

# Electrically Actuated Ball Valve Type 104



## General

- **Size:** ½"–2"
- **Material:** PVC, CPVC, ABS
- **Seat:** PTFE
- **Seals:** EPDM or FPM
- **End Connection:** Solvent cement socket, threaded
- **Actuator Housing:** Glass-filled PP
- **Voltage:** 110 VAC, 220 VAC, 24 VDC
- **Duty cycle:** 75%
- **Limit Switches:** Two SPST 5A

## Optional Features

- **Voltage:** 12VAC, 12VDC, or 24VAC
- **End Connection:** Flanged

## Key Certifications

- **NSF 61:** PVC and CPVC

## Specification

The Type 104 Ball Valve shall be true union and utilize a floating ball design. The actuator shall be single voltage with a manual override. Two position switches for feedback shall be standard. The ball shall be fully molded and full port with two way blocking capability. The stem shall be blowout proof, utilizing a double o-ring seal and a pre-determined break point opposite the media side of the stem seals. The seat carrier shall be adjustable and reverse threaded. The handle shall double as a seat carrier adjustment or removal tool. The valve nut threads shall be of buttress type. Ball seats shall have an elastomeric backing o-ring and all elastomeric seals shall be of like material. ANSI flanged versions shall meet ANSI B16.5 150lb standards. All valves shall be tested in accordance to ISO9393 and designed to ISO16136 standards. All valves shall be manufactured under ISO9001 for Quality and ISO14001 for Environmental Management. Following assembly, every valve shall be tested and certified bubble tight exceeding Class VI standards.

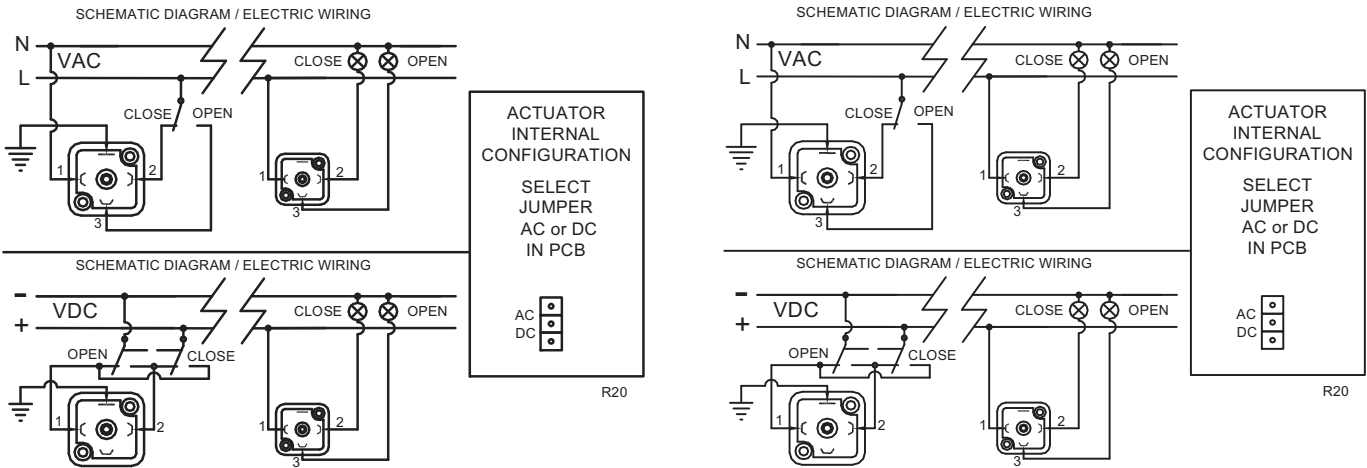
# Technical Data



|                                   | EA 04                                                                       |
|-----------------------------------|-----------------------------------------------------------------------------|
| Nominal torque Mdn                | 14.8 ft-lb                                                                  |
| Peak torque                       | 18.4 ft-lb                                                                  |
| Control time                      | 7 seconds/90° ±10% without load                                             |
| Actuating angle                   | 90°–270°                                                                    |
| L/W/H (Actuator only)             | 7.0"/4.1"/5.2"                                                              |
| Housing materials                 | Polyamide                                                                   |
| Position indicator                | Optical, integrated                                                         |
| Emergency manual override         | Integrated, standard                                                        |
| Rated voltage +5%                 | 110 VAC, 50/60 Hz<br>220 VAC, 50/60 Hz<br>24 VDC, 50/60 Hz                  |
| Consumption at peak torque +/- 5% | 110 VAC: 0.15 A - 33 W<br>220 VAC: 0.15 A - 33 W<br>24 VDC: 0.55 A - 13.2 W |
| Duty cycle                        | 75% at 77°F/15 min                                                          |
| Protection class                  | IP 65                                                                       |
| Power connector plug              | 3 P+ E per DIN EN 175301-03                                                 |
| Limit switch connector plug       | DIN 3337 (mini DIN)                                                         |
| Weight                            | 3.8 Pounds                                                                  |
| Limit switches                    | 2 SPDT Micro, 5A 250V                                                       |
| Ambient temperature               | -4° – 158°F                                                                 |

Important Note: Some residual voltage may be present on the closed terminal when the valve is in the open state and on the open terminal when in the closed state. For position indication the auxiliary limit switches should be used. The power terminals should not be used for position indication.

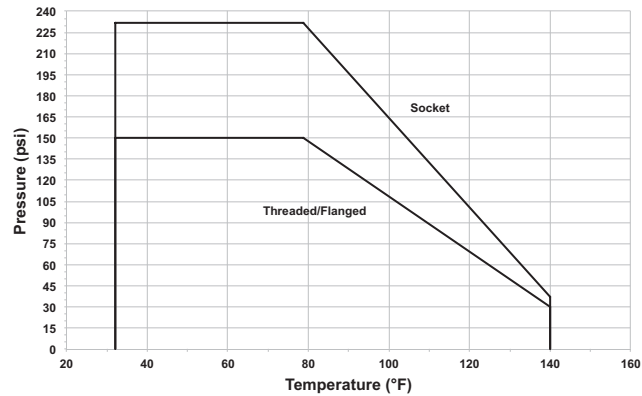
## Wiring Diagrams



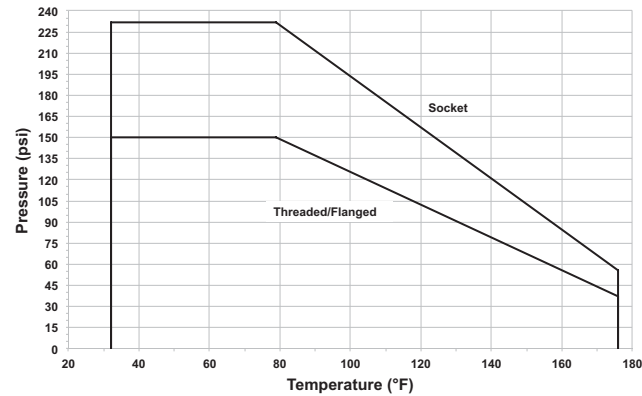
# Pressure Temperature Curves

The following graphs are based on a 25 year lifetime water or similar media application

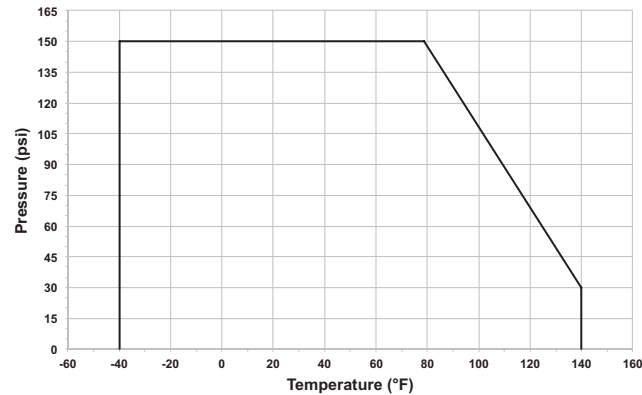
## PVC



## CPVC



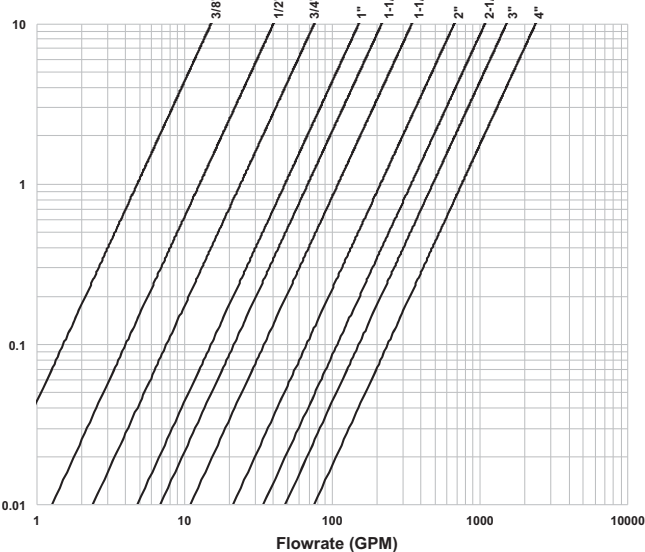
## ABS



# Flow

The following information is based on water applications at 68° F

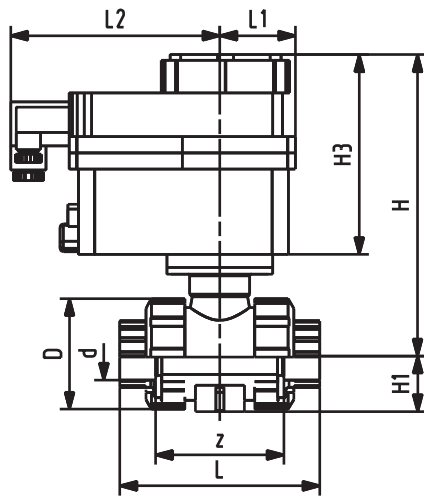
## Pressure Loss



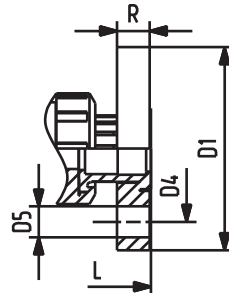
## Cv Value

| Size (inch) | d (mm) | Cv (gal/min) |
|-------------|--------|--------------|
| 1/2         | 20     | 12.9         |
| 3/4         | 25     | 24.5         |
| 1           | 32     | 49.0         |
| 1 1/4       | 40     | 70.0         |
| 1 1/2       | 50     | 112.0        |
| 2           | 63     | 217.1        |

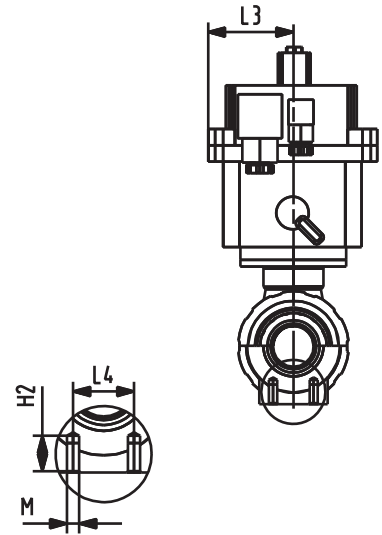
# Dimensions



Socket/threaded



Flanged



All materials

## All materials

| Inch  | D    | H    | H1   | H2   | H3  | L1  | L2  | L3  | L4   | M  |
|-------|------|------|------|------|-----|-----|-----|-----|------|----|
| 1/2   | 1.97 | 6.61 | 1.06 | 0.47 | 5.7 | 1.9 | 5.2 | 2.2 | 0.98 | M6 |
| 3/4   | 2.28 | 6.8  | 1.18 | 0.47 | 5.7 | 1.9 | 5.2 | 2.2 | 0.98 | M6 |
| 1     | 2.68 | 6.82 | 1.42 | 0.47 | 5.7 | 1.9 | 5.2 | 2.2 | 0.98 | M6 |
| 1 1/4 | 3.31 | 6.98 | 1.73 | 0.59 | 5.7 | 1.9 | 5.2 | 2.2 | 1.77 | M8 |
| 1 1/2 | 3.82 | 7    | 2.01 | 0.59 | 5.7 | 1.9 | 5.2 | 2.2 | 1.77 | M8 |
| 2     | 4.88 | 7.25 | 2.52 | 0.59 | 5.7 | 1.9 | 5.2 | 2.2 | 1.77 | M8 |

## PVC/CPVC

| Inch  | Socket |      | Threaded |      | Flanged |      |      |      |      |
|-------|--------|------|----------|------|---------|------|------|------|------|
|       | L      | z    | L        | z    | L       | D1   | D4   | D5   | R    |
| 1/2   | 4.13   | 2.4  | 3.86     | 2.56 | 5.87    | 3.5  | 2.38 | 0.5  | 0.57 |
| 3/4   | 4.76   | 2.76 | 4.37     | 2.92 | 6.5     | 3.88 | 2.75 | 0.5  | 0.58 |
| 1     | 5.24   | 2.99 | 5        | 3.23 | 7.24    | 4.25 | 3.13 | 0.5  | 0.66 |
| 1 1/4 | 6.06   | 3.54 | 5.79     | 3.85 | 8.11    | 4.63 | 3.5  | 0.5  | 0.69 |
| 1 1/2 | 6.46   | 3.7  | 6.18     | 4.33 | 8.7     | 5    | 3.88 | 0.5  | 0.76 |
| 2     | 7.2    | 4.21 | 7.2      | 5.31 | 9.88    | 6    | 4.75 | 0.63 | 0.82 |

## ABS

| d (mm) | Socket |      |
|--------|--------|------|
|        | L      | z    |
| 20     | 3.74   | 2.52 |
| 25     | 4.33   | 2.83 |
| 32     | 4.84   | 3.11 |
| 40     | 5.57   | 3.7  |
| 50     | 6.18   | 3.74 |
| 63     | 7.2    | 4.21 |

## GF Piping Systems

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