



GROW WITH OUR EXPERIENCE

ADVANCED SOLUTIONS FOR
MICRO IRRIGATION SYSTEMS



Growers Face Multiple Challenges

Faced with worldwide water scarcity, climate change, and rising energy costs, farmers and growers are focused on precise, high-quality, and cost-effective micro-irrigation management by increasing water usage efficiency as well as reducing energy costs.

Micro-irrigation of open fields is cost-efficient and optimized irrigation characterized by relatively low-pressure methods such as spray, subsurface, sprinkle, lay-flat, or drip with varying discharge patterns meeting specific applications.

Open-field irrigation requires different flow and pressure requirements for different types of crops in the same area, or during different seasons and growth stages.

BERMAD Delivers Proven Solutions

BERMAD's solutions include air valves, water meters, hydraulic control valves, and automation for system monitoring and control. Managing a wide range of operating flow and pressure conditions, our solutions enable precise fertigation, cope with odd topography and large distances from the supply system, ensure sufficient flow and pressure for each grower using the system, and prevent pipe drainage and bursts. Our solutions are available in a broad range of sizes, configurations, end connections, and materials of construction.

**Reduce maintenance | Maximize lifespan | Save energy | Save water | Increase crop yield
| Increase system flexibility allowing future growth on demand**



Advanced Solutions for Worldwide Micro Irrigation Projects

Answering the need for advanced and efficient water delivery systems focused on main irrigation head distribution of pressure zones and field control heads.

BERMAD leads the way with its hydraulic solutions, digital coverage and full package offering

With 60 years of experience, BERMAD provides comprehensive micro irrigation solutions. BERMAD offers a total package including supply system protection, air control, pressure and flow management, metering, automation, automation, as well as recommendations for efficient design, installation, operation, and maintenance.

Providing Best-Fit Solutions to Meet Any Irrigation Challenge

Leveraging our unique products, design tools, experience, and capabilities, BERMAD's team works closely with customers to develop a tailored solution. Our team takes all requirements, such as environment, topography, water quality, energy, system pressure & capacity, as well as budget, regulations, and customer preferences into account, to provide the most effective solution.

In response to rising energy costs and global food shortages, more countries and agricultural organizations support and invest in irrigation projects aimed at providing micro irrigation to arid areas to transform them into arable land.



Environment



Regulations



Water quality



Energy



Pressure



Budget

1 Main Irrigation Head



2 Pressure Zone Control Head



3 Field Control Head



Main Irrigation Head



The main irrigation head is the center of the entire system, serving as the hub for control and monitoring throughout the irrigation process. This station combines advanced technologies specifically tailored to the needs of each crop, including pumps, precision fertigation system, automatic filtration, smart control units, and high-end sensors that continuously monitor field conditions.

The station also features hydraulic control valves regulating pressure & flow, flow meters, air control solutions all ensure consistent and efficient system performance.

BERMAD offers fully integrated and comprehensive smart and advanced solutions for every component of the main irrigation head. Designed to match the farmer's needs and field conditions, BERMAD's systems combine engineering expertise, exceptional reliability, and advanced innovative capabilities, resulting in optimal irrigation management, water and energy savings, and long-term performance.

Integration of BERMAD solutions provides:

- Pump protection
- Filtration system protection and & efficient filtration operation
- Pressure and flow regulation for precise fertilizer injection
- Accurate water measurement for efficiency and water savings
- Air control throughout the system

Quick Pressure Relief Valve (QRV) IR-43Q

- Hydraulically operated, diaphragm-actuated QRV precisely and immediately relieves any excessive system pressure that rises above a pre-set value.
- Installed downstream to PRV as part of system protection.
- Smooth drip-tight, surge-free closing, preventing secondary surge.



Pressure Sustaining Solenoid Valve (PSV) IR-430-55-R

- Sustains minimum preset upstream pressure to protect pumps during overconsumption.
- Sustains minimum preset upstream pressure for efficient backflush of the filtration battery.
- Allows remote control by a central irrigation controller.



Double Chamber Pressure Reducing Valve 720-X

- Hydraulically operated Pressure reducing valve that reduces higher upstream pressure to a lower, constant, and adjustable downstream pressure regardless of fluctuating demand and changing supply pressure.
- Double chamber with powerful and quick response going into regulation.
- Stable regulation.
- 3-way control allowing the transparent valve to fully open when regulation is not required.



Combination Air Valve with Surge Protection C30-SP

- High quality combination air valve:
 - Evacuates air during pipeline filling for efficient line fill-up.
 - Allows efficient release of air pockets from pressurized pipes, ensuring system efficiency and proper operation of system components.
 - Enables large volume air intake in the event of network drainage.



Combination Air Valve with Surge Protection C70-SP

- High quality combination air valve:
 - Evacuates air during pipeline filling for efficient line fill-up.
 - Allows efficient release of air pockets from pressurized pipes, ensuring system efficiency and proper operation of system components.
 - Enables large volume air intake in the event of network drainage, surge, and burst.
- Essential part of BERMAD surge protection solution:
 - During negative surge waves, the combination air valve enables intake of large air volumes to prevent vacuum conditions and pipe collapse.
 - During positive surge waves, the air valve supplements the action of the surge-anticipating valve, partially closing the kinetic orifice to decrease the approaching surge velocity.



Electromagnetic Flow Meter MUT-2300 with MC406 Convertor

- Non-moving parts, battery-operated electromagnetic flow meter.
- Allows compact and flexible installation: no need for straightening distances before and after the flow meter (U0-D0).
- Maintenance-free.
- Convertor can be installed in a compact or remote-mounted version.
- Offers superior accuracy and reliability for a wide range of water quality.
- MID-certified for a wide flow range.
- Suitable for lower quality irrigation water.



Pressure Zone Control Head



For irrigation systems that cover large agricultural areas with varying topography, the distribution of the area to different pressure zones is essential. Proper management of pressure zones ensures uniform and efficient water delivery to every part of the field, maintains operational stability, protects system components, and ensures system efficiency.

With highly accurate and reliable hydraulic control valves, pressure levels can be efficiently regulated to meet the specific needs of each zone, considering its specific topography, distance from water supply, crop type, and irrigation method.

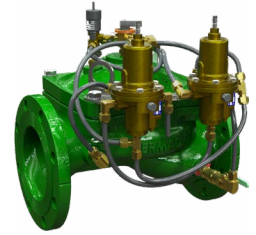
BERMAD brings proven engineering expertise and decades of field experience, providing solutions for pressure zones management. Through the seamless integration of advanced control and automation solutions together with hydraulic control valves, even the most complex irrigation projects can run smoothly, efficiently, and reliably.

Integration of BERMAD solutions provides:

- Stabilized pressure levels across all project zones, increasing system efficiency
- Protection for pipelines and conveyance components from pressure shocks
- Air control within the system
- Reduced runoff damage during line filling and draining
- Flow metering & monitoring

Pressure Reducing and Sustaining Solenoid Valve IR-423-55-X

- Hydraulically operated regulation valve with solenoid control that performs three independent functions: Sustains the preset minimum upstream pressure, reduces downstream pressure to a constant preset maximum, and either opens or shuts in response to an electric signal.
- Sustains minimum preset upstream pressure, protecting the pumps during overconsumption.
- Sustains minimum required pressure for efficient backflush of the filtration battery.
- Allows control by a central irrigation controller.



Flow Control and Pressure Reducing Hydrometer IR-972-X

- Hydrometer features a built-in Woltman-based water meter with a diaphragm-actuated hydraulic control valve in the same body for compact and efficient installation.
- Limits the flow, protecting the system from over consumption.
- Reducing higher upstream pressure to a lower, constant, adjustable downstream pressure, protecting downstream lines components .
- Remote ON/OFF operation is optional.
- Accurate metering integrating a universal electronic register displaying instant flow rate and totalizer.
- Compact and efficient installation with no need for straightening distances before and after (UODO).



Composite Combination Air Valve C-10

- High quality combination air valve:
 - Evacuates air during pipeline filling for efficient line fill-up.
 - Allows efficient release of air pockets from pressurized pipes, ensuring system efficiency and proper operation of system components.
 - Enables large volume air intake in the event of network drainage, surge, and burst.
- Ensures system efficiency
- Also available in PN16.



Electromagnetic Flow Meter M-10

- Composite, lightweight highly accurate , electromagnetic flow meter with non-moving parts.
- Maintenance-free operation.
- Compact and efficient installation with no need for straightening distances before and after (UODO).
- Battery-operated, IP68, MID-approved (R400).
- Suitable for low quality irrigation water



Quick Relief Valve IR-13Q-HP

- Hydraulically operated, diaphragm-actuated QRV precisely and immediately relieves any excessive line pressure that rises above a pre-set value.
- Composite material of construction suitable for high-pressure applications (PN16), perfect to protect irrigation systems from pressure spikes.
- Provides smooth, drip-tight, surge-free closing.



Proportional Pressure Reducing valve IR-120-PD-XZ

- Hydraulically operated, diaphragm-actuated control valve that reduces higher upstream pressure to lower downstream pressure at a fixed ratio.
- Double chamber valve for accurate responses and stable operation.
- Simple control loop: no need for control accessories
- Reduces pressure according to the reduction ratio quickly and reliably, even in difficult working conditions.
- Ideally used to reduce the pressure along downhill pipelines (gravitational irrigation).



Field Control Head



The field control head represents a critical stage of the irrigation system, responsible for delivering water directly to emitters, such as drippers and sprinklers. At this point, selecting high-quality solutions is essential for handling variable pressures and flows, maintaining an efficient and reliable water supply, and safeguarding sensitive system components in the field.

Proper solution selection ensures long-term reliability, uniform irrigation, and maximum system durability.

Integration of BERMAD solutions provides:

- Protection for drippers and water conveyance systems
- Pressure regulation for consistent, uniform, and optimal irrigation across the field
- Vacuum protection for drippers
- Low-maintenance operation for peace of mind
- Remote control operation & monitoring

Top Pilot Pressure Reducing Solenoid Valve 12T-55-X

- The valve reduces higher upstream pressure to a calibrated constant downstream pressure, regardless of flow fluctuations, and opens fully when line pressure drops below setting.
- Opens and shuts in response to an electric signal.
- Offers compact design and intuitive plug-and-play operation.
- Innovative integrated pilot, equipped with a high-resolution adjustment dial for easy, quick, and accurate calibration.
- Friendly design is easy to operate in the field.



Pressure Reducing Valve IR-120-54-b

- Features hydraulic relay control, hydraulic control valve that reduces higher upstream pressure to lower, constant, and adjustable downstream pressure regardless of fluctuating demand, and opens fully upon line pressure drop.
- Normally closed valve, opens in response to a remote pressure drop command and closes when the command ceases.
- Suitable for low-pressure work, including irrigation with drip tapes.



Pressure Reducing Valve IR-420-50-X

- Hydraulic control valve that reduces higher upstream pressure to lower constant and adjustable downstream pressure, regardless of fluctuations in demand and / or varying supply pressure.
- Protects the downstream system and components (pipes, valves, filters, drippers) from excessive pressure.
- Reliable and easy to maintain.



Pressure Reducing and Sustaining Double Chamber Valve IR-123-DC-XZ

- Hydraulic control valve that sustains minimum preset upstream (back) pressure and reduces higher upstream pressure to a lower constant preset downstream pressure.
- Double chamber valve design for quick and accurate response going into regulation.
- Thanks to its reaction speed and stable operation, it is also suitable for thin-walled drips and drip tapes.



Kinetic Air Valve K-10

- High quality kinetic air valve that evacuates air during pipeline filling and enables a large volume of air intake in the event of network drainage.
- Aerodynamic kinetic design enhances vacuum protection and sealing at low pressures.
- Provides maximum protection for drip lines when installed in areas with challenging topography.



Omega Cloud-based Irrigation Controller

- Professional volumetric and time-based irrigation controller.
- Remote control & execution of the irrigation schedule
- Offers online connectivity to the field control head using BERMAD Cloud Web access or through mobile app.
- Operates via battery/solar panel, DC device which doesn't require electrical supply.
- Enables remote and efficient operation, system optimization, allowing monitoring of thousands of control heads with minimal labor and maintenance cost.



Avocado and Mango Orchard, Beit Zera, Israel

The Challenge

The 8.4-hectare orchard at Kibbutz Beit Zera overlooks the Sea of Galilee and presents significant hydraulic challenges due to steep hillside terrain and regional consortium water supply demands. The orchard uses pressure-compensated drip irrigation but suffers from pressure spikes caused by upstream consortium members switching irrigation shifts, elevation-induced pressure fluctuations, and runoff accumulation at lower plot areas, leading to puddling and root health issues.

The Solution

BERMAD engineered comprehensive solutions, installing Model 720 Pressure Reducing Valves and Model 43Q Pressure Relief Valves for system protection, double-chamber 120 Series valves for stable and accurate pressure reduction and pressure-sustaining valves at drip manifold midpoints to prevent drainage issues. The system has been successfully operating for more than eight years.



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Vegetable Production, Grech Farms, Australia

The Challenge

Grech Farms in Cooma, NSW is a large-scale seasonal vegetable producer that faced significant operational inefficiencies with a fully manual irrigation system requiring constant on-site monitoring, manual valve operation, and timer management across 40+ irrigation zones. The labor-intensive process placed heavy time burdens on farming staff, especially during peak growing seasons, with risks of over- or under-watering due to human error.

The Solution

BERMAD transformed operations by installing six Omega cloud-based controllers managing BERMAD 100 Series solenoid valves, enabling remote operation, pre-set irrigation programs, automated scheduling, and real-time monitoring from the elevated farm office. The automation delivered significant time savings, improved water management consistency, and allowed staff to focus on critical farming tasks.



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Sugarcane Micro Irrigation, Northern Peru

The Challenge

AGROAURORA aimed to convert 1,960 hectares of harsh desert land into productive sugarcane fields in Peru's arid northern coastline with virtually no rainfall. The undeveloped virgin landscape required a full-scale micro irrigation system delivering high volumes of Andes river water with precision and minimal waste across two agricultural zones of 980 hectares each, ensuring uniform and efficient irrigation while providing water hammer protection and managing pressure regulation challenges.

The Solution

BERMAD provided comprehensive hydraulic design from the pumping station through distribution lines to field plots. Solutions included C70 air valves for surge protection, IR-350 filter backwash valves, WW-735-M surge anticipating valves protecting the pumps from emergency surges, WW-73Q pressure relief valves, IR-423-RXZ pressure reducing & sustaining valves, and MUT2300/MUT2200 electromagnetic flow meters. The system has been fully operational since 2024 with plans for a 2,500-hectare expansion.



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Plum Orchard, Yunnan Province, China

The Challenge

This 107-hectare plum orchard near Guanting Town faced challenging topography with 60-meter elevation differences across irrigation zones, requiring smart pressure and flow control for uniform irrigation. The project needed solutions for odd topography demanding advanced control systems, smart & flexible pumping station operation by installing variable frequency drive operated pumps, surge and water hammer protection during irrigation cycles, ongoing pressure regulation due to elevation differences, and air control preventing vacuum conditions and pipe collapse.

The Solution

BERMAD implemented smart smart, advanced hydraulic solutions as well as metering and air control including TURBO-IR water meters for monitoring, and IR-43Q quick pressure relief valves combined with C70 air valves for surge protection. In addition, zone-based pressure regulation was implemented using IR-120/IR-123 control valves across 12 agricultural zones, while comprehensive air control was provided by metal & composite combination air valves. BERMAD's China team provided ongoing support from design through Implementation.



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Designed to deliver

BERMAD's sizing, Bermad Air software and surge analysis design tools enable overall design optimization and selection of best-in-class products for air control, regulation valves, and surge protection solutions.

Sizing

Proper valve sizing is a vital factor in designing water supply and irrigation systems. To achieve optimal efficiency, stable operation and system/valve longevity, accurate sizing is imperative.

BERMAD Sizing Software has proven to be one of the most useful design-assistance tools. Based on decades of experience, an advanced algorithm that incorporates various hydraulic calculations and formulas provides a realistic simulation of a hydraulic water control system was developed by Bermad's engineers.



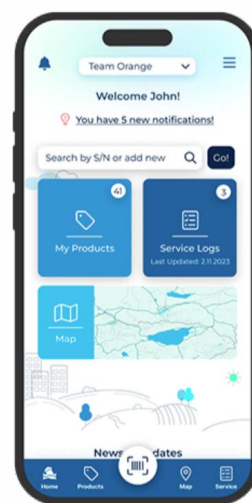
BERMAD Air

BERMAD Air enables designers to optimize air valves design in any project including specific model selection, sizing, and location.



BERMAD Connect

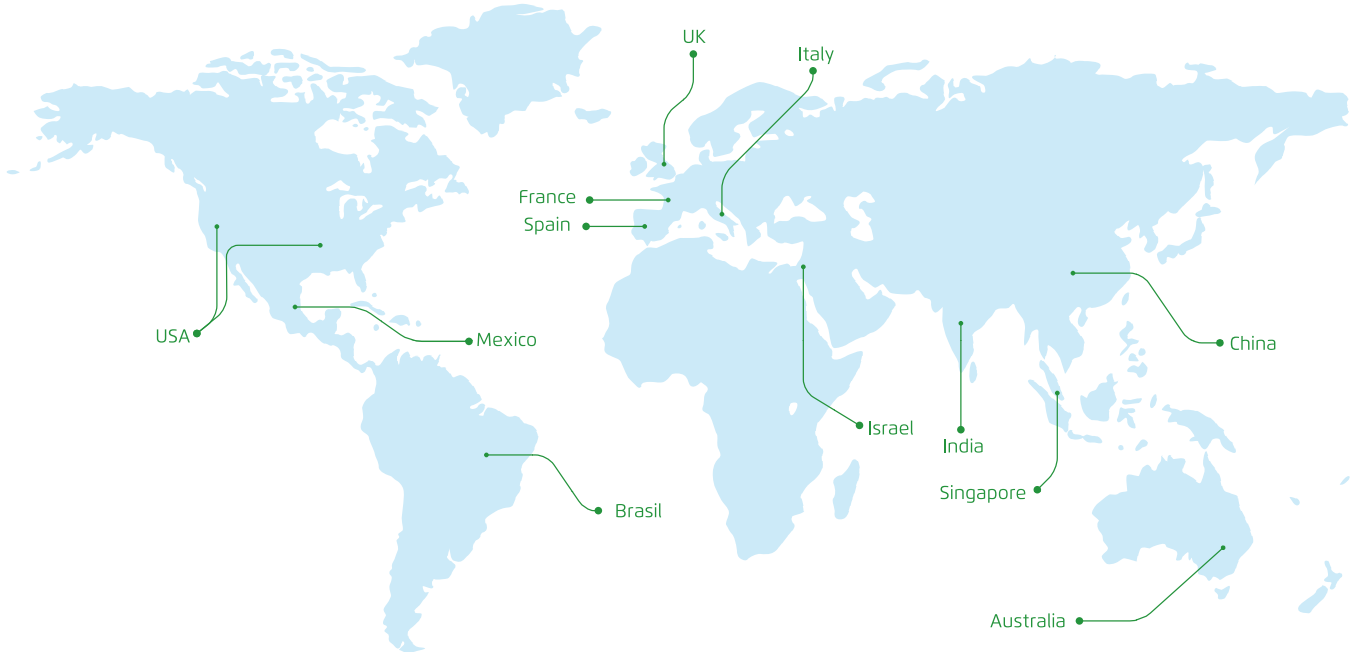
BERMAD Connect is an intuitive mobile app that enables users to scan or enter the serial number of a BERMAD product, and access all the information they need to easily install, operate, and maintain this product – from wherever they are.



BERMAD is your partner today, tomorrow, and for generations to come.

Local presence

Due to its local presence, BERMAD supports the project through all the development stages including design, delivery, installation, commissioning, and first runs.



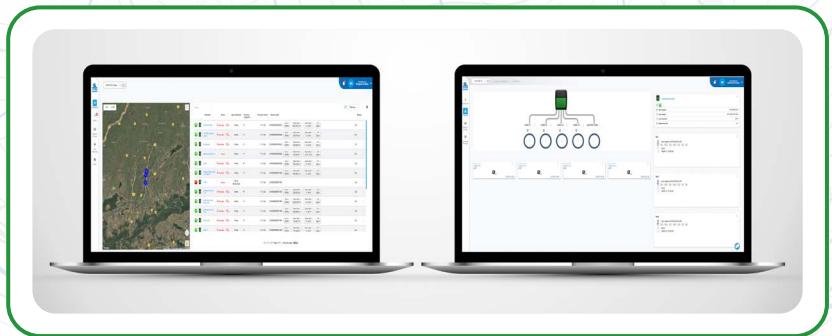
Reliable service and support

BERMAD offer ongoing support in integrated irrigation solutions required for micro irrigation projects, providing protected, efficient, and reliable hydraulic systems for long-term, accurate, and uniform irrigation control.



Grow with our experience

Stay up to date with innovative technology



BERMAD Cloud

The BERMAD Cloud solution combines the power of the Omega controller with our meter reading technologies to provide water distribution managers, farmers & growers with the ultimate visibility, control and real-time analysis from the field. Putting the data to work increases efficiency of daily operations and provide a holistic view of the irrigation network – resulting in informed decision-making.



BERMADIZE your irrigation network to increase system performance and customer satisfaction, and rely on BERMAD, the global leader in water control solutions, as a one-stop-shop for industry-leading products and after-sales support.

BERMAD is constantly developing new technologies that save water and energy and offer IoT and cloud-based technology for round-the-clock monitoring and control.



About BERMAD

BERMAD is a leading, privately-owned global company that designs, develops and manufactures tailor-made water & flow management solutions that include state-of-the-art hydraulic control valves, air valves and advanced metering solutions.

Founded in 1965, we have spent over 60 years interacting with the world's major end users,

and accumulating knowledge and experience in multiple markets and industries. Today, we are recognized as a pioneer and established world-leading provider of water & flow management solutions that give our customers the unprecedented operational efficiency, and superior quality, durability and performance they need to meet the demanding challenges of the 21st century.

