



# GROW WITH OUR EXPERIENCE

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IRRIGATION WATER  
SUPPLY SOLUTIONS





# Advanced Solutions for Worldwide Irrigation Water Supply Projects

Answering the need for advanced & efficient water delivery systems  
focused on supply systems, distribution lines & delivery end points.

## BERMAD's Solutions Cover the Entire End-to-end System

**Pumping station and  
water source management**



## BERMAD leads the way with its hydraulic and digital offerings

With 60 years of experience, BERMAD provides  
comprehensive water supply solutions.  
BERMAD offers a total package including supply system  
protection, air control, pressure and flow management,  
metering, automation, and digital solutions.

**Water Distribution Network**



**Hydrant Products and Solutions**



## 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 a  
tailored solution, taking all requirements such as environment,  
topography, water quality, energy, pressure, as well as budget,  
regulation, and customer preferences  
into account to provide the most effective solution.



Environment



Regulations



Water supply



Energy



Pressure



Budget



In response to rising energy  
costs and global food shortages, more  
countries are allocating significant budgets  
for irrigation infrastructure projects aimed  
at providing irrigation water to arid areas to  
transform it into arable land.



Callen, Northern Spain

Large agricultural areas with challenging topography, old and inefficient canals, and manual routing. Since 2015, the agricultural zone has undergone extensive modernization.

BERMAD provided a full irrigation system including control valves, air valves, and water meters for local water corporation supplying water to 70 growers over 1,900 hectares.

The system is managed by a centralized computerized system which enables monitoring and control of the irrigation systems, provides optimal water flow & pressure to growers, and protects the water network from pressure surges.

The project has been successfully operating for more than eight years. Additional agricultural areas have been networked with piping and hydraulic solutions that guarantee accurate and reliable water supply for irrigation.

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Olmos, Peru

Mega project diverting water from the Huancabamba river to large agricultural area.

The 9,200 Ha agricultural area is irrigated by 97 center pivots with total capacity of 34,000 m³/h. Unique automatic hydraulic solutions including pressure and flow control valves, air valves and water meters are placed at the inlet to each center pivot. To provide the system with complete protection, dual pressure-reducing stations were installed on the main lines.

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Green Morocco Project

The government-funded 'Green Morocco' project is focused on irrigation modernization in large agricultural areas, mainly a transition from sprinkler to drip irrigation.

The project is aimed at optimizing pumping energy to enable water to reach the drips at the right pressure and flow.

Nine modernization projects have already been carried out. Water distribution systems were designed to include the installation of thousands of hydraulic control valves, air valves, and water meters. The units were placed over 20,000 hectares with topographic elevation differences requiring professional design and specifications.

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Package 21, Telangana, India

Massive agricultural project which allows thousands of farmers to live off their land and increase the country's ability to harvest multiple crops with a year-round supply of water.

Upgrade of very old flood irrigation systems to pressurized systems to increase irrigation efficiency, combining metering and automation for agricultural area of 80,000 hectares. BERMAD scope included 3,800 Outlet Management Systems (OMS) comprising stone traps, air valves, water meters, hydraulic flow control and pressure reducing valves. In addition, the project included 24 mega stations, each covering 5,000 Ha equipped with air valves, flow control and pressure reducing hydraulic valves followed by quick relief valves.





# Pumping Station and Water Source Management



One of the most important parts of the irrigation water delivery system is the supply system that includes the water source and pumping stations to ensure efficient water delivery.

Pumping stations should be carefully designed and built, considering the available water sources, topography, and operating conditions including expected flow, pressure, and water quality.

Integrating Bermad's solutions into the pumping stations and water supply system will result in:

- Protecting pumps from surge, power failures, and any system malfunctions
- Managing changes in consumption & operating pressure
- Saving energy and increasing ROI
- Optimizing system performance & efficiency
- Minimizing required maintenance
- Maximizing system lifespan
- Coping with challenging topography

## Active Pump Control Check Valve 740-EN

- Acts as an excellent check valve, protecting pumps from backflow.
- Prevents pipeline surges by isolating the pump from the system during pump startup or shutdown.
- Fully opens or shuts off in response to electric command.
- Regulating features (743-EN) can be added to protect the pump from overload & cavitation due to excessive demand.
- Should be operated by a dedicated controller.



## Circulation Valve 730-EN

- Pressure relief, hydraulically operated, control valve installed offline in bypass.
- Relieves excessive line pressure when it exceeds maximum preset as a result of low demand.
- Acts as a hydraulic VFD for on/off pumps or as a backup/complementary solution for VFD operated pumps.



## Surge Anticipating Control Valve 735-M-EN

- The offline surge-anticipating valve immediately opens hydraulically in response to pressure drops associated with abrupt pump stoppage caused by power outages or by an electrical command by a dedicated controller (735-55-M-EN).
- Pre-opened valve eliminates the surge by dissipating the returning high pressure wave.
- Smooth drip-tight closing, thereby preventing secondary surges caused by rapid closure.
- Relieves excessive system pressure (73Q-M-EN).



## Combination Air Valve with Surge Protection C70-SP

- Essential part of the surge protection solution.
- During negative surge waves, the combination air valve enables intake of large air volume to prevent vacuum conditions and pipe collapse.
- During positive surge waves, the air valve supplements the action of the surge-anticipating valve. It partially closes the kinetic orifice to decrease the approaching surge velocity.



## Electromagnetic Flow Meter

### MUT2200 sensor with MC608 AC-powered convertor

- Flow meter with no moving parts.
- Maintenance free, electromagnetic flow meter offers superior accuracy and reliability for a wide range of water types.
- MID-certified for a wide flow range and minimal required straightening distances before and after the meter for compact installations.





# Water Distribution Network



Extensive water delivery networks should be designed for minimal maintenance and provide built-in protection against hydraulic events such as pressure surges, pipe bursts, water hammers, and water leaks. These undesirable phenomena, combined with poor design and low-quality products, can cause severe damage involving massive costs, system downtime, and even loss of life.

BERMAD's best in class products ensure exceptional air control and pressure management backed up by excellent digital coverage, which provides highly accurate water metering, remote management, and online alerts.

## Proper air control

Proper air control in water networks ensures optimal performance. Air control in pressurized water systems is critical for increasing efficiency during filling, draining, and pressurized operation, as well as protecting the system from vacuum conditions and pressure surges.

## Preventing pressure surges

Effective pressure management solutions prevent and mitigate surge events and protect the pumps, pipelines, and other critical components from damages, bursts, and breakdowns.

## Optimizing water networks

Modern water delivery networks need to provide effective and economic solutions as demand grows, support low maintenance requirements, and offer highly accurate water metering for correct billing and water sharing.

Bermad's water management system based on IoT and cloud technology, including water meters, pressure and flow regulation valves in each pressure zone along the distribution network allows network optimization and real-time reaction to any event.

## Pressure Reducing Valve (PRV) 720/420

- Hydraulically reduces higher upstream pressure to lower constant & 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.
- Reduces potential water loss due to pipeline leakages and minimizes pipe burst risk.



## Combination Air Valves C30/C70

- Evacuates air during pipeline filling allowing efficient filling time.
- Prevents vacuum conditions and pipe collapse by enabling intake of large air volume in the event of network drainage.
- During pressurized system operation, the automatic orifice allows efficient air pocket release thereby increasing system efficiency and energy savings as well as accurate water meter readings.
- Reduces malfunction of regulation devices and surge events.



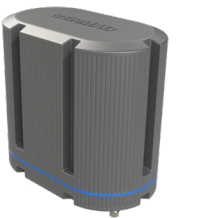
## Quick Relief Valve (QRV) 73Q

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



## Remote Control Automation Epsilon

- Advanced data logger for network monitoring and system analysis.
- Enables the implementation of a digital twin approach to achieve system optimization and improved efficiency.
- Logs the data and uses cyber-secured technology to transmit the data to a user-friendly cloud platform.
- Supports reliable water supply and better service.
- Fully remote-controlled and battery operated.



## Electromagnetic Flow Meter

### MUT2200 sensor with MC406 battery operated convertor

- Flow meter with no moving parts.
- Maintenance-free electromagnetic flow meter installed on network junctions.
- Can be installed in compact or remote-mounted version.
- Offer superior accuracy and reliability for a wide range of water quality.
- MID-certified for a wide flow range.
- Minimal straightening distances before and after the meter for compact installations.





# Hydrant Products and Solutions



To provide farmers with suitable pressure and flow for their crops on a pre-scheduled timetable during the irrigation season, advanced and smart hydrants are the preferred solution. Smart hydrant solutions allow water authorities to cope with water scarcity energy costs, rapidly growing water demand as well as meeting environmental regulations and farmers' needs.

## BERMAD's advanced, robust, and low-maintenance hydrants:

- Regulate water pressure and flow
- Optimize and monitor water flow using a smart and accurate flow meter
- Provide remote control and billing options
- Protect the delivery system from fertilizer or chemical backflow
- Are resistant to tough outdoor conditions, extreme weather, and interruptions in power supply
- Provide protection against tampering and vandalism

Our range of hydrants cover any need and varied control requirements — from a single valve hydrant or a cabinet with multiple hydrants manufactured from metal or composite materials.

BERMAD's solution is accomplished by a smart, yet simple to use, cloud application that provides operators with full system visibility and remote control for efficient day to day operation, management and decision making.

## Strainer 70F

- Installed upstream to the hydrant.
- Protects the entire hydrant by preventing the passage of foreign matter or debris such as sticks and stones.
- Protects the valve seat, flow meter measuring element, and other system components.



## Combination Air Valves C10

- Allows proper air control by evacuating air during pipeline filling.
- Enables large volume air intake in the event of pipe drainage.
- Releases air pockets during pressurized operation.
- Ensures accurate water meter readings and proper valve regulation.
- Available also in PN16.



## Electromagnetic Flow Meter M10

- Accurate, lightweight, polymeric non-moving parts maintenance-free.
- Compact dimensions meet UOD0 requirements.
- Covers all diameters from DN50 to DN150.
- Battery operated, IP68, MID approved (R400).
- Works best in problematic applications with dirty water.



## Hydraulic Pressure Reducing & Flow Control Valve IR-172

- Flow Control Valve protects the system from over consumption.
- Hydraulic Pressure Reducing reduces higher upstream pressure to a lower constant preset downstream pressure, protecting in-field irrigation components.
- Remote ON/OFF operation is optional.
- Ensures each farmer receives the required flow and pressure.



## Hydraulic Pressure Reducing & Flow Hydrometer IR-972

- Hydrometer features a built-in Woltman-based water meter and a valve in the same body, for a compact & integrated hydrant
- Flow Control Valve protects the system from over consumption.
- Hydraulic Pressure Reducing reduces higher upstream pressure to a lower constant preset downstream pressure, protecting in-field irrigation components.
- Remote ON/OFF operation is optional.
- Accurate metering using universal electronic register displaying instant flow rate & totalizer.



## Remote Control Automation

### Omega Cloud-based irrigation controller

- Offers online connectivity to the hydrant 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, allowing the monitoring of thousands of hydrants with minimal labor and maintenance costs.





# 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

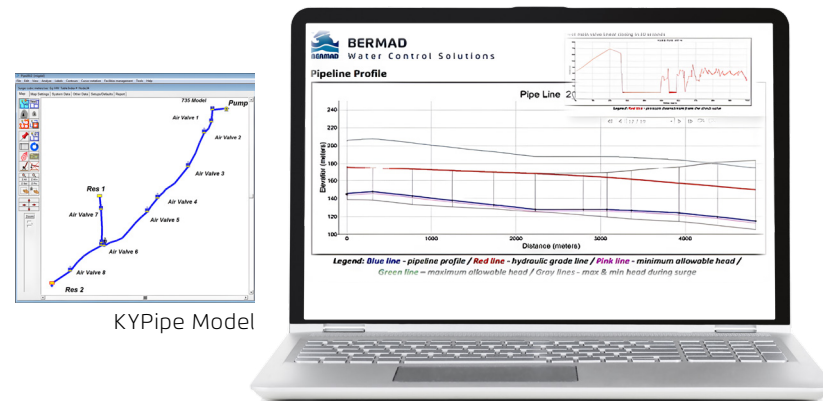
Proper valve sizing is a vital factor in designing water supply and irrigation systems. To achieve optimal efficiency, stable operation and system/valve longevity, accurate sizing is imperative.

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.



## Surge analysis

Bermad's surge analysis services, using the most advanced water-transient software, support optimal system design with superior surge protection. Based on the KYPipe (or other local software tool), designers obtain a comprehensive analysis report including recommended products and setting values to ensure effective and safe system operation.



## BERMAD Air

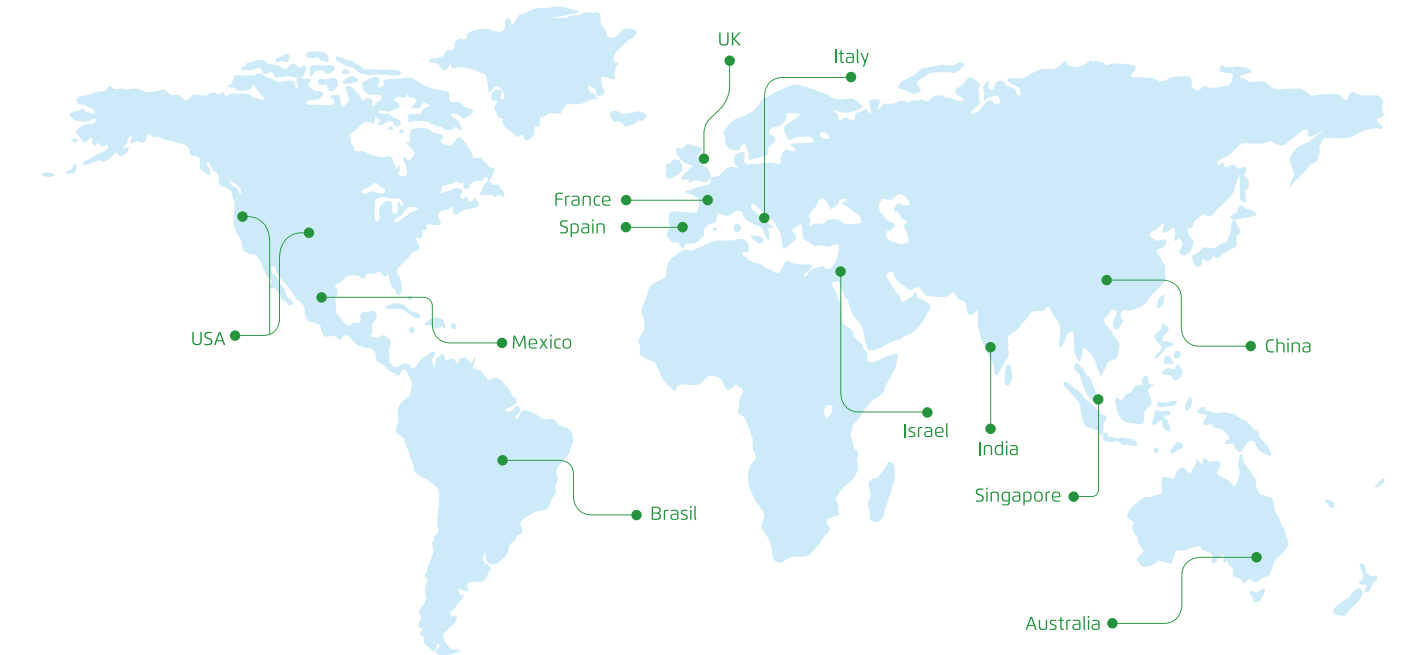
BERMAD Air enables designers to optimize air valves design in any project including specific model selection, sizing, and location.



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

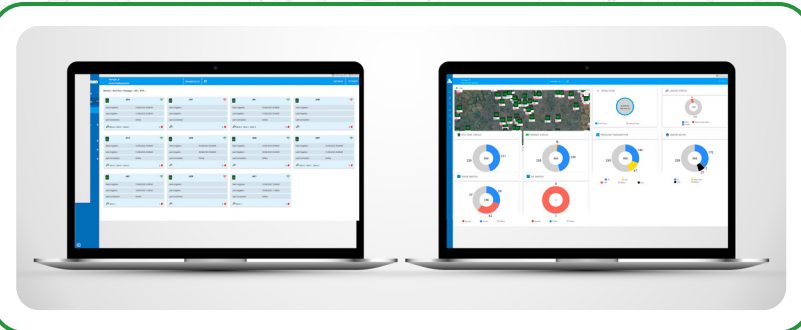
BERMAD offer ongoing support in integrated irrigation solutions required for infrastructure projects, providing protected, efficient, and reliable hydraulic systems for long-term, accurate, and uniform irrigation control.





# Grow with our experience

Stay up to date with innovative technology



BERMAD consortiums management application gives the power to manage a big area of irrigation water supply system from remote, including integration to other management applications supporting their everyday 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 50 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.

