HYDROGENIE

AUST TECH
ENGINEERING S SUPPLIES PTY LTD

INTELLIGENT PRESSURE MANAGEMENT FOR SUSTAINABLE WATER NETWORKS

One Network. One Pilot. Measurable Results.

Prepared for ministers, water utilities, councils, consultants and pilot partners

Presented by AUST TECH ENGINEERING & SUPPLIES PTY LTD

Primary HydroGenie Representative for Australia, New Zealand and Far Asia

HydroGenie for smarter water-network control

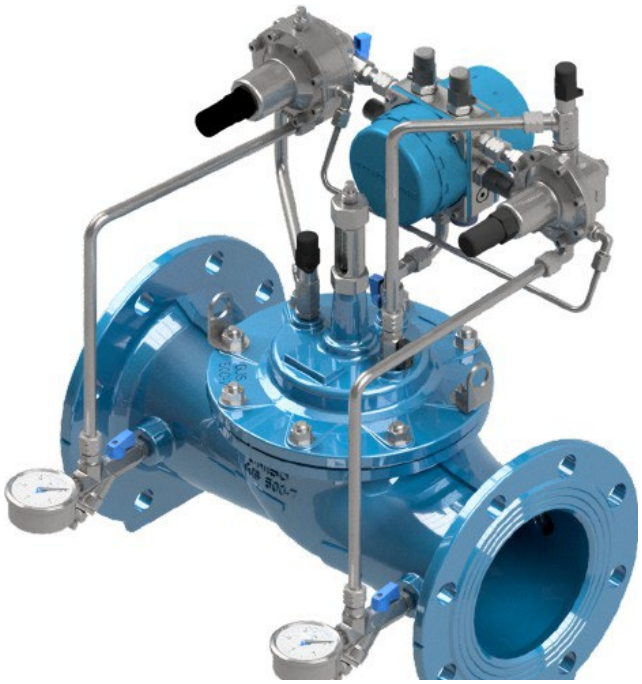
A practical pathway to evaluate pressure optimisation, operational monitoring and condition-based maintenance through a measured Australian pilot.

THE CHALLENGE

Water utilities must manage pressure, leakage, bursts, ageing assets, energy use and field inspection requirements while maintaining reliable customer service.

THE OPPORTUNITY

HydroGenie combines pilot-operated hydraulic control with electronic monitoring, configurable alarms and SCADA communications in an integrated smart-control solution.



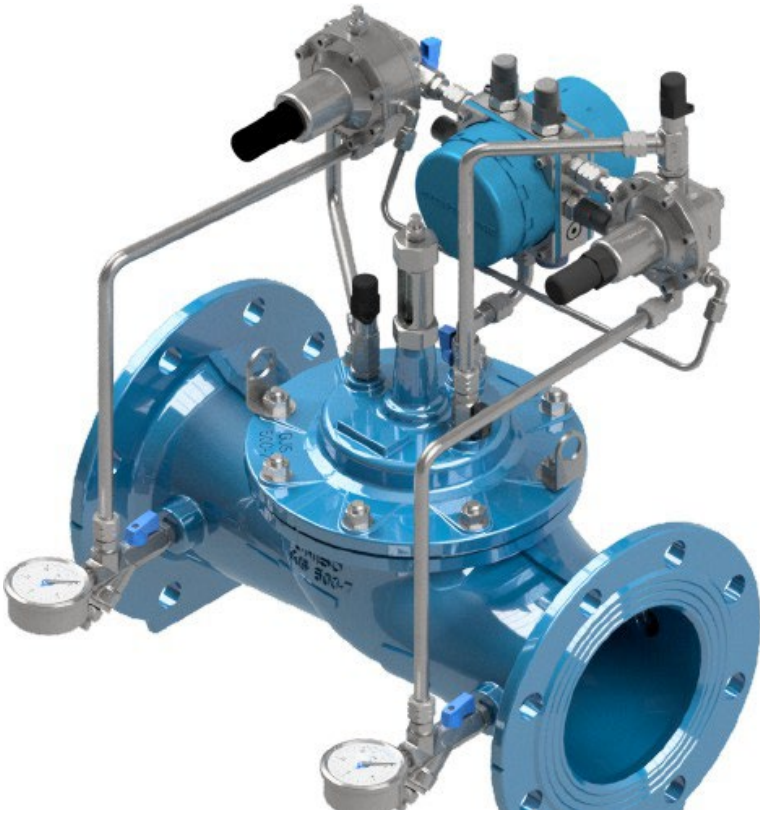
Recommended next step

Identify one suitable district metered area, PRV station or controlled pressure zone for a 3-6 months monitored pilot.

- Establish baseline pressure, flow, leakage, burst, energy and maintenance data.
- Agree measurable KPIs and the evaluation method before installation.
- Commission, monitor and independently review hydraulic, operational, economic and environmental outcomes.

What is HydroGenie?

An integrated control-valve platform designed to combine proven hydraulic regulation with digital visibility and configurable operational intelligence.



INTEGRATED SOLUTION

The supplied concept combines a pilot-operated main valve, HydroGenie electronic controller, pressure sensing points, pilot tubing, control components and communications capability.

LOCAL + REMOTE VISIBILITY

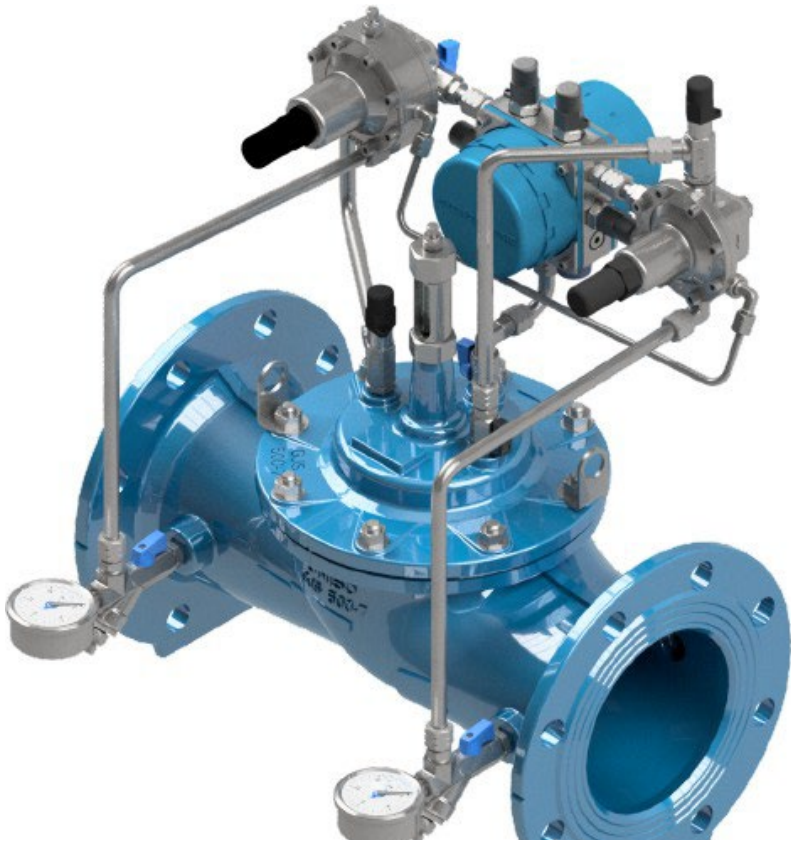
Operating conditions can be monitored locally and, subject to the approved project architecture, communicated to a utility SCADA or monitoring platform.

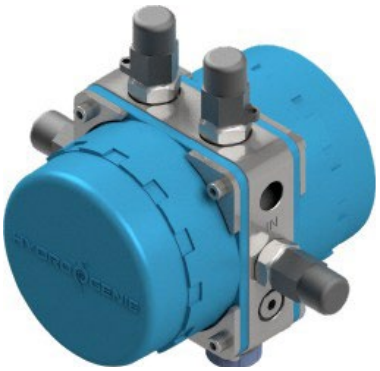
IMPORTANT QUALIFICATION

Final functionality depends on the approved valve configuration, sensors, firmware, communications architecture and project-specific design. A full functional design specification, register map, cybersecurity approach, O&M documentation and commissioning plan should be issued for each pilot.

Integrated HydroGenie system

Core equipment and functions proposed for project-specific engineering and utility acceptance.





1 Pilot-operated main valve

Hydraulic control of pressure, flow, sustaining or level functions, subject to selected configuration.

2 HydroGenie electronic controller

Electronic supervision, configurable control logic, monitoring and alarms.

3 Pressure gauges and sensing points

Upstream, downstream and control-chamber pressure observation.

4 Pilot tubing and control components

Pilot circuit manages chamber pressure and valve opening/closing.

5 Communications capability

Modbus / SCADA integration concept, subject to final protocol and register map.

6 Monitoring and alarms

Configurable warnings and action alarms for agreed operating conditions.

How the control valve works

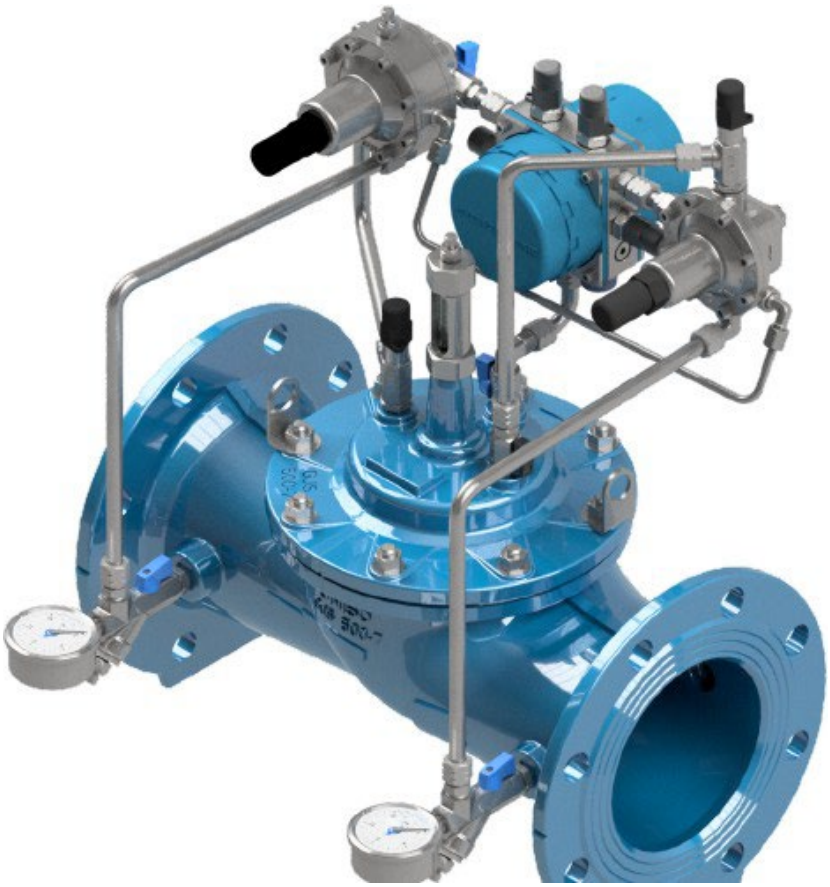
The main valve uses system pressure and a pilot circuit to regulate valve position. HydroGenie adds electronic intelligence, monitoring and communications.

HYDRAULIC PRINCIPLE

Upstream, downstream and control-chamber pressures act on the valve assembly. The pilot circuit manages chamber pressure, which controls opening and closing.

OPERATIONAL STRENGTHS

Pilot-operated valves can control high flow rates with low control energy. Correct sizing and stable operation are essential, particularly at low flow and under changing demand.



Primary operating applications

- Pressure reducing and pressure sustaining control
- Flow limiting and regulating
- Reservoir and level control
- Electronically supervised and remotely integrated control
- Potential application in DMA zones, PRV/PSV stations, reservoirs, pumping systems, recycled water, irrigation and industrial networks

From manual inspection to condition-based awareness

The commercial proposition is to convert recurring field inspection tasks into continuous monitoring, data history and configurable alarms where the project design supports it.

Outcome	Conventional arrangement	HydroGenie approach
Strainer condition	Manual gauge reading on site	Continuous monitoring and alarms
Operator visits	Routine recurring rounds	Visit when condition requires
Early warning	Limited between inspections	Configurable warning / action alarms
Data history	Single local dial reading	Logged and trendable through SCADA
System arrangement	Separate valve, strainer and gauge	Integrated smart-control concept

DECISION-MAKER MESSAGE

The purpose is not to replace sound hydraulic engineering. It is to combine proven valve control with measurable data, remote visibility and a structured pathway for operational optimisation.

Business-case framework

The economic study must use utility-specific data and clearly separate verified results, engineering estimates and pilot targets.

WATER VALUE

Avoided production, treatment and distribution cost.

LEAKAGE / NRW

Reduction in avoidable real losses where pressure management is applicable.

ENERGY

Potential reduction in pumping and treatment energy.

REACTIVE MAINTENANCE

Avoided bursts, emergency call-outs and associated reinstatement.

FIELD INSPECTIONS

Reduced routine visits where alarms replace manual checks.

ASSET LIFE

Potential reduction in pressure-related network stress.

CORE CALCULATION

Annual net benefit = water value saved + energy avoided + maintenance avoided + inspection savings - annual operating and support costs. Simple payback = total installed investment / annual net benefit.

A structured 3-6 month monitored pilot

Independent evaluation of hydraulic, operational, environmental and economic performance before broader deployment.

1

SELECT

Choose a suitable DMA, PRV station or controlled zone with reliable baseline data.

2

BASELINE

Record pressure, flow, leakage indicators, bursts, energy and current maintenance activity.

3

DESIGN

Confirm valve sizing, sensing, communications, cybersecurity, bypass and installation requirements.

4

INSTALL

Complete factory checks, site installation, commissioning and operator training.

5

OPERATE

Monitor agreed KPIs, alarms, reliability and operator experience.

6

VALIDATE

Issue monthly reports, quarterly reviews and a final independently reviewed report.

PILOT OBJECTIVE

Generate evidence that a utility can use for a transparent adoption decision, including the operating conditions in which HydroGenie delivers value and any limitations identified.

Recommended pilot KPIs

KPIs should be agreed before installation, supported by a defined measurement method and assessed against baseline conditions.

HYDRAULIC

Pressure stability; minimum service pressure; flow response; valve operating range; cavitation risk.

WATER LOSS

Night flow; estimated leakage; pressure-leakage relationship; water volume supplied.

OPERATIONAL

Availability; communications uptime; alarm accuracy; site visits; maintenance hours; operator feedback.

ASSET

Bursts; pressure transients; strainer condition; component reliability; spare-parts requirements.

ENERGY

Pumping and treatment energy where directly measurable and attributable.

ECONOMIC

Installed cost; operating cost; avoided costs; net benefit; simple payback; uncertainty range.

REPORTING CYCLE

Monthly performance report | Quarterly stakeholder review | Final validation report with recommendation for broader deployment, further testing or design modification.

Australian compliance and evidence pathway

The presentation must distinguish completed evidence from items still requiring confirmation or project-specific assessment.

Area	Current package position	Required next evidence
Hydraulic performance	Pilot framework established	Independent monitored pilot and validated results
Documentation	Training and framework material supplied	Final datasheet, FDS, O&M and commissioning manuals
Communications	Modbus / SCADA concept referenced	Register map, architecture and protocol confirmation
Cybersecurity	Recognised as an acceptance issue	IEC 62443 alignment, vulnerability and access controls
Potable water / materials	Not confirmed in supplied material	Applicable product and material approvals
Australian standards	Gap analysis framework prepared	Project-specific AS/NZS, WSAA and utility assessment
Case studies	Claims and deployments referenced	Approved source data, dates, methodology and permissions

AUST TECH regional representation

AUST TECH is the primary representative of HydroGenie for Australia, New Zealand and Far Asia.

AUST TECH
ENGINEERING & SUPPLIES PTY LTD

- Market development and stakeholder engagement
- Pilot-project coordination and local project management
- Engineering coordination with utilities, consultants and manufacturers
- Local installation planning, commissioning coordination and training
- Operational support, documentation control and acceptance reporting
- Development of an Australian compliance and utility-acceptance pathway

REGIONAL VALUE PROPOSITION

AUST TECH provides the local interface between HydroGenie technology, water-sector stakeholders and project delivery requirements. Product-specific engineering and manufacturer responsibilities remain subject to the approved supply, warranty and technical-support arrangements.

ONE NETWORK. ONE PILOT. MEASURABLE RESULTS.

Invitation to collaborate

We invite your organisation to identify one suitable network zone for a jointly designed, independently monitored HydroGenie pilot with agreed KPIs, transparent reporting and measurable results.

Raghdan Bashir - Director

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Primary HydroGenie Representative

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