

# ECO-GÁS

ELECTRONIC GAS SAVING AND REGULATOR



**ECONOMY AND  
EFFICIENCY**

for MIG / MAG welding  
processes

SAVINGS  
UP TO

**60%**

# WHAT IS THE FUNCTION OF GAS IN WELDING?

The shielding gas has two main functions in welding:

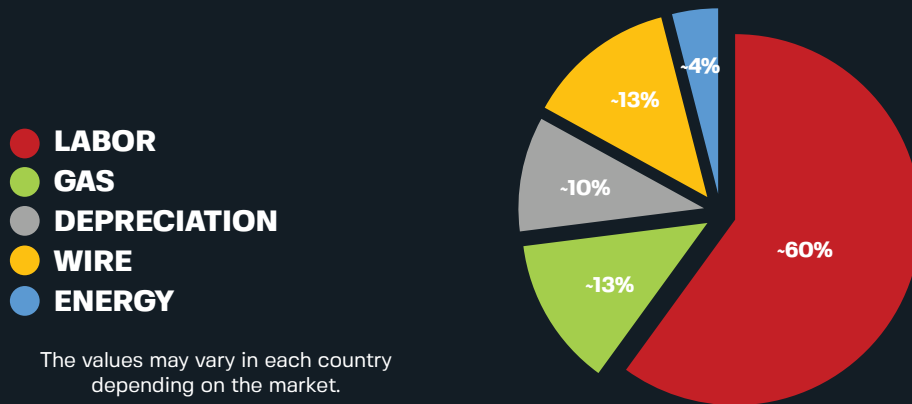


Protect the fusion pool, preventing impure gases from the environment.



Ionize the welding process, ensuring the quality OF the electric arc and the welding.

## HOW MUCH DOES THE GAS REPRESENT IN WELDING COSTS?



## HOW DOES ECO-GAS WORK?

To present maximum savings, ECO-GÁS checks 4 process parameters, regulates the linear actuating solenoid valve to deliver the correct flow and generate savings.



**GAS PRESSURE**



**WELDING CURRENT**



**WELDING PROCESS SPECIFICATION (WPS)**



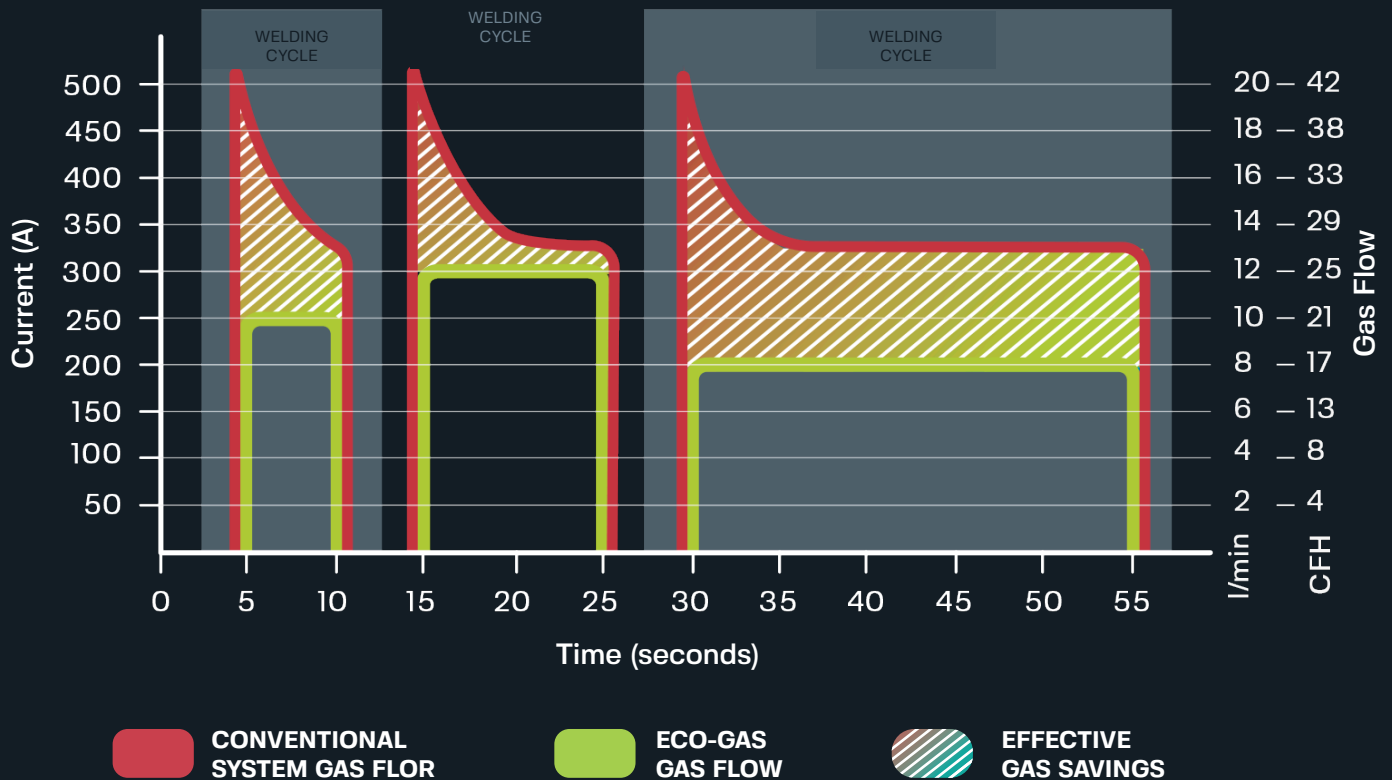
**CURRENT FLOW**

Based on the verified parameters, the linear actuating solenoid valve accurately and correctly delivers the amount of gas for the welding process. The EPS - Welding Process Specification indicates a gas flow for each process. Eco-gas has 10 scales to meet any EPS. (see table below)

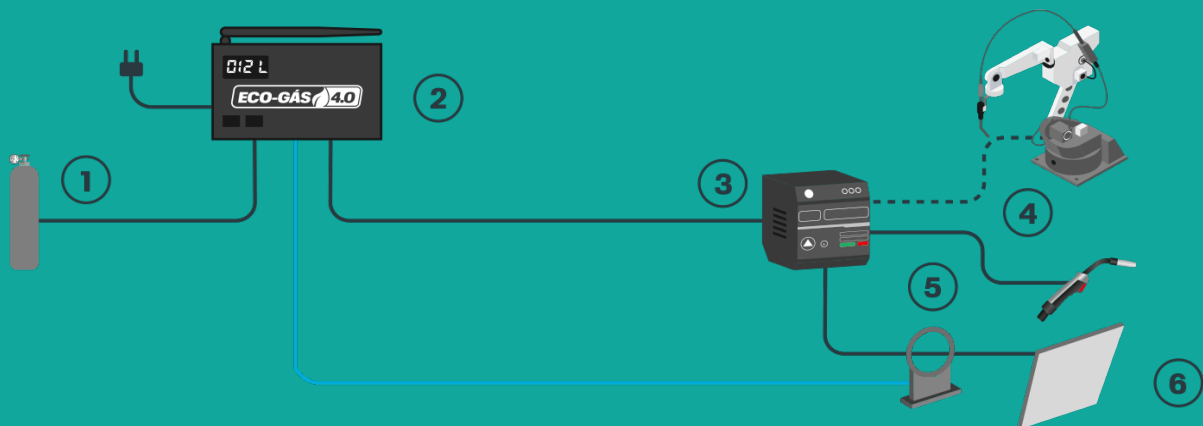
CURRENT (A)	SCALE 1	SCALE 2	SCALE 3	SCALE 4	SCALE 5	SCALE 6	SCALE 7	SCALE 8	SCALE 9	SCALE 10
150	5	7	9	11	13	15	17	19	21	23
200	6	8	10	12	14	16	18	20	22	24
250	7	9	11	13	15	17	19	21	23	25
300	8	10	12	14	16	18	20	22	24	26
350	9	11	13	15	17	19	21	23	25	27
400	10	12	14	16	18	20	22	24	26	28
450	11	13	15	17	19	21	23	25	27	29
500	12	14	16	18	20	22	24	26	28	30

# HOW DOES ECO-GAS SAVE?

## WELDING CURRENT X GAS FLOW



## HOW TO CARRY OUT THE INSTALLATION OF ECO-GAS?



- 1** Gas supply by cylinder, cylinder battery or gas network.
- 2** Eco-Gas synergistic Regulator.
- 3** MIG / MAG welding source.
- 4** Robotic or Manual welding machine.
- 5** Welding current sensor.
- 6** Piece to be welded.

# WHAT ARE THE BENEFITS OF ECO-GAS?



**FINANCE**



**PROCESS**



**PEOPLE**



**ENVIRONMENT**

## HOW TO PROVE THE ECONOMY?

ECO-GÁS has two ways of checking and comparing productivity:



### **DISABLED**

It only reads the amount of gas that is passing through the ECO-GAS, without saving, generating welding data for a certain number of welded parts.



### **ENABLE**

When welding the same number of parts, the customer can immediately know the gas savings, without the need for extra equipment.

## WHAT IS ECO-GAS EXCLUSIVE RESOURCES?



### **VIEW OF ACCUMULATIVE GAS CONSUMPTION**

Checks and records the accumulated gas consumption, that is, how much in l / min or CFH was used in a part, in the day, or in a certain term.



### **WELDING CYCLE COUNTER**

Registers the number of welding cycles, so it is possible to make a comparison between welders, teams and shifts in the day or in a certain term.



### **RECORDING ON EQUIPMENT TIME**

It cumulatively records the time OF the connected equipment, so it is possible to carry out the planning of preventive maintenance.



### **PREFLOW AND POSTFLOW CONTROL**

Selects the amount of flux at the beginning and end OF the weld bead, avoiding waste of gas and guaranteeing the quality OF the process.



#### **VISUALIZATION OF CURRENT GAS FLOW**

In real time, it is possible to view the current gas flow rate in l / min or CFH on the ECO-GAS 4.0 display.



#### **SOFTWARE AVAILABLE IN DIFFERENTS LANGUAGES**

Interface in languages: Portuguese, English, Spanish and Italian.



#### **PASSWORD PROTECTED ADJUSTMENTS**

The operation of ECO-GÁS 4.0 is protected by a configurable password. In addition to being allowed to define all parameters, it is possible to define which errors will be managed by the operator or leadership.



#### **OPEN ARC MONITORING**

Accurately and accurately records the open arc time, so it is possible to make a comparison between welders and monitor the welding time on a part, on the day, or on a certain term.



#### **AUTOMATION INTERFACE**

It has a friendly interface for automation systems (welding robot or special machine) with selection of PNP or NPN inputs and outputs. Thus, carrying out the selection OF the gas type, selection of working scales and error indications in the Teaching Pendant OF the robot.



#### **OUTPUT FLOW REGULATION SCALES**

The equipment has 10 adjustment scales, in order to guarantee greater flexibility. Aiming to meet the various process variables such as oxidized parts or even environments with a lot of air circulation.



#### **GAS LACK INDICATION**

Upon detecting the lack of gas, the equipment emits an audible signal and triggers the contact of a relay that interrupts the welding process to avoid rework and waste.



#### **STAND-BY FUNCTION**

The Stand-by function interrupts the energization OF the system after checking 4 continuous hours without use, increasing the life OF the equipment.



#### **CHECK OUTPUT FLOW**

It allows the output flow test to check the flow specified in ECO-GAS 4.0 and the actual flow OF the torch (nozzle). Thus, making it easy to identify possible leaks or obstructions in the torch.



#### **SELF-RECOGNITION OF CURRENT SENSOR FAILURE**

The intelligent system recognizes possible faults in the current sensor and provides faster diagnosis of problems.



#### **INTELLIGENT SYSTEM WITH CALIBRATION LEARNING**

At each cycle the system recognizes the pressure and flow conditions OF the network and adjusts the regulation parameters to have more savings in the process. Note: ECO-GAS 4.0 does not adjust the valve to work with high or low calibration pressures, the network pressure limitations continue to exist.



#### **WELDING CURRENT MONITORING**

With monitoring it is possible to check the stability OF the welding current according to each process. With ECO-GÁS 4.0 it is possible to compare the welding current indicated in the welding source, with that verified in ECO-GÁS 4.0, indicating possible anomalies in the welding source.

# BENEFITS DETAILS



## GAS SAVINGS

### UNKNOWN WASTE

Regardless of whether the processes are manual, automatic or robotic, the correct flow of shielding gas is still a common challenge. This is because, to maintain the ideal flow, it is necessary for the operator to make the adjustment for each situation, that is, the correct adjustment OF the pressure and flow regulating valve. The lost productivity occurs because with each adjustment more time is spent.

### COMMON AND MISTAKE PRACTICE

In an attempt to reduce the adjustment time, the solution observed in 95% OF the cases is to keep the flow at very high levels to suit all situations. In practice, this means opening the regulating valve too much, which results in gas residues. The cost of this practice can be high, because in addition to the widespread consumption of gas, the incorrect flow still influences - a lot - the quality OF the weld.

### THE SURE OF SAVING

ECO-GAS 4.0 technology uses a specific microprocessing electronic Director, a linear solenoid valve and a flow sensor. The device safely and automatically adjusts the gas flow for each situation, previously parameterized. Thus, the practice of excessive gas consumption is avoided, without wasting the operators' time adjusting the parameters for each situation.



## CONTROL AND MANAGEMENT

### ONLY IF YOU MANAGE WHAT IS MEASURED

Any manager, no Subject the size OF the company - small, medium or large - needs to have reliable process data on hand before seeking any improvement. All areas, including welding, need to evolve if they are to achieve productivity gains. Monitoring welding parameters in detail is the first step. With ECO-GÁS 4.0 it is possible to obtain constant and personalized data for each situation. Thus, possible Standard deviations are detected quickly.



## REWORKS

### SERIOUS ERROR: LACK OF GAS

A situation that we often see refers to the inaccuracy OF the measurement of gas flow through mechanical meters. Consequently, the lack of shielding gas leads to undesirable stops

during the welding process. a Welding is compromised and, in most cases, rework occurs. When implementing ECO-GAS 4.0 this problem is over, because in addition to the possible alerts in the system, it keeps the consumption information extremely accurate and secure.

### THE COSTS OF REWORK

It is possible that some rework can be tolerated, but the costs of constant losses or serious errors bring Finance losses and can impair the reliability of production processes.



## QUALITY

### HIGH QUALITY CULTURE

Maintaining a high Standard of manufacturing is also allowing the team to have access to technologies that improve the quality of work. Promoting a culture of excellence benefits all sectors because companies are interdependent and deeply interconnected systems.

### DETAILS MAKE THE DIFFERENCE

Welding improvements are noticed when we implement the process standardization. Since gas is an important variable, its automatic control reduces the possibility of error. In addition to preventing unwanted porosity caused by excess gas, a better weld finish is noted.



## ECOLOGY

### A BETTER ENVIRONMENT

The use of ECO-GAS 4.0 has the positive consequence of reducing the issuance of pollutants, since the gas in the welding environment is much lower. Polluting less complies with new manufacturing best practices. In addition to being a marketing asset, companies that adopt more sustainable processes obtain preference in the market dispute.

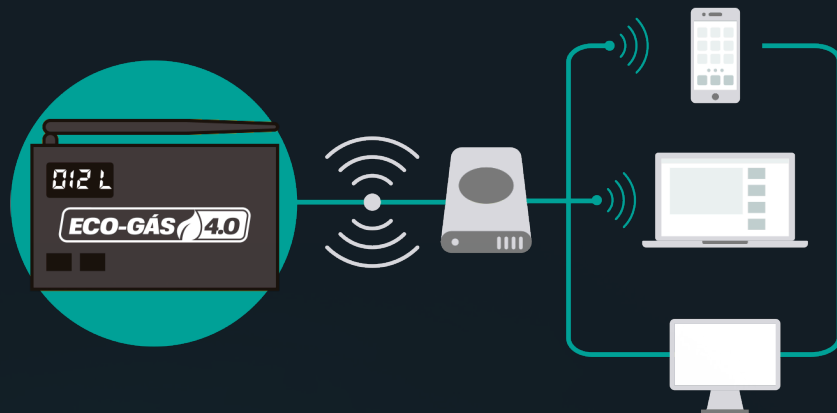


## INSALUBRITY

### PEOPLE DO BUSINESS

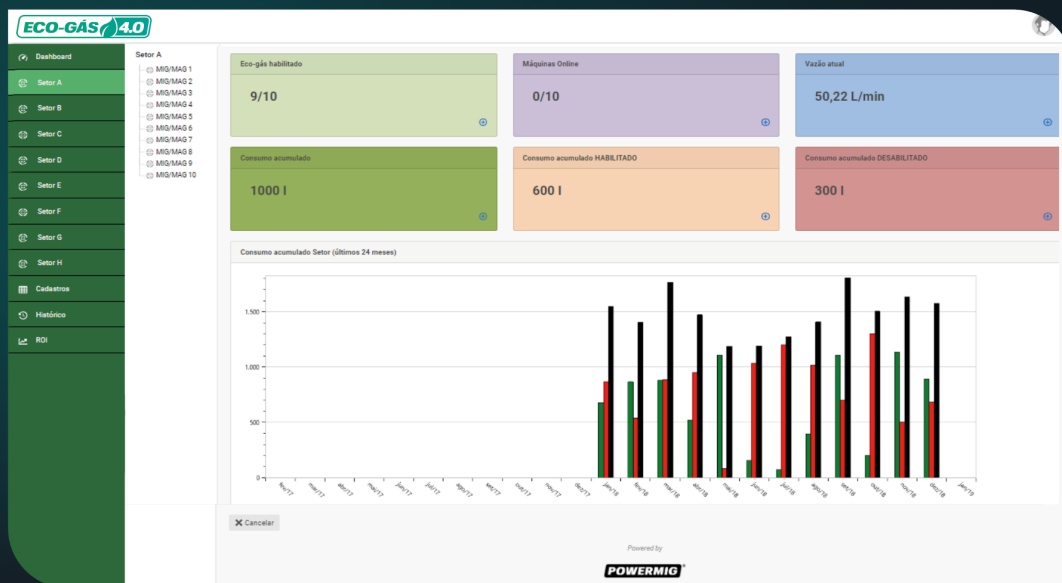
Smoke from the MIG / MAG welding process is extremely harmful to operators, so the use of equipment that reduces this exposure is of great PRICE. Another benefit of reducing gas consumption is that with less smoke being released, the work environment is cleaner.

# HOW DOES CONNECTIVITY WORK?



# HOW TO MONITOR GAS CONSUMPTION?

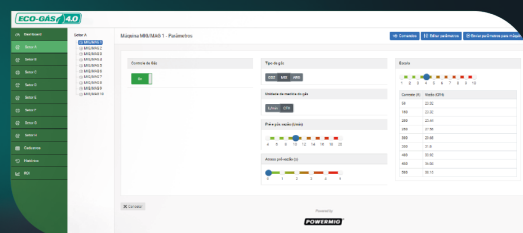
ECO-GÁS 4.0 stands out for allowing online consumption management through software developed to meet the needs of a demanding market. In addition to the Wi-Fi connection, it allows online parameterization of devices, monitoring of activity history and has a friendly interface for viewing spreadsheets.



OPTIONAL ITEM: ONLINE CONSUMPTION MANAGEMENT THROUGH THE SOFTWARE

Setor	Data	Valor	Unidade	Status	Tipo de Operação	Valor de Referência	Valor de Referência (m³)	Valor de Referência (kg)	Valor de Referência (litros)	Valor de Referência (gallões)
Sector A	2023-05-24	1000	l	Ativo	Consumo	1000	1000	1000	1000	1000
Sector B	2023-05-23	500	l	Ativo	Consumo	500	500	500	500	500
Sector C	2023-05-22	300	l	Desativado	Consumo	300	300	300	300	300
Sector D	2023-05-21	200	l	Ativo	Consumo	200	200	200	200	200
Sector E	2023-05-20	150	l	Ativo	Consumo	150	150	150	150	150
Sector F	2023-05-19	100	l	Ativo	Consumo	100	100	100	100	100
Sector G	2023-05-18	50	l	Ativo	Consumo	50	50	50	50	50
Sector H	2023-05-17	50	l	Ativo	Consumo	50	50	50	50	50
Sector A	2023-05-16	1000	l	Ativo	Consumo	1000	1000	1000	1000	1000
Sector B	2023-05-15	500	l	Ativo	Consumo	500	500	500	500	500
Sector C	2023-05-14	300	l	Desativado	Consumo	300	300	300	300	300
Sector D	2023-05-13	200	l	Ativo	Consumo	200	200	200	200	200
Sector E	2023-05-12	150	l	Ativo	Consumo	150	150	150	150	150
Sector F	2023-05-11	100	l	Ativo	Consumo	100	100	100	100	100
Sector G	2023-05-10	50	l	Ativo	Consumo	50	50	50	50	50
Sector H	2023-05-09	50	l	Ativo	Consumo	50	50	50	50	50
Sector A	2023-05-08	1000	l	Ativo	Consumo	1000	1000	1000	1000	1000
Sector B	2023-05-07	500	l	Ativo	Consumo	500	500	500	500	500
Sector C	2023-05-06	300	l	Desativado	Consumo	300	300	300	300	300
Sector D	2023-05-05	200	l	Ativo	Consumo	200	200	200	200	200
Sector E	2023-05-04	150	l	Ativo	Consumo	150	150	150	150	150
Sector F	2023-05-03	100	l	Ativo	Consumo	100	100	100	100	100
Sector G	2023-05-02	50	l	Ativo	Consumo	50	50	50	50	50
Sector H	2023-05-01	50	l	Ativo	Consumo	50	50	50	50	50

HISTORY OF ACTIVITIES



ONLINE PARAMETERIZATION OF DEVICES



## WANT TO DISCOVER **HOW MUCH YOU CAN SAVE?**

### MAKE SURE YOU HAVE THE FOLLOWING INFORMATION:

#### IF YOU ARE A **GAS CYLINDER USER:**

- 1) Cost of refilling the gas cylinder;
- 2) Cost of renting the cylinder and delivery;
- 3) Number of cylinders used per day or week;
- 4) Days worked per month.

#### IF YOU ARE A **GAS NETWORK USER:**

- 1) Cost of m<sup>3</sup> of argon;
- 2) Cost of Kg of CO<sub>2</sub>;
- 3) Quantity of parts produced per day at the workstation;
- 4) Shifts worked;
- 5) Days worked.



NOW IT IS JUST TO COMPLETE  
THE TABLE AND DISCOVER YOUR  
ECONOMY



[www.ecogaswelding.com](http://www.ecogaswelding.com)



**ARE YOU INTERESTED?  
CONTACT.**

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\* Considering 1 arc opening every 10 seconds, in 24 hours, for 330 days a year.