Photograph courtesy of Plumbers Choice

Cross-connection control

An international perspective

DRINKING WATER PROTECTION CONFERENCE

AUCKLAND, AUGUST 1& 2 2023

Agenda

Backflow history

The evolution of the modern backflow preventer

Tester training models

Hazard ratings and installation type

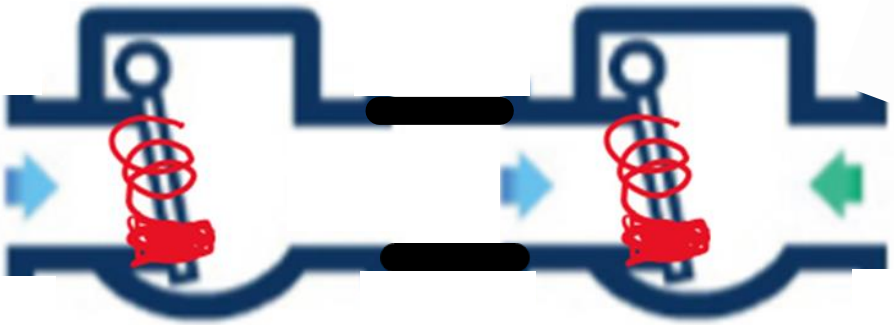
Registration & Management of devices

Future trends & Questions

	Backflow history	
	USA	Australia
Cross-connection awareness	1906 ASSE Journal	Maybe 1917 Melbourne Regs
First protection type	Multiple CV in series	Air gaps
Introduction of mechanical devices	Mid 1930s	Mid 1980s
National Plumbing Codes and Standards	UPC 1926 NSPC 1933	AS 3500.1 1992 PCA 2011

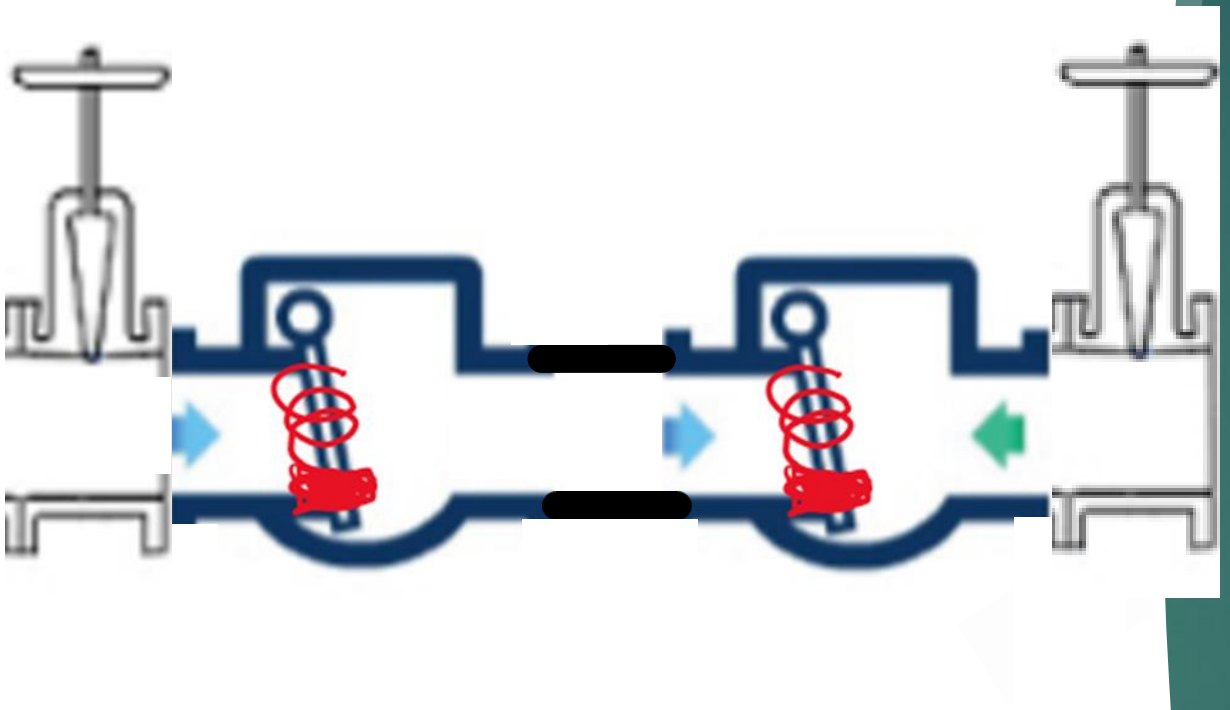
The evolution of the modern backflow preventer

Single check valve



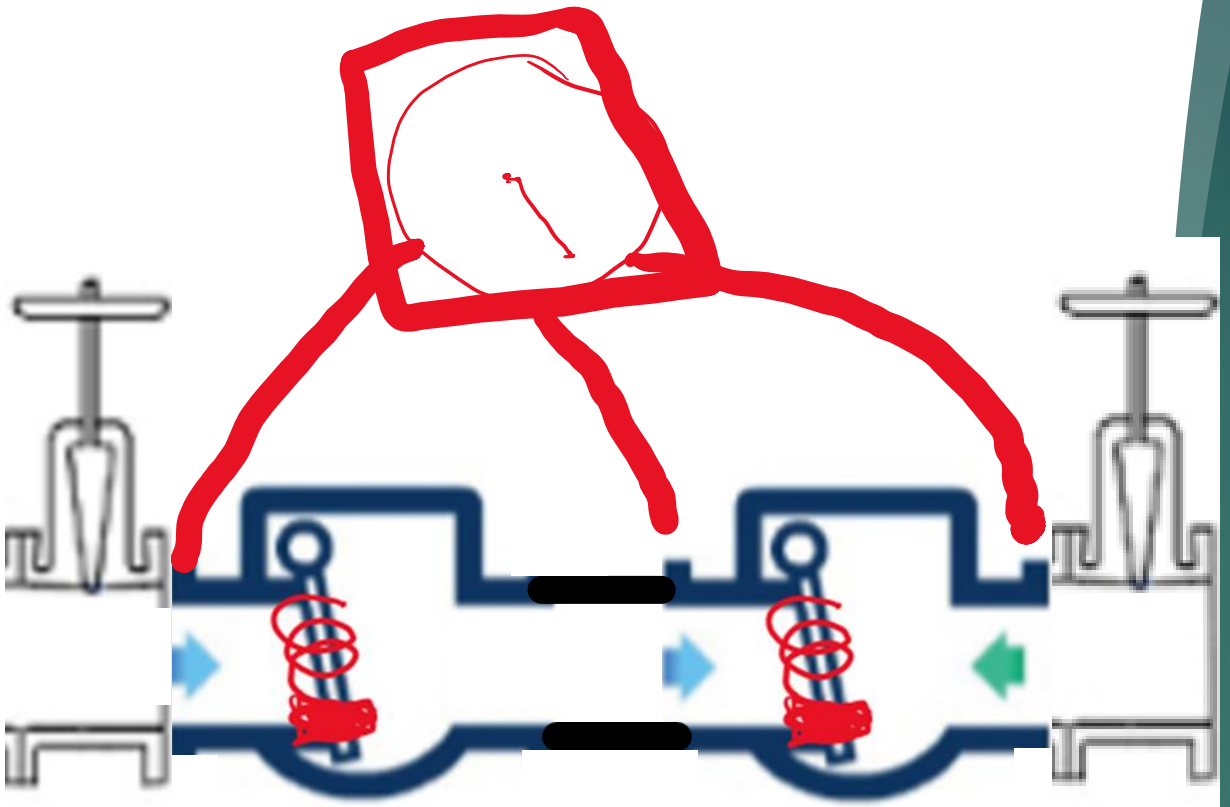
The evolution of the modern backflow preventer

Dual check valve



The evolution of the modern backflow preventer

Double check valve



The evolution of the modern backflow preventer

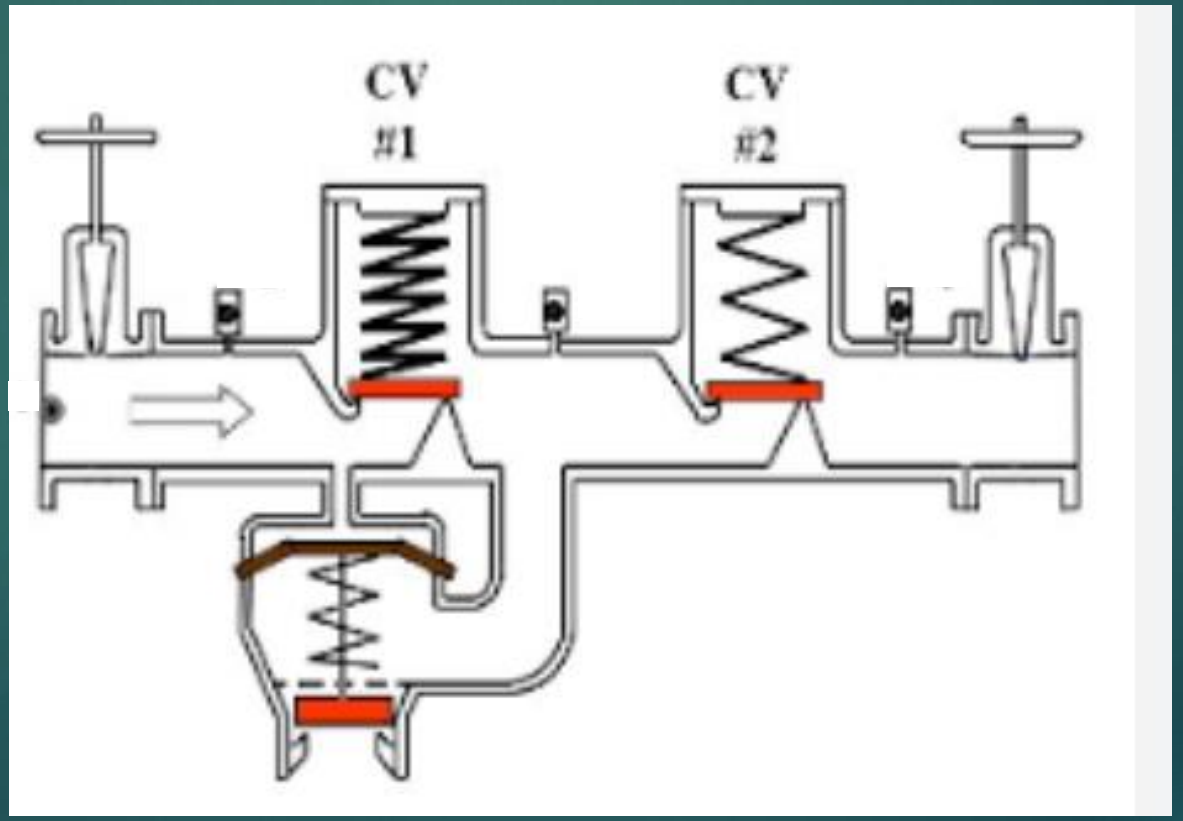
Double check valve

The evolution of the modern backflow preventer

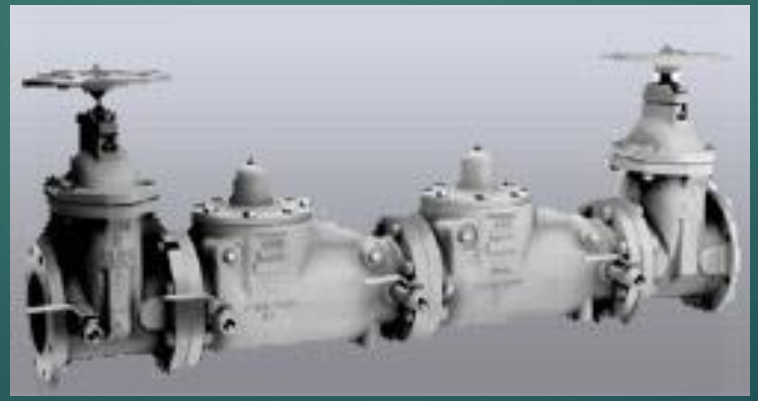
From this

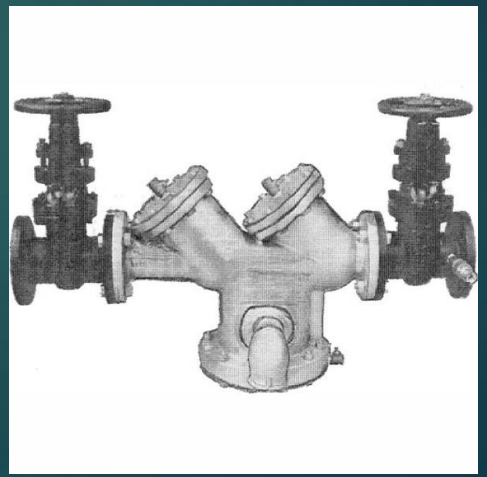
To this

RPZ




American Backflow
Products Company





Tester training models

USA	Australia
Training schools with external exams	RTO delivers the course content in line with a national curriculum which include assessment (except VIC)
40 hours tuition with both practical exam on a minimum of four devices and a 100 question written exam. The exam is administered and marked by independent certified people	Notionally 21 hours with a practical competency test
Tuition covers Standards, testing, troubleshooting, installation and fault finding	Tuition covers testing
Re-certification by resitting the training is required every 3 years*	Re-certification / revalidation is only required by QLD and requires an online test plus submission of six recent test reports

Hazard ratings and installation type

USA	Australia
2 hazard ratings (different names across the USA) Contaminant & Pollutant Health Hazard & Non-health Hazard High Hazard & Low Hazard	3 hazard ratings High, Medium, Low
2 installation locations Containment protection Isolation protection	3 installation locations Containment protection Zone protection Individual protection
Will allow some RPZ devices to be installed vertical with flow up	RPZ devices must be installed horizontally only
4 test cocks	3 test cocks

Registration & Management of devices

USA	Australia
The responsibility of the local water provider and regulated under State law	The responsibility of the local water provider and regulated under State law
Testable devices must be tested at least annually and the local government jurisdiction must hold the register of devices	Testable devices must be tested at least annually and the local government jurisdiction must hold the register of devices
Huge disparity in knowledge and skills across water providers	Huge disparity in knowledge and skills across water providers
Growing reliance on third party proprietary software and device management	Device management and software generally still developed in-house

Trend 1

There is often confusion relating to the risk assessment of specific installations which causes disagreement and is open to individual interpretation at the time of both installation and inspection by the plumbing practitioner and Regulator.

This situation is widespread and results in wasted resources and unnecessary cost to the stakeholders.

Trend 1

Backflow hazard assessment example 2 – Individual protection

Innovative appliance – steam powered chicken plucker in an organic butchery in a shopping centre market place

Building Class	The property to which the water service is installed contains a Class 3, 4, 5, 6 or 7b building where chemical products are not stored.	2/3/6	VM score 2
On-site water services	There is only a drinking water supply and no other water sources to the property.	NUO water service only	VM score 0
Drinking water use	Drinking water use may involve large scale food or beverage processing, human or **animal biological or faecal matter**, Schedule 1 to 4 and Schedule 6 to 8 poisons and have potential for contamination. The installation is suitable for these uses without major modification. Also included are areas likely to undergo frequent changes of use or where the future use in unknown	Drinking water is connected to the equipment / appliance and there is no way to determine if any integral backflow protection is included	VM score 3
Cross-connection type	The product or installation has potential for a cross-connection to a sewerage source, a trade waste source, a vessel with human or **animal biological or faecal matter**, a vessel pipe or body of liquid containing any quantity of a Schedule 1 to 4 or Schedule 6 to 8 poison.	Live animal food processing	VM score 5
Extent of contamination	The product or installation presents a cross-connection that will affect a large property or could allow contaminants to enter other properties.	Tenancies within a shopping complex, connected via water meters without Containment protection	VM score 3
			Cumulative score = 13 = High hazard

Trend 1

(4) To determine the *Hazard Rating*—

(a) an assessment of the property or proposed installation must be undertaken using Tables B5V1a to B5V1e; and

(b) the scores allocated from each table are calculated; and

(c) the *Hazard Rating* is determined by the sum of the scores in accordance with B5V1(5).

(5) A total score of—

(a) 0 to 3 presents No Hazard; and

(b) 4 to 7 presents a *Low Hazard*; and

(c) 8 to 10 presents a *Medium Hazard*; and

(d) 11 or greater presents a *High Hazard*.

(6) Notwithstanding the *Hazard Rating* determined in (4), where access to the *site* is restricted in a way that could limit or prevent future testing or maintenance of a *backflow prevention device*, the *site* must be protected with a *containment* device suitable for a *High Hazard*.

Trend 2
IOT / AI

Automation of the relief sensing so a signal is sent when the relief valve begins to drip

Sensors on each spring identifying when the spring load diminishes

Self testing of spring differentials to push out actual physical testing

Predictive fault trending


New Tech in
Backflow Prevention
The Future is Now
An ASPE-accredited webinar
Wednesday, August 16, 2023
12:00 PM to 1:00 PM ET

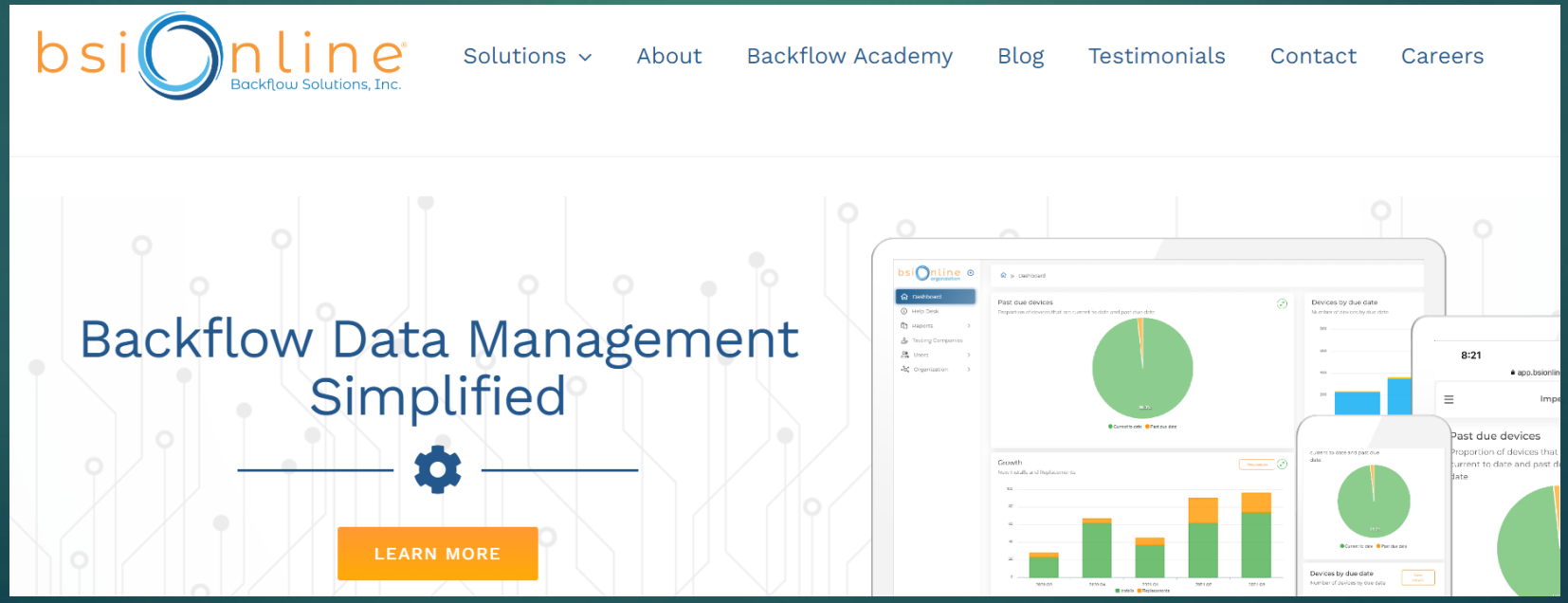
Trend 3
Software

Software to manage the complete device registration and management of every device installation for testers, owners, regulators

QR / Barcoding of devices to manage and track testing, installation and end to end whole of life data


BackFlowID Serial NO:
6CNK-26LC-JL93


Say Hello to Syncta℠
syncta℠ Test. Submit. Done.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Questions?


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