# Pressure Reducing Valve

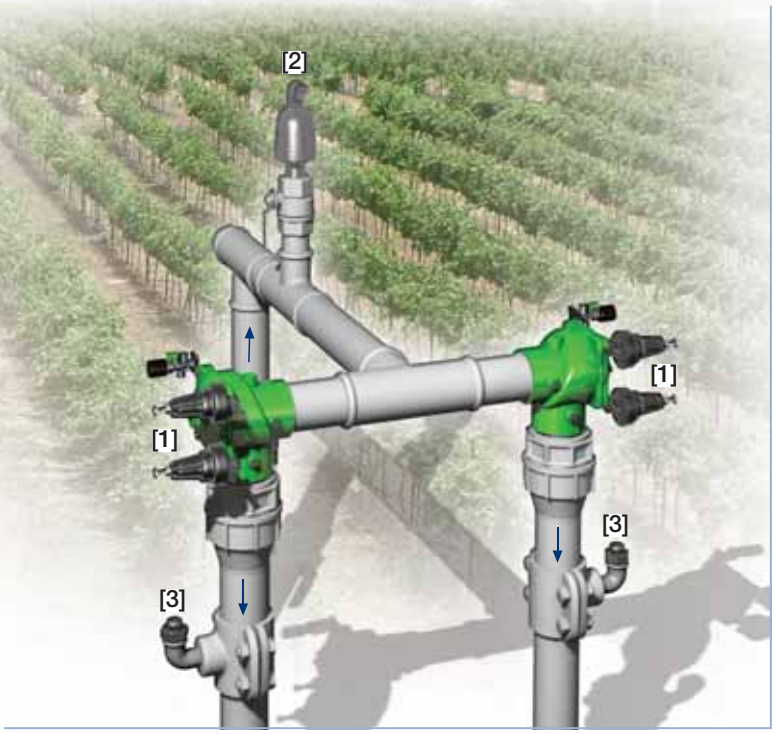
**Solenoid Controlled with Relief Override for Drip-Tape Applications**

**IR-420-55-3Q-bK**

The BERMAD Model IR-420-55-3Q-bK is a hydraulically operated, diaphragm actuated control valve that accurately reduces higher upstream pressure to very low and stable preset downstream pressure. It either opens or shuts in response to an electric signal. The Bermad IR-420-55-3Q-bK also serves as a Pressure Relief Valve, protecting the system even when in closed position.

## Features and Benefits

- Solenoid Controlled PRV with Relief Override Feature
  - Protects downstream system
  - Relieves pressure peaks
  - Electrically controlled On/Off
- Pressure Reducing Servo Pilot Controlled
  - Progressive needle valve
  - Settable to 0.5 bar; 7 psi
  - Very low hysteresis
- Advanced Globe Hydro-Efficient Design
  - Unobstructed flow path
  - Single moving part
  - High flow capacity
- Fully Supported & Balanced Diaphragm
  - Requires low actuation pressure
  - Excellent low flow regulation performance
  - Progressively restrains valve closing
  - Prevents diaphragm distortion
- Simple In-Line Inspection and Service

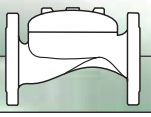



## Typical Applications

- Computerized Irrigation Systems
- Drip-Tape Systems
- Low Set Pressure Applications
- Remote and/or Elevated Plots
- Multiple Control Valve Systems
- Low Supplied Pressure Irrigation Systems

**[1]** Bermad Model IR-420-55-3Q-bK opens in response to electric signal, establishes reduced pressure zone, and relieves supply pressure peaks even when in closed position.
**[2]** BERMAD Air Valve Model ARA-A-P-P
**[3]** BERMAD Vacuum Breaker Model ½"-ARV

# BERMAD Irrigation



## IR-420-55-3Q-bK

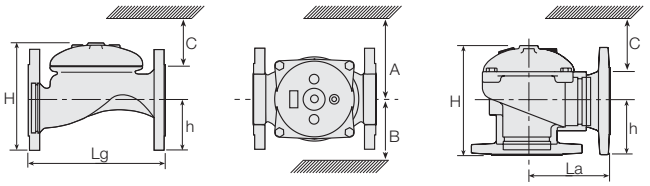
**400 Series**
Pressure Reducing
Drip-Tape

For full technical details, refer to Engineering Section.

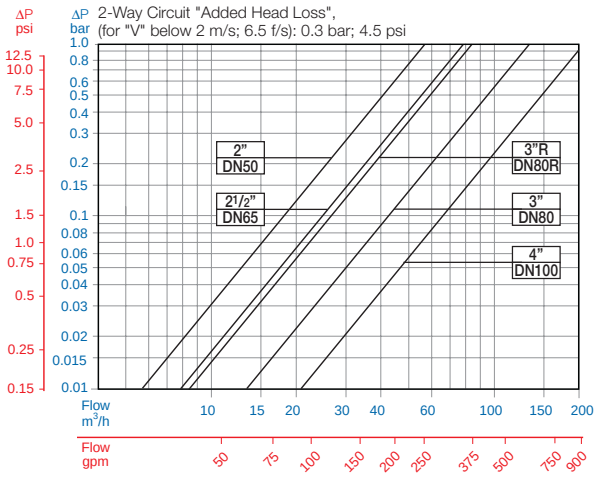
## Technical Specifications

### Dimensions and Weights

| Pattern | | Globe | | | | | | Angle | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Connections | | Threaded | | | | | Fl. | Threaded | | | | Fl. |
| Size | DN / Inch | 40 1½" | 50 2" | 65 2½" | 80R 3"R | 80 3" | 100 4" | 50 2" | 65 2½" | 80R 3"R | 80 3" | 100 4" |
| Lg | mm | 153 | 180 | 210 | 210 | 255 | 320 | N.A. | N.A. | N.A. | N.A. | N.A. |
| | inch | 6 | 7.1 | 8.3 | 8.3 | 10.0 | 12.6 | N.A. | N.A. | N.A. | N.A. | N.A. |
| La | mm | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. | 86 | 110 | 110 | 110 | 160 |
| | inch | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. | 3.4 | 4.3 | 4.3 | 4.3 | 6.3 |
| H | mm | 87 | 114 | 132 | 140 | 165 | 242 | 136 | 180 | 178 | 184 | 223 |
| | inch | 3.4 | 4.5 | 5.2 | 5.5 | 6.5 | 9.5 | 5.4 | 7.1 | 7 | 7.2 | 8.8 |
| C | mm | 52 | 68 | 80 | 84 | 100 | 145 | 82 | 108 | 107 | 110 | 134 |
| | inch | 2 | 2.7 | 3.1 | 3.3 | 3.9 | 5.7 | 3.2 | 4.2 | 4.2 | 4.3 | 5.3 |
| h | mm | 29 | 39 | 45 | 53 | 55 | 112 | 61 | 93 | 91 | 80 | 112 |
| | inch | 1.1 | 1.5 | 1.8 | 2.1 | 2.2 | 4.4 | 2.4 | 3.7 | 3.6 | 3.1 | 4.4 |
| A; B | mm | 130 | 130 | 130 | 140 | 175 | 312 | 130 | 130 | 140 | 175 | 312 |
| | inch | 5 | 5 | 5 | 6 | 7 | 12.3 | 5.1 | 5.1 | 5.5 | 6.9 | 12.3 |
| Weight | Kg | 2 | 4 | 5.7 | 5.8 | 13 | 28 | 4.4 | 5.8 | 7 | 11 | 26 |
| | lb. | 4.4 | 8.8 | 12.6 | 12.8 | 28.7 | 61.7 | 9.7 | 12.8 | 15.4 | 24.3 | 57.3 |




### Flow Chart




## Technical Data

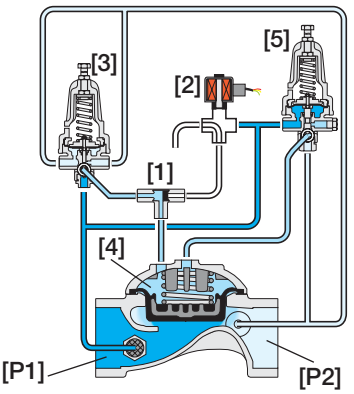
**End connections:**

| Size | | 1½" DN40 | 2" DN50 | 2½" DN65 | 3"R DN80R | 3" DN80 | 4" DN100 |
|---|---|---|---|---|---|---|---|
| Threaded | Globe | ■ | ■ | ■ | ■ | ■ | |
| | Angle | | ■ | ■ | | ■ | |
| Flanged | Globe | | ■ | ■ | ■ | ■ | ■ |
| | Angle | | ■ | | | ■ | ■ |
| Grooved | Globe | | ■ | | | ■ | ■ |
| | Angle | | | | | ■ | ■ |

**Pressure Rating:** 10 bar; 145 psi
**Operating Pressure Range:** 0.5-10 bar; 7-145 psi
For lower pressure requirements, consult factory
**Setting Range:** Reducing: 0.5-1.7 bar; 7-25 psi
Relief: 0.5-3 bar; 7-40 psi
Setting ranges vary according to specific pilot spring. Please consult factory.

**Solenoid Voltage Range:**
**S-390 & S-400:** 24 VAC, 24 VDC
**S-392 & S-402:** 9-20 VDC, Latch
**S-982 & S-985:** 12-50 VDC, Latch
Other voltages available.
For full electric data, refer to Accessories Section.

### Operation




The Shuttle Valve **[1]** hydraulically connects the Solenoid **[2]** or the Pressure Reducing Servo Pilot (PRSP) **[3]** to the Valve Control Chamber **[4]**. When the solenoid is closed, the PRSP commands the Hydrometer to throttle closed, preventing Downstream Pressure **[P2]** from rising above pilot setting. In response to an electric signal, the solenoid switches, directing line pressure through the shuttle valve into the control chamber, shutting the Valve. Should Upstream Pressure **[P1]** rise above setting, the Relief Pilot **[5]** opens, and thereby opening the Valve to relieve excessive pressure.

## How to Order

Please specify the requested valve in the following sequence: (for more options, refer to Ordering Guide.)

| Sector | Size | Primary Feature | Additional Feature | Additional Feature | Pattern | Construction Materials | End Connections | Coating | Voltage -Main Valve Position | Tubing & Fittings | Additonal Attributes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IR | 1½-4" | 420 | 55 | 3Q | G | I | BP | PG | 4AC | PP | bK |

Other sizes available on request.

| | |
|---|---|
| Globe | G |
| Angle | A |

| | |
|---|---|
| BSP | BP |
| NPT | NP |
| ISO-16 | 16 |
| ISO-10 | 10 |
| IS 14 (ISO 10/4 Holes) | 14 |
| ANSI-125 | A1 |
| JIS-10 | J1 |
| BST-D | BD |
| Grooved | VI |

For available end connections/sizes, see End Connections Table above.

| | | |
|---|---|---|
| 9VDC – | Latch | 9DS |
| 12VDC – | Latch | 1DS |
| 24VDC – | N.C. | 4DC |
| 24VDC – | N.O. | 4DC |
| 24VAC – | N.C. | 4AC |
| 24VAC – | N.O. | 4AO |
| 24VAC, Lightning Proof – | N.C. | 4RC |
| 24VAC, Lightning Proof – | N.O. | 4RO |

Other electrical raitings are available

| | |
|---|---|
| Plastic Tubing & Fittings | PP |
| Plastic Tubing & Brass Fittings | PB |

| | |
|---|---|
| Servo | b |
| Plastic Control Accessories | K |
| Valve Position Indicator(1) | I |
| Flow Stem(1) | M |

(1) Standard Irrigation Cover & Diaphragm are unfitted to Attributes I, M.
Other additional attributes are optional.
Please consult full-stop

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