

## Burst Control & Pressure Reducing Valve Excessive Flow

### Model 792-U

- “Older” burst susceptible networks
- Vulnerable network infrastructure facilities
- Networks at risk of mechanical damage
- Flow and leakage reduction
- System maintenance savings

The Model 792-U Burst Control & Pressure Reducing Valve is a hydraulically operated, diaphragm actuated control valve with two independent functions. When flow is below setting, it reduces higher upstream pressure to lower pre-set downstream pressure, regardless of varying demand or upstream pressure. Upon sensing flow in excess of setting, it shuts off drip tight and locks (until it is manually reset).



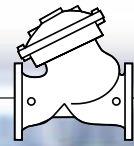
### Features and Benefits

- **Line pressure driven** – Independent operation
- **Hydraulic flow sensor (upstream installation)**
  - No moving parts
  - No electronic components
  - No need for flow straighten
- **Sensitive hydraulic pilot** – Tight setting window
- **In line serviceable** – Easy maintenance
- **Double chamber design**
  - Moderated valve reaction
  - Protected diaphragm
- **“Y” or angle, wide body** – Minimized pressure loss
- **Obstacle free, full bore** – Uncompromising reliability
- **Stainless Steel raised seat** – Cavitation damage resistant
- **Semi-straight flow** – Non-turbulent flow
- **V-Port Throttling Plug** – Low flow stability

### Major Additional Features

- Solenoid control – **792-55-U**
- Electric override – **792-59-U**
- Downstream over-pressure guard – **792-48-U**
- Electronic multi-level setting, Type 4T – **792-4T-U**

See relevant BERMAD publications.

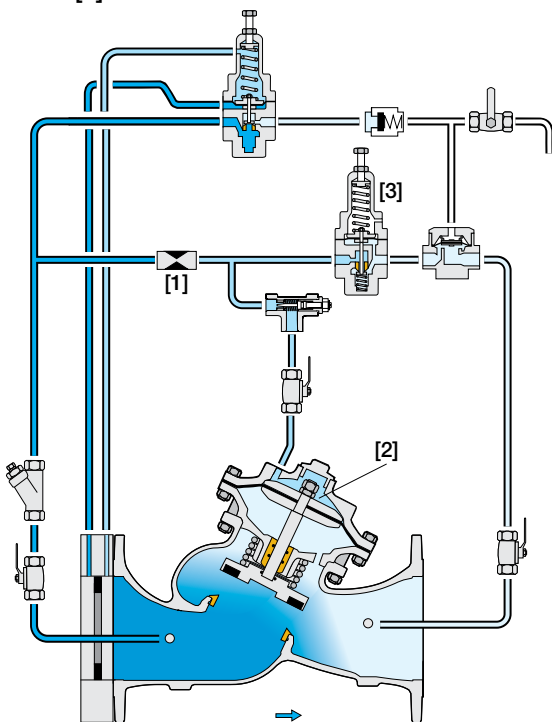


## Operation

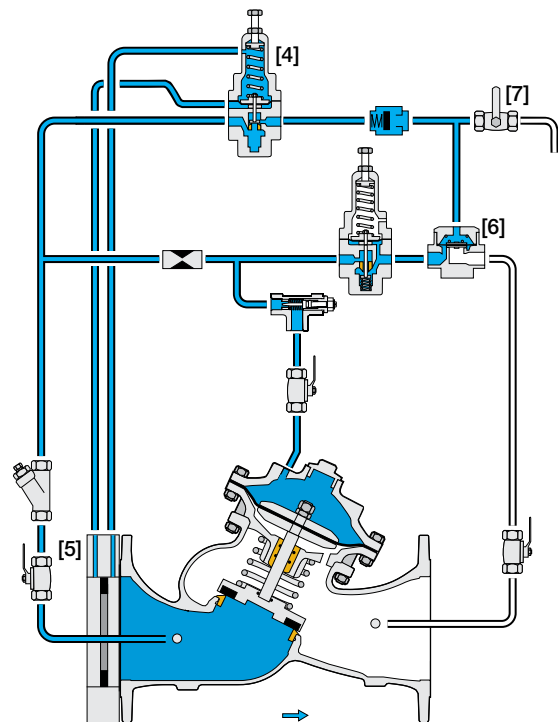
The Model 792-U is a pilot controlled valve equipped with an Orifice assembly, a Hydraulic Relay Valve (HRV) and two adjustable 2-Way pilots.

The restriction [1] continuously allows flow from the valve inlet into the upper control chamber [2]. The Pressure Reducing Pilot [3] senses downstream pressure. Should this pressure rise above pilot setting, the pilot throttles and causes the pressure in the upper control chamber to accumulate. This causes the main valve to throttle closed decreasing downstream pressure to pilot setting.

The Differential Pressure Sustaining Pilot [4] senses the differential pressure across the orifice plate [5]. Should this differential pressure rise above pilot setting the pilot opens closing the HRV [6]. Thus causing the main valve to begin an irreversible "close & lock" process. Opening and resetting the main valve requires manual intervention by means of the manual reset valve [7].



Valve Reduces Pressure (normal flow)



Valve Closed & Locked

## Pilot System Specifications

### Standard Materials:

#### Pilots:

Body: Stainless Steel 316 or Bronze  
Elastomers: Synthetic Rubber  
Springs: Galvanized Steel or Stainless Steel

#### Tubing & Fittings:

Stainless Steel 316 or Copper & Brass

#### Accessories:

Stainless Steel 316, Brass and Synthetic  
Rubber Elastomers

#### Orifice Assembly

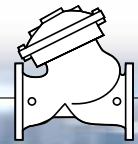
Body: Fusion Bonded Epoxy Steel or Stainless Steel  
Orifice Plate: Stainless Steel

### Pressure Reducing Pilot Adjustment Range:

0.5 to 3.0 bar ; 7 to 40 psi  
0.8 to 6.5 bar ; 11 to 95 psi  
1 to 16 bar ; 15 to 230 psi  
5 to 25 bar ; 70 to 360 psi

#### Notes:

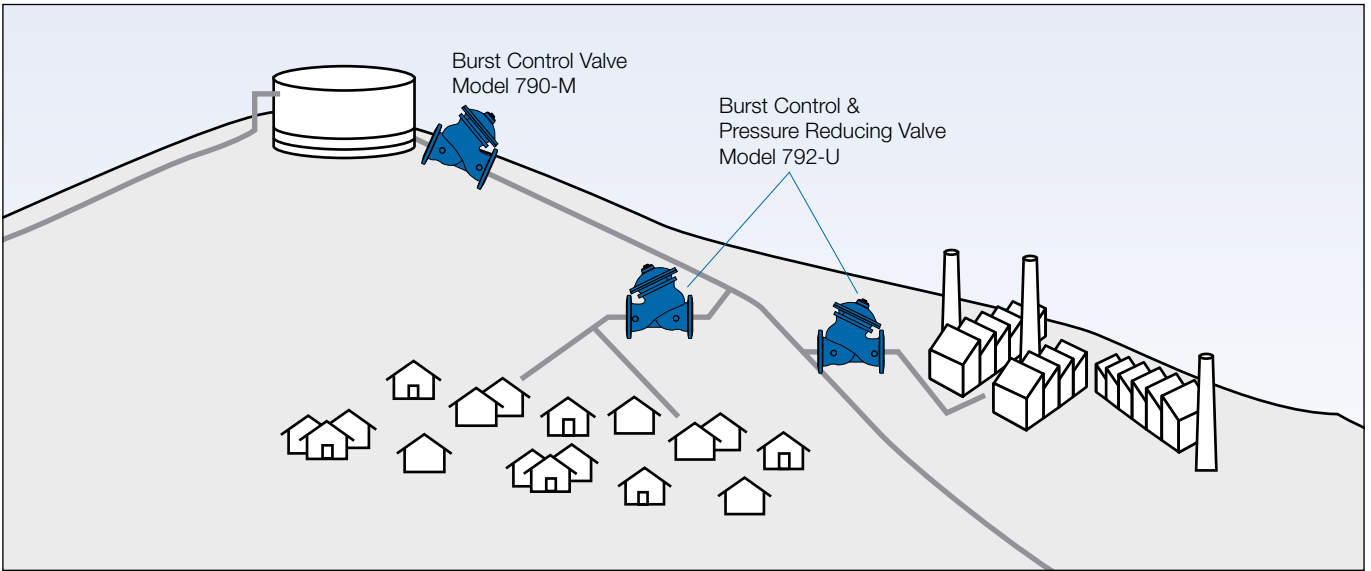
- Burst flow settings should be at least 25% higher than the maximum allowed system flow
- Orifice diameter is calculated for each valve.
- The orifice additional head loss is 0.2 bar ; 2.8 psi
- Orifice assembly adds 25mm ; 1" to valve length
- Recommended continuous flow velocity:  
0.3-6.0 m/sec ; 1-20 ft/sec
- Minimum operating pressure: 0.7 bar ; 10 psi.  
For lower pressure requirements consult factory
- Inlet pressure, outlet pressure and flow rate are required for optimal sizing and cavitation analysis



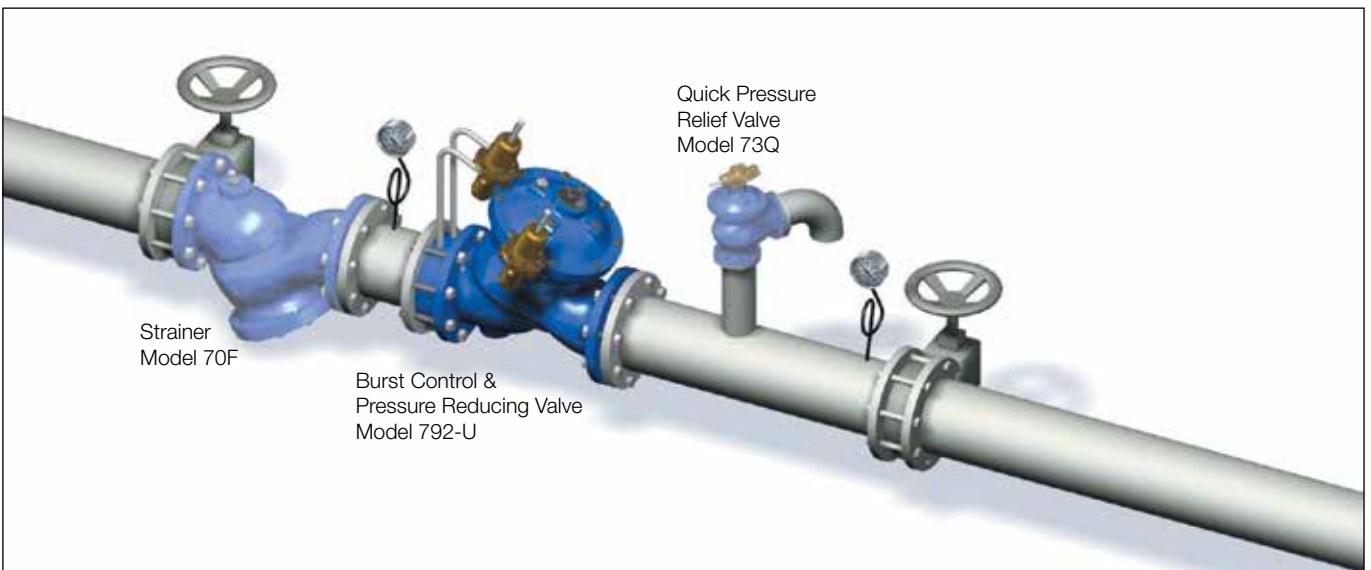
## Typical Applications

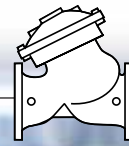
### Burst Control Valves in a Network

Every water system is vulnerable to bursts, whether due to system problems or external mechanical damage. This illustration shows a reservoir feeding a downhill line with lower elevation consumers. Each Model 792-U protects the lower elevation consumers. It reduces their supply pressure and, in case of burst, “closes & locks,” preventing flooding. The Model 790-M, installed at the reservoir outlet, also protects against reservoir emptying.



## Typical Installation





### Technical Data

**Size Range:** DN40-900 ; 1½-36"

**End Connections (Pressure Ratings):**

**Flanged:** ISO PN16, PN25 (ANSI Class 150, 300)

**Threaded:** BSP or NPT

**Others:** Available on request

**Valve Patterns:** "Y" (globe) & angle, globe (DN600-900 ; 24"-36")

**Working Temperature:** Water up to 80°C ; 180°F

**Standard Materials:**

**Body & Actuator:** Ductile Iron

**Internals:** Stainless Steel, Bronze & coated Steel

**Diaphragm:** Synthetic Rubber Nylon fabric-reinforced

**Seals:** Synthetic Rubber

**Coating:** Fusion Bonded Epoxy, RAL 5005 (Blue) approved for drinking water or Electrostatic Polyester Powder

### Differential Pressure Calculation

$$\Delta P = \left( \frac{Q}{Kv; Cv} \right)^2$$

$\Delta P$  = Differential Pressure for fully open valve (bar; psi)

$Q$  = Flow rate (m³/h; gpm)

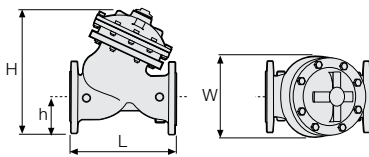
$Kv$  = Metric system - valve flow coefficient  
(flow in m³/h at 1 bar  $\Delta P$  with 15°C water)

$Cv$  = US system - Valve flow coefficient  
(flow in gpm at 1 psi  $\Delta P$  with 60°F water)

$$Cv = 1.155 Kv$$

### Flow Data & Dimensions Table

DN / Size		40	1.5"	50	2"	65	2.5"	80	3"	100	4"	150	6"	200	8"	250	10"	300	12"	350	14"	400	16"	450	18"	500	20"		
Flow Data	700 & 700ES	Kv / Cv - Flat																											
	700 & 700EN	Kv / Cv - "Y" Flat																											
	700 & 700EN	Kv / Cv - "Y" V-Port																											
700-ES	PN16; 25	L (mm / inch)																											
	PN16; 25	W (mm / inch)																											
	PN16; 25	h (mm / inch)																											
	PN16; 25	H (mm / inch)																											
	PN16; 25	Weight (Kg/lb)																											
700-EN	PN16; 25	L (mm / inch)																											
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700 Flanged	"Y" PN16 Class 150	L (mm / inch)																											
		W (mm / inch)																											
		h (mm / inch)																											
		H (mm / inch)																											
		Weight (Kg/lb)																											
	"Y" PN25 Class 300	L (mm / inch)																											
		W (mm / inch)																											
		h (mm / inch)																											
		H (mm / inch)																											
		Weight (Kg/lb)																											
700 Threaded	"Y" PN16; 25 Class 150; 300	L (mm / inch)																											
		W (mm / inch)																											
		h (mm / inch)																											
		H (mm / inch)																											
		Weight (Kg/lb)																											
	Angle PN16; 25 Class 150; 300	L (mm / inch)																											
		W (mm / inch)																											
		R (mm / inch)																											
		h (mm / inch)																											
		H (mm / inch)																											



### Specify when ordering:

- Size
- Main model
- Additional features
- Pattern
- Body material
- End connection
- Coating
- Voltage & main valve position
- Tubing & Fittings materials
- Operational data (according to model)
- Pressure data
- Flow data
- Reservoir level data
- Settings

\* Use Bermad's Waterworks Ordering Guide

DN / Size		600	24"	700	28"	750	30"	800	32"	900	36"
Globe PN16 Class 150	L (mm / inch)	1,450	57.1	1,650	65	1,750	68.9	1,850	72.8	1,850	72.8
	W (mm / inch)	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2
	h (mm / inch)	470	18.5	490	19.3	520	20.5	553	21.8	600	23.6
	H (mm / inch)	1,965	77.4	1,985	78.1	2,015	79.3	2,048	80.6	2,095	82.5
	Weight (Kg/lb)	3,250	7,150	3,700	8,140	3,900	8,580	4,100	9,020	4,250	9,350
Globe PN25 Class 300	L (mm / inch)	1,500	59.1	1,650	65	1,750	68.9	1,850	72.8	1,850	72.8
	W (mm / inch)	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2	1,250	49.2
	h (mm / inch)	470	18.5	490	19.3	520	20.5	553	21.8	600	23.6
	H (mm / inch)	1,965	77.4	1,985	78.1	2,015	79.3	2,048	80.6	2,095	82.5
	Weight (Kg/lb)	3,500	7,700	3,700	8,140	3,900	8,580	4,100	9,020	4,250	9,370

