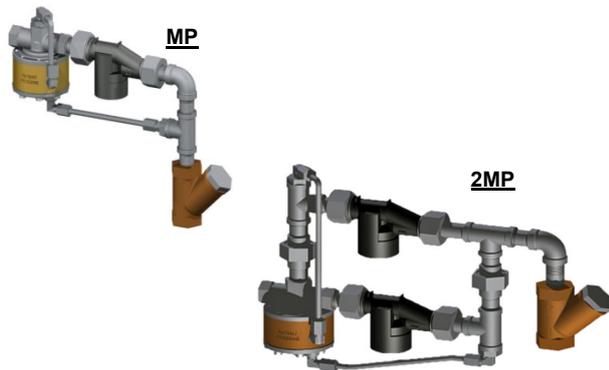
▶ TYPICAL E-POWER MP/2MP ASSEMBLY

The e-Power MP/2MP is available in various configurations: assembled on the valve from the factory, or wall mounted bracket. The assembly is done directly on the valve with a totally rigid 3/8" (MP) and 1/2" (2MP) diameter pipe.

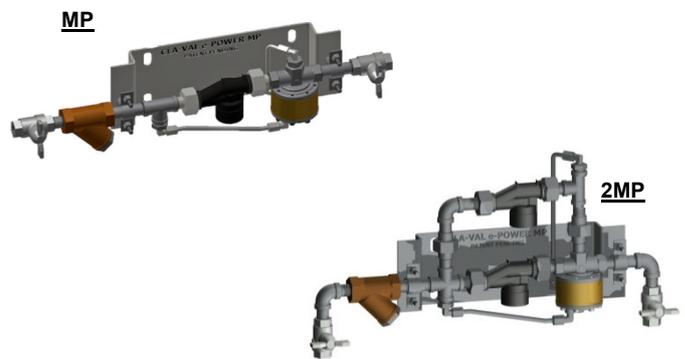
The wall mounted solution allows the e-Power MP/2MP to be used on any type of valve or fitting, as long as the hydraulic conditions are met.

The wall bracket enables an easy and simple installation of the e-Power MP/2MP. Flexible hoses (not included) facilitate connections to the upstream-downstream pressure taps of the valve.

Factory Mounted on Valve



Wall Mounted



▶ TYPICAL APPLICATIONS

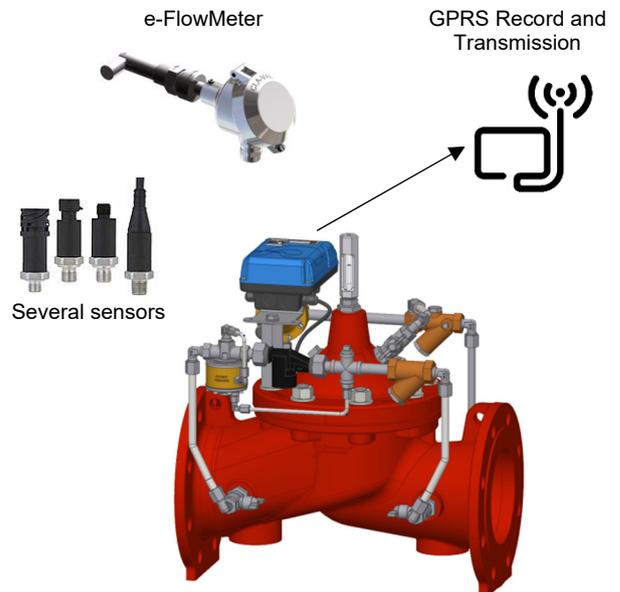
Powering data loggers, sensors and GSM-GPRS transmission

The e-Power MP/2MP allows data loggers and low-power sensors in the immediate valve environment energy self-sufficient.

These sensors measure, for example, pressure, tank height or flow rate.

The e-Power MP/2MP provides autonomous power to all measurement systems requiring power 6 V (MP) or 12 V (2MP), hence avoiding battery issues and related environmental impact.

CLA-VAL e-FlowMeter Vortex flowmeter connected to a recorder is used to measure the flow rate. This autonomous system repatriates the flow information if the recorder to a GSM-GPRS transmission. This system allows you to know the status of the network at all times. The e-Power MP/2MP allows the power supply of several other common recorders on the market.



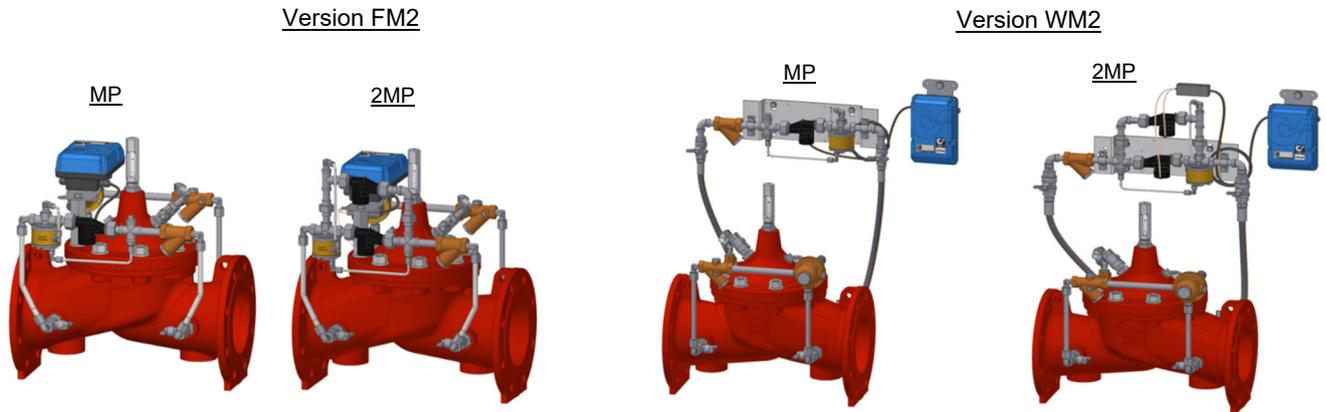


CLA-VAL e-Power MP/2MP

Power: 360 mW (MP) / 600 mW (2MP)

Voltage: 6 V (MP) / 6 V-12 V (2MP)

► HOW TO ORDER AN E-POWER MP/2MP?



300048		Main family product	Number						
↓	FM1	Factory mounted (1x turbine + electronic box + 3 meters cable)	Mounting version						
	WM1	Wall mounted (same as FM1 + bracket + screws)							
↓	FM2	Factory mounted (2x turbine + electronic box + 3 meters cable)	Output voltage						
	WM2	Wall mounted (same as FM2 + bracket + screws)							
↓	V12	Output voltage 6 V	Electrical cable						
	V12	Output voltage 12 V							
↓	L03	3 meters cable (turbine to junction box)	Valve model						
	L10	10 meters cable (turbine to junction box)							
↓	N	Valve NGE	Valve fittings / adapter						
	G	Valve GE							
A	Valve AE								
↓	XXX	Indicate valve size (mm) 032 / 040 / 050 / 065 / 080 / 100 125 / 150 / 200 / 250 300 / 350 / 400 / 450 / 500 / 600	Options						
	-	Without downstream pressure control (AQUA 80-451)							
DPC	With downstream pressure control (AQUA 80-451)								
300048	WM2	V6	L10	N	100	XXX	TXX	300048-WM1-V6-L10-N-100-XXX-TXX	Example Nr.
<p>Example customer choice: e-Power 2MP, wall mounted WM2, output voltage 12 V, 10 meters cable, valve NGE, valve size 100 mm, without downstream pressure control (AQUA 80-451): 300048-WM1-V6-L10-N-100-XXX-TXX</p>									

⚠ Spare parts or mounting tools are not included.

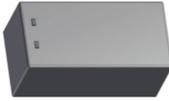


CLA-VAL e-Power MP/2MP

Power: 360 mW (MP) / 600 mW (2MP)

Voltage: 6 V (MP) / 6 V-12 V (2MP)

► HOW TO ORDER AN ADDITIONAL COMPONENT?

CLA-VAL Nr.	CLA-VAL Model		
*CKCDHS26-STD-01	Including diaphragm, disc assembly and o-rings		Repair kit for CDHS-26 control
MEXE-11	6 V / 1.2 Ah		Lead acid rechargeable battery with connector
MEXMPCARTE-6V-12V	Output 6 V 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 Sales Conditions and Warranty» (document 000001DE) applies until otherwise agreed.