

# Electrically Actuated Ball Valve Type 179-184



## General

- **Size:** 3/8"–4"
- **Material:** PVC, CPVC, PROGEF® Standard PP, ABS, SYGEF® Standard PVDF
- **Seat:** PTFE
- **Seals:** EPDM, FPM
- **End Connection:** Solvent cement socket, threaded, flanged, fusion spigot, fusion socket
- **Actuator Housing:** Glass-filled PP
- **Voltage:** 100-230VAC, 24VAC/DC
- **Mounting:** Stainless steel threaded inserts
- **Manual Override:** Integrated
- **End Stops:** Open, close, programmable middle position
- **Position Indicator:** LED, optical, integrated
- **Position Feedback:** Open, close, middle
- **Heater:** 10 position adjustable

## Sample Specification

The Type 179-184 Ball Valve shall be used in either open/close or modulating applications. The actuator shall be either a Type EA25, EA45 or EA120 depending on valve size. The ball valve shall be true union and utilize a floating ball design. 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 predetermined break point opposite the media side of the stem seals. The seat carrier shall be adjustable and reverse threaded. 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 manual assembly, every valve shall be tested and certified bubble tight exceeding Class VI standards. Following actuated assembly, every valve shall be tested to confirm functionality.

## Material Specification

PVC valves shall meet ASTM D1784 cell classification 12454 standards. CPVC valves shall meet ASTM D1784 cell classification 23447-B standards. PP valves shall meet ASTM D5847-14 cell classification PP0510B66851 standards. ABS valves shall meet ASTM D3965 cell classification 42222 standards. PVDF valves shall be type 1, grade 2 according to ASTM D3222 standards. Valves of all materials shall be RoHS compliant.

## Definition of Valve Type

- **Type 179:** PVC/CPVC/ABS body, metric connection
- **Type 180:** PP body, all connections
- **Type 181:** PVDF body, all connections
- **Type 182:** PVC/CPVC body, ASTM connection
- **Type 183:** PVC/CPVC body, BS connection
- **Type 184:** PVC/CPVC body, JIS connection

## Components



## Optional Features

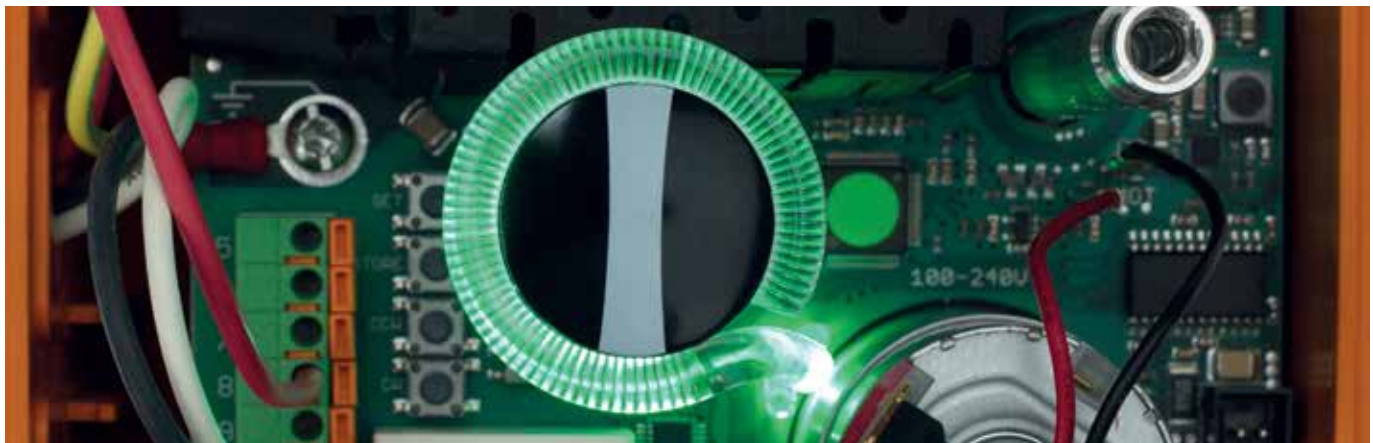
- **Positioner:** Current, voltage
- **Network:** Profibus DP
- **Fail Safe Return:** Battery back up, externally powered board
- **Smart Module:** Cycle monitoring, cycle counter, cycle extension, motor current monitoring
- **Manual Loading Station:** Local control box
- **Seals:** Alternative materials available upon request
- **Seat:** PVDF
- **End Connection:** Alternatives available upon request
- **Control Ball:** For throttling applications available 3/8"-2"
- **Vented Ball:** For sodium hypochlorite use
- **Cleaned:** Silicone free/oil free

## Key Valve Certifications

- **NSF 61:** PVC and CPVC
- **FDA CFR 21 177.1520:** PP and PVDF
- **FDA CFR 21 177.2600:** EPDM and FPM
- **FDA CFR 21 177.1550:** PTFE
- **ABS:** All materials
- **USP Class VI (physiological non-toxic):** EPDM, FPM, PTFE, PP and PVDF

## Key Actuator Compliance

- **Machinery Directive 2006/42/EC, Annex II B**
- **EMV Directive CE 2004/108/CE**
- **EMV VDE 0843 Section 20**
- **Low Voltage Directive CE 2006/95/CE**
- **Vibration Testing EN 60068-2-6**
- **Interface ISO 5211**
- **Actuators for Industrial Valves EN 15714-2**



## Actuator Technical Data

|                                  | EA 25                                                     | EA 45                                            | EA 120                                          |
|----------------------------------|-----------------------------------------------------------|--------------------------------------------------|-------------------------------------------------|
| <b>Valve Size</b>                | ¾"-2"                                                     | 2½"                                              | 3" - 4"                                         |
| <b>Cycle Time</b>                | 5s/90°                                                    | 6s/90°                                           | 15s/90°                                         |
| <b>Rated Cycles at 70°F</b>      | 250,000                                                   | 100,000                                          | 100,000                                         |
| <b>Actuating Angle</b>           | Standard set at 90°, max. 355°                            |                                                  |                                                 |
| <b>Housing Material</b>          | Glass-filled PP                                           |                                                  |                                                 |
| <b>Position Feedback</b>         | 230V, 6 Amp                                               |                                                  |                                                 |
| <b>Emergency Manual Override</b> | Integrated                                                |                                                  |                                                 |
| <b>Rated Voltage</b>             | 100- 230V, 50/60 Hz<br>24V, AC/DC, 50/60Hz                |                                                  |                                                 |
| <b>Rated Voltage Tolerance</b>   | +/- 15%                                                   |                                                  |                                                 |
| <b>Rated Output</b>              | 35VA @ 100-230VAC<br>40VA @ 24VAC/DC                      | 55VA @ 100-230VAC<br>60VA @ 24VAC/DC             | 50VA @ 100-230VAC<br>55VA @ 24VAC/DC            |
| <b>Calculated Current Draw</b>   | 0.35A @ 100VAC<br>0.15A @ 230VAC<br>1.7A @ 24VDC          | 0.55A @ 100VAC<br>0.24A @ 230VAC<br>2.5A @ 24VDC | 0.5A @ 100VAC<br>0.22A @ 230VAC<br>2.3A @ 24VDC |
| <b>Duty Cycle</b>                | 100%                                                      | 50%                                              | 50%                                             |
| <b>Protection Class</b>          | IP 67 per EN 60529<br>UL/CSA: For interior use<br>Nema 4X |                                                  |                                                 |
| <b>Overload Protection</b>       | Resetting, current-time dependant (1)                     |                                                  |                                                 |
| <b>Overvoltage Category</b>      | Category II according to DIN EN 61010-1                   |                                                  |                                                 |
| <b>Power Connection</b>          | Connector plug 3 P+ E per DIN EN 175301-03                |                                                  |                                                 |
| <b>Pollution Grade</b>           | Grade 2 according to DIN EN 61010-1                       |                                                  |                                                 |
| <b>Maximum Elevation</b>         | 6561 feet                                                 |                                                  |                                                 |
| <b>Ambient Temperature</b>       | 14° to 122°F (2)                                          |                                                  |                                                 |
| <b>Allowable Humidity</b>        | 90% relative humidity, non condensing                     |                                                  |                                                 |

(1) Overload protection of the motor is dimensioned so that the motor and the power supply board are protected. As soon as the load is within the torque range, the actuator will begin operating again.

(2) At temperatures below 14°F and if there is condensation, the heating element should be activated.

## Technical Data

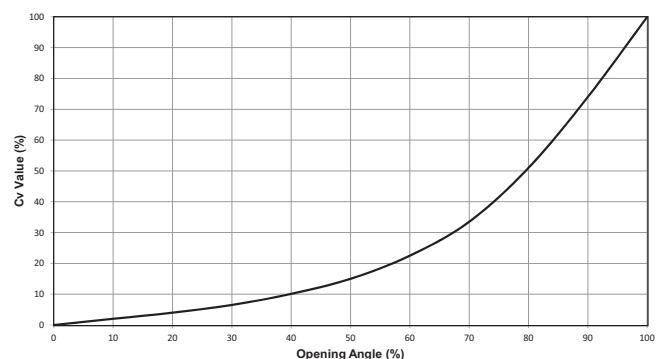
### Flow

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

#### Cv Value

| Size (inch) | d (mm) | Cv (gal/min) |
|-------------|--------|--------------|
| ¾           | 16     | 4.9          |
| ½           | 20     | 12.9         |
| ¾           | 25     | 24.5         |
| 1           | 32     | 49.0         |
| 1¼          | 40     | 70.0         |
| 1½          | 50     | 112.0        |
| 2           | 63     | 217.1        |
| 2½          | 75     | 350.0        |
| 3           | 90     | 490.0        |
| 4           | 110    | 770.0        |

#### Flow Characteristics

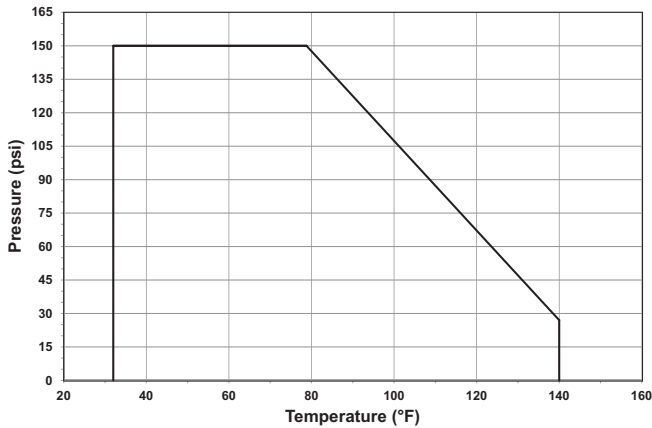


# Technical Data

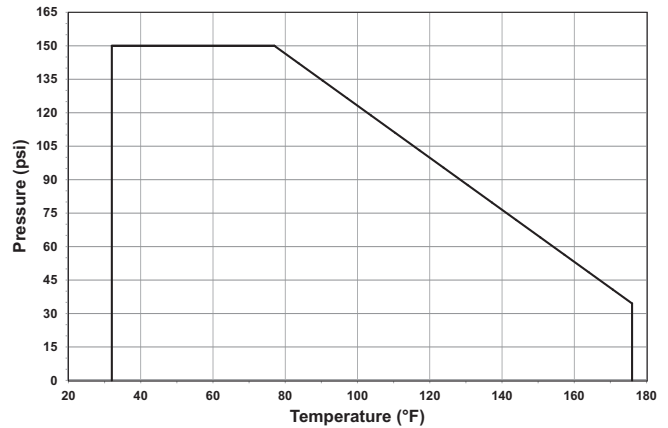
## Pressure Temperature Curves

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

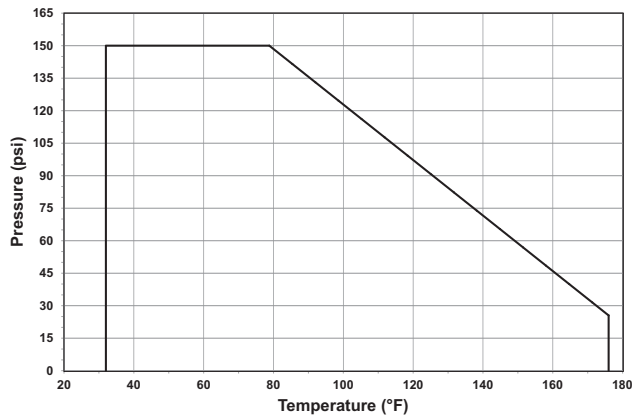
### PVC



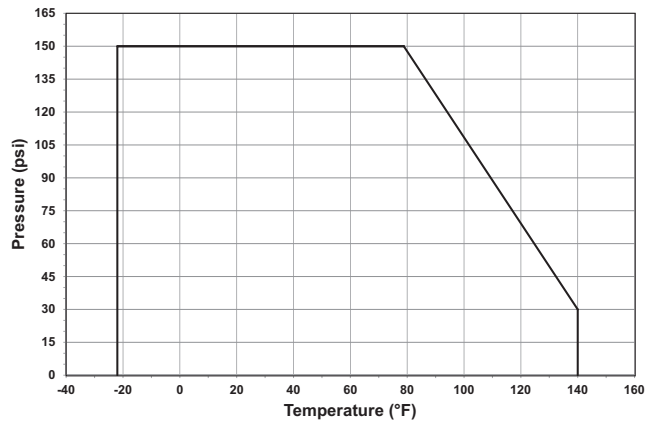
### CPVC



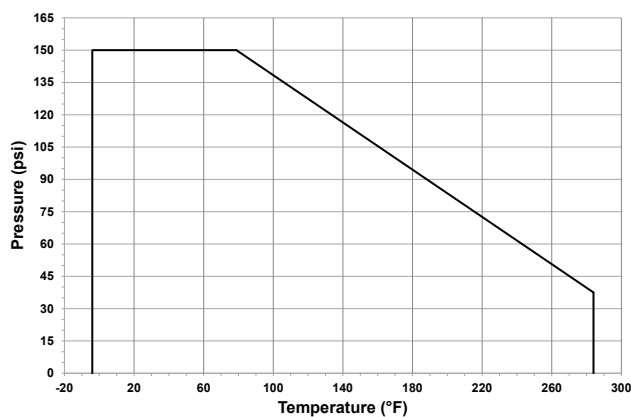
### PP



### ABS



### PVDF



### Pressure-Temperature

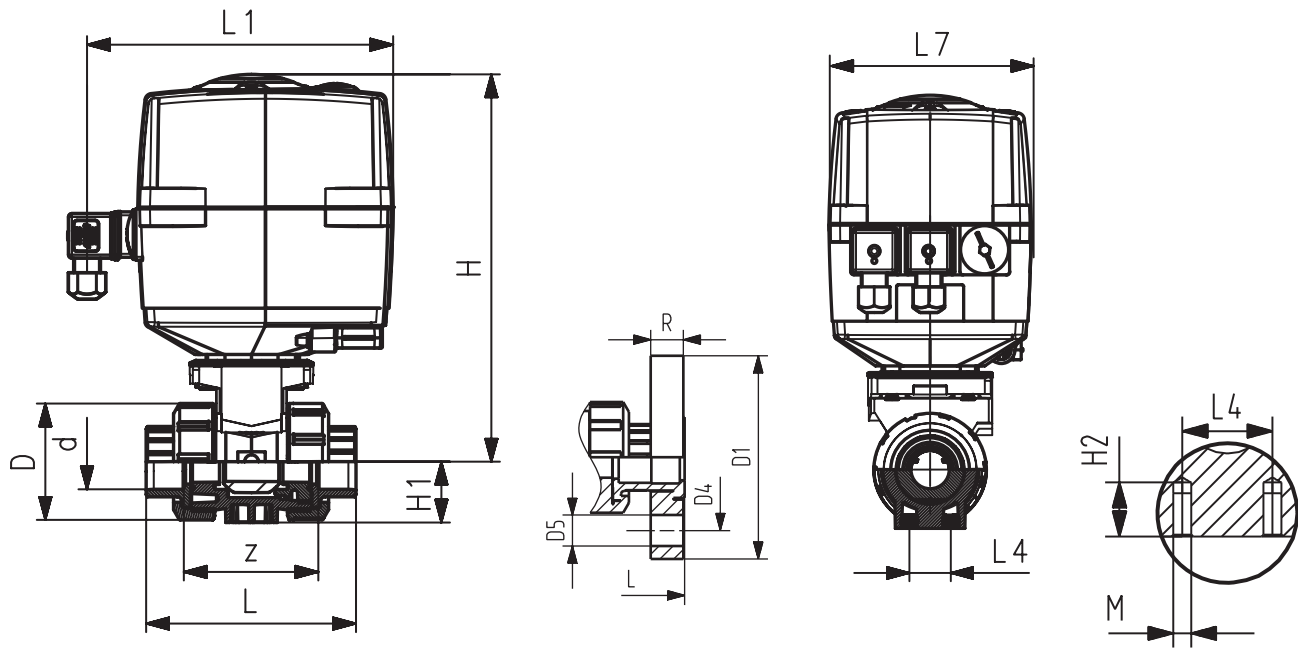
| Material | Temperature Range (°F) | Max Pressure (psi) |
|----------|------------------------|--------------------|
| PVC      | 32 to 140              | 150                |
| CPVC     | 32 to 176              | 150                |
| PP       | 32 to 176              | 150                |
| ABS      | -40 to 140             | 150                |
| PVDF     | -4 to 284              | 150                |

### Vacuum Service

The Type 179-184 is rated for full vacuum service. Maximum differential pressure of 15psi at 122°F.

# Dimensions

The following tables are shown in millimeters unless otherwise specified



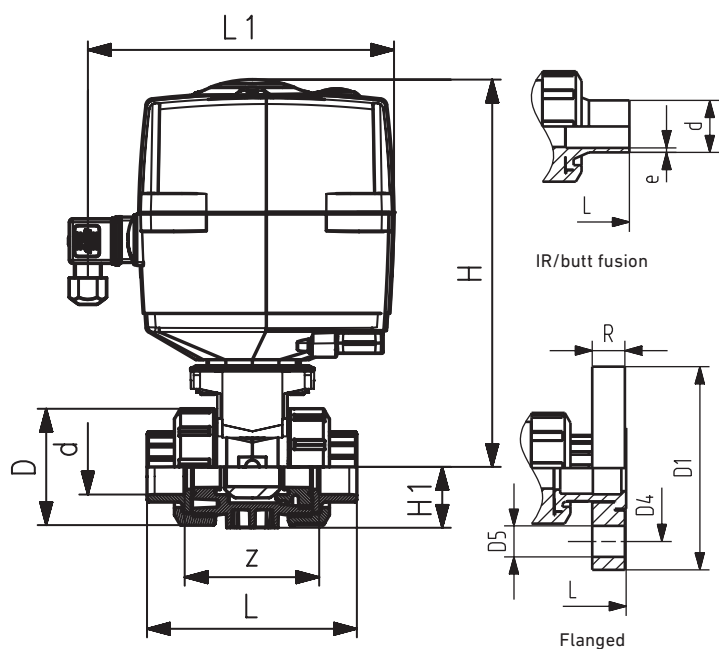
## All Materials

| Size (inch) | d (mm) | D   | H   | H1  | H2 | L1  | L4  | L7  | M   |
|-------------|--------|-----|-----|-----|----|-----|-----|-----|-----|
| 3/8         | 16     | 50  | 231 | 27  | 12 | 180 | 25  | 122 | M6  |
| 1/2         | 20     | 50  | 231 | 27  | 12 | 180 | 25  | 122 | M6  |
| 3/4         | 25     | 58  | 240 | 30  | 12 | 180 | 25  | 122 | M6  |
| 1           | 32     | 68  | 240 | 36  | 12 | 180 | 25  | 122 | M6  |
| 1 1/4       | 40     | 84  | 251 | 44  | 15 | 180 | 45  | 122 | M8  |
| 1 1/2       | 50     | 97  | 251 | 51  | 15 | 180 | 45  | 122 | M8  |
| 2           | 63     | 124 | 273 | 64  | 15 | 180 | 45  | 122 | M8  |
| 2 1/2       | 75     | 166 | 346 | 85  | 15 | 180 | 70  | 122 | M8  |
| 3           | 90     | 200 | 358 | 105 | 15 | 180 | 70  | 122 | M8  |
| 4           | 110    | 238 | 365 | 123 | 22 | 180 | 120 | 122 | M12 |

## PVC/CPVC

| Size (inch) | IPS Socket |     | Threaded NPT |     | ANSI Flanged |           |           |           |          |
|-------------|------------|-----|--------------|-----|--------------|-----------|-----------|-----------|----------|
|             | L          | z   | L            | z   | L            | D1 (inch) | D4 (inch) | D5 (inch) | R (inch) |
| 3/8         | 105        | 67  | 98           | 69  | -            | -         | -         | -         | -        |
| 1/2         | 105        | 61  | 98           | 65  | 149          | 3.5       | 2.38      | 0.63      | 0.57     |
| 3/4         | 121        | 70  | 111          | 74  | 165          | 3.88      | 2.75      | 0.63      | 0.58     |
| 1           | 133        | 76  | 127          | 82  | 184          | 4.25      | 3.13      | 0.63      | 0.66     |
| 1 1/4       | 154        | 90  | 147          | 98  | 206          | 4.63      | 3.5       | 0.63      | 0.69     |
| 1 1/2       | 164        | 94  | 157          | 110 | 221          | 5         | 3.88      | 0.63      | 0.76     |
| 2           | 183        | 107 | 183          | 135 | 251          | 6         | 4.75      | 0.63      | 0.82     |
| 2 1/2       | 233        | 144 | 234          | 166 | 311          | 7         | 5.5       | 0.63      | 0.98     |
| 3           | 254        | 151 | 255          | 175 | 343          | 7.5       | 6         | 0.63      | 1.02     |
| 4           | 301        | 174 | 302          | 214 | 397          | 9         | 7.5       | 0.63      | 1.11     |

The following tables are shown in millimeters unless otherwise specified



#### ABS

| d (mm) | Metric Socket |     |
|--------|---------------|-----|
|        | L             | z   |
| 16     | 92            | 64  |
| 20     | 95            | 64  |
| 25     | 110           | 72  |
| 32     | 123           | 79  |
| 40     | 146           | 94  |
| 50     | 157           | 95  |
| 63     | 183           | 107 |
| 75     | 233           | 144 |
| 90     | 254           | 151 |
| 110    | 301           | 174 |

#### PP

| d (mm) | Metric Socket |     | Metric IR/Butt |      | Threaded NPT |     | ANSI Flanged |           |           |           |          |
|--------|---------------|-----|----------------|------|--------------|-----|--------------|-----------|-----------|-----------|----------|
|        | L             | z   | L              | e    | L            | z   | L            | D1 (inch) | D4 (inch) | D5 (inch) | R (inch) |
| 16     | 93            | 67  | -              | -    | 96           | 71  | -            | -         | -         | -         | -        |
| 20     | 95            | 66  | 130            | 1.9  | 99           | 64  | 166          | 3.74      | 2.36      | 0.63      | 0.63     |
| 25     | 109           | 77  | 143            | 2.3  | 111          | 76  | 177          | 4.13      | 2.76      | 0.63      | 0.67     |
| 32     | 119           | 83  | 150            | 2.9  | 127          | 83  | 191          | 4.53      | 3.11      | 0.63      | 0.71     |
| 40     | 135           | 99  | 171            | 3.7  | 146          | 100 | 209          | 5.51      | 3.5       | 0.63      | 0.79     |
| 50     | 147           | 105 | 191            | 4.6  | 157          | 111 | 229          | 5.91      | 3.86      | 0.63      | 0.87     |
| 63     | 168           | 117 | 220            | 5.8  | 183          | 134 | 253          | 6.5       | 4.76      | 0.63      | 0.94     |
| 75     | 233           | 167 | 266            | 6.8  | -            | -   | 416          | 7.28      | 5.51      | 0.75      | 1.02     |
| 90     | 254           | 180 | 264            | 8.2  | -            | -   | 414          | 7.87      | 5.98      | 0.75      | 1.06     |
| 110    | 301           | 215 | 301            | 10.0 | -            | -   | 451          | 9.02      | 7.48      | 0.75      | 1.1      |

#### PVDF

| d (mm) | Metric Socket |     | Metric IR/Butt |     | Threaded NPT |     | ANSI Flanged |           |           |           |          |
|--------|---------------|-----|----------------|-----|--------------|-----|--------------|-----------|-----------|-----------|----------|
|        | L             | z   | L              | e   | L            | z   | L            | D1 (inch) | D4 (inch) | D5 (inch) | R (inch) |
| 16     | 93            | 67  | -              | -   | 96           | 69  | -            | -         | -         | -         | -        |
| 20     | 95            | 66  | 130            | 1.9 | 99           | 64  | 174          | 3.74      | 2.36      | 0.63      | 0.63     |
| 25     | 109           | 77  | 143            | 1.9 | 111          | 76  | 189          | 4.13      | 2.76      | 0.63      | 0.67     |
| 32     | 119           | 83  | 150            | 2.4 | 127          | 83  | 199          | 4.53      | 3.11      | 0.63      | 0.71     |
| 40     | 135           | 99  | 171            | 2.4 | 146          | 101 | 235          | 5.51      | 3.5       | 0.63      | 0.79     |
| 50     | 147           | 105 | 191            | 3.0 | 157          | 111 | 243          | 5.91      | 3.86      | 0.63      | 0.87     |
| 63     | 168           | 117 | 220            | 3.0 | 183          | 135 | 261          | 6.5       | 4.76      | 0.63      | 0.94     |
| 75     | 233           | 167 | 266            | 3.6 | -            | -   | 426          | 7.28      | 5.51      | 0.75      | 1.02     |
| 90     | 254           | 180 | 264            | 4.3 | -            | -   | 426          | 7.87      | 5.98      | 0.75      | 1.06     |
| 110    | 301           | 215 | 301            | 5.3 | -            | -   | 487          | 9.02      | 7.48      | 0.75      | 1.1      |