IrriGen
Regenerative Irrigation

SMART HYDRANT

The Smart Hydrant is an innovative hydraulic-mechanical device designed to optimize irrigation in agricultural plots.
Equipped with advanced technology, this system enables automatic flow and pressure control, fertilizer injection, and real-time monitoring, thus ensuring efficient water use and improving crop productivity.
The Smart Hydrant is a strategic investment for farmers looking to modernize their irrigation system and maximize resource efficiency. Its robust design and advanced technology make it the perfect tool to take your crops to the next level.

IrriGen
Regenerative Irrigation

Irrigen is an innovative Regenerative Irrigation system that takes a holistic approach to managing water, soil, and crops. It integrates cutting-edge techniques with nature-based solutions to regenerate ecosystems, optimize potable water use, and maximize the recovery of wastewater and nutrients.

Additionally, Irrigen enhances rainwater infiltration, promoting the sustainable use of all available water sources. This system is designed to increase food production, regenerate soils, and replenish aquifers, contributing to long-term environmental health and water security.

Part of Aqua Et Terra's (AET) advanced technology portfolio, Irrigen is central to our mission of addressing the global water crisis. Our comprehensive water exchange projects connect agriculture, industry, and communities, offering collaborative water management solutions that promote efficiency, sustainability, and biodiversity. AET Sustainable Solutions is committed to creating a positive and lasting impact on water management by offering tailored, innovative solutions that respect local realities while contributing to global water balance.

SMART HYDRANT

Key Benefits

- Increases water usage efficiency.
- Improves irrigation management and control.
- Water Savings: Automation and precise control of irrigation optimize water use, contributing to environmental sustainability.
- Increased Productivity: By ensuring proper irrigation, crop growth is enhanced, and yields are increased.
- User-Friendly: Intuitive interfaces and remote-control options make operation and adjustments easy from anywhere.
- Preventive Maintenance: Self-diagnostic system that notifies the user of potential failures or maintenance needs, ensuring continuous performance.

Irrigen

New Version of the Smart Hydrant.

The new version of the Parcel Hydrant software is compatible with previous versions and now includes the Irrigen (Regenerative Irrigation) format, a comprehensive approach to managing potable, reclaimed, and rainwater, soils, and crops in a sustainable way.

Benefits

* Efficient use of potable water and reuse of wastewater and rainwater.
* Soil regeneration and improved water and nutrient retention.
* Aquifer recharge with high-quality water.
* Promotion of biodiversity and nature-based solutions.
* This version optimizes the use of water resources and supports ecosystem regeneration for more sustainable agriculture.

Features

1. Versatile Design:

· Output Options: Available with 1 to 4 outlets, adapting to different irrigation configurations based on the needs of each plot.

· Irrigation Capacity: Capable of irrigating from 0.83 to 1.25 hectares, ideal for various types of crops.

	NOMINAL AREA IRRIGATED ha (acres)			
# Blocks →	1	2	3	4
NOMINALS FLOW LPS 5	0.5 (1.25)	1 (2.5)	1.5 (3.75)	2 (5)
10	-	2 (5)	3 (7.5)	4 (10)
20	-	4 (10)	6 (15)	8 (20)
40	-	8 (20)	12 (30)	16 (40)

2. Measurement and Control Technology:

· Flow and Pressure Monitoring: Equipped with volumetric meters that allow instant control and detailed recording of the volumes of water applied.

· Telemetry: Enables real-time communication with central control systems, optimizing decision-making.

3. Durable Construction:

· Resistant Materials: Made with reinforced plastics and steel, ensuring resistance to impacts and adverse weather conditions.

· Protection Cabinet: Designed to safeguard mechanical and electronic components, ensuring long-term performance.

4. Advanced Functionality:

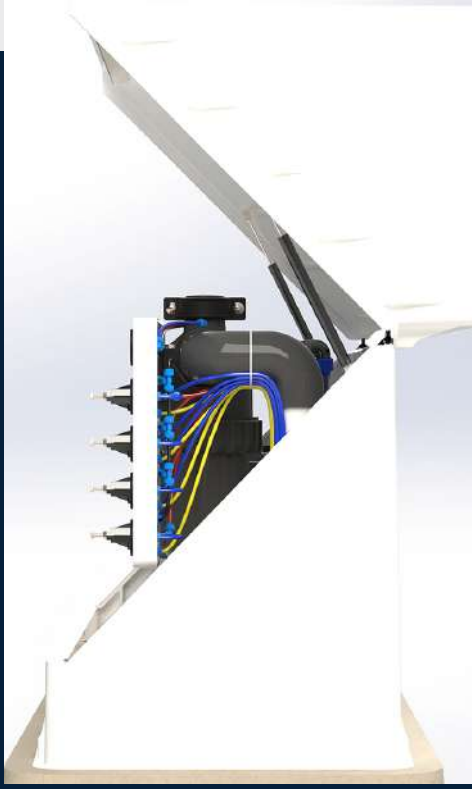
- Fertilizer Injection: Injection system that operates without the need for additional pressure, improving nutrient efficiency.
- Safety Filtration: Protects the system from blockages and ensures consistent performance.

5. Connectivity and Automation:

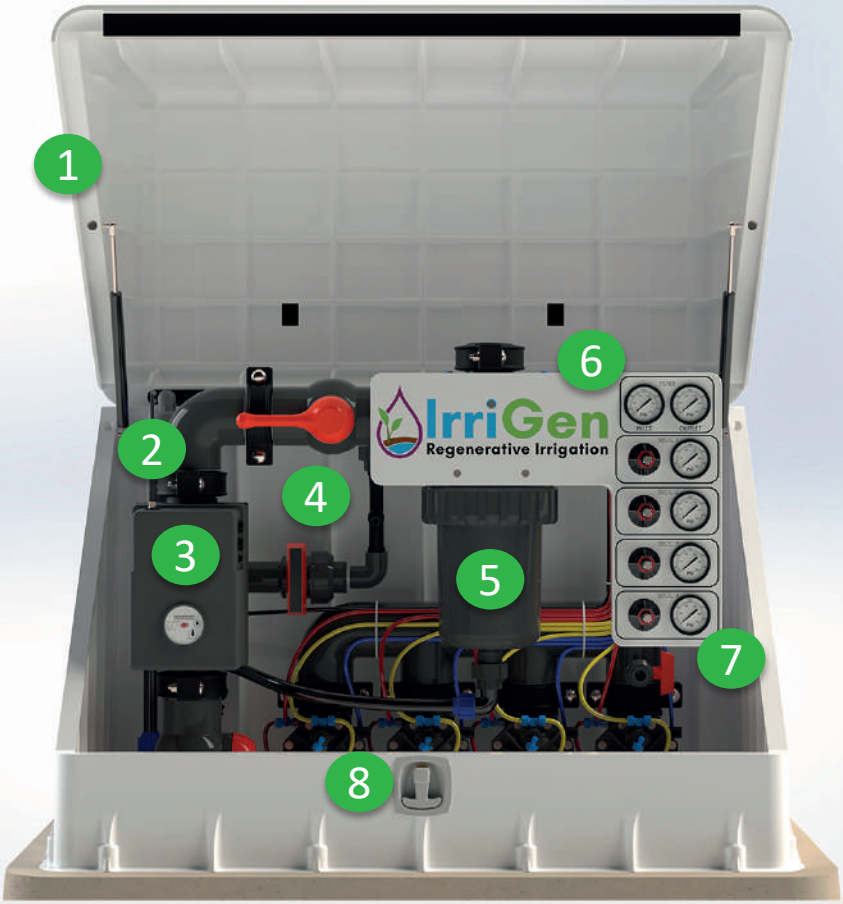
- Sensor Integration: Capable of connecting to moisture sensors and other smart devices for centralized management.
- Remote Updates: Allows software improvements without physical intervention, keeping the system updated with the latest features.

Patents

1. Device and method for controlling agricultural fertigation based on an encrypted key. Patent: MX 279524 B.
2. Autonomous control device for parcel fertigation. Patent: MX 3518 B. Automated parcel irrigation control system. Patent: MX 356905 B.
3. Device for instant and volumetric management and control of first-use water or reclaimed water and its nutrients for crop irrigation and regeneration. Patent Application: MX/a/2024/012743.
4. Device for real-time, volumetric management and control of first-use or reclaimed water and its nutrients for crop irrigation and regenerative purposes. Patent Application: MX/a/2024/012743.
5. Regenerative resource recovery and irrigation system with multiparametric optimization for: a) full utilization of recovered water and nutrients, b) crop maximization through optimal water and nutrient management, c) soil regeneration via subsurface water infiltration and nutrient retention, and d) aquifer recharge using surplus nutrient-free water. Patent Registration: 2785705.



SMART HYDRANT



1. Cabinet
2. Air Vent
3. Flow Meter
4. Fertilizer Injector
5. Filter
6. Control Panel
7. Pressure Gauges
8. Safety Lock

Real-Time Precision Irrigation System

Our advanced irrigation system uses algorithms to accurately predict crop water needs and optimize irrigation timing, improving water efficiency and minimizing waste. The system integrates real-time data from weather stations, climate forecasts, and satellite data (NOAA) to monitor key variables like temperature, humidity, wind speed, and precipitation.

- Customized Irrigation: Tailored to specific soil, crop, climate, and system conditions for each irrigation block or valve.
- Data-Driven Decisions: Uses real-time monitoring, soil moisture sensors, and aerial imagery to calculate irrigation needs.
- Efficient Water Use: The FAO Penman-Monteith method forecasts daily irrigation requirements.

Precision Irrigation Device

- On-Demand Adjustments: Adapts to crop needs based on moisture content, climate, and growth stage.
- Real-Time Watering: Delivers water exactly when the plant needs it.
- User Control: Adjustable schedules via web platform or mobile app.
- Data Logging & Monitoring: Tracks irrigation volumes and times for each block or valve.
- Volume & Time Limits: Set maximum irrigation limits to avoid overuse.

Our system ensures optimal water use, enhancing crop yield while conserving resources.

IrriGen

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