

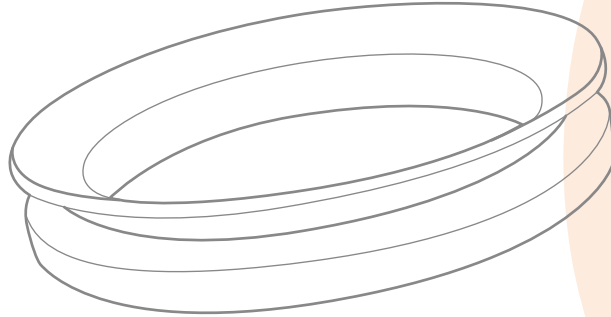


DETROIT SEALING COMPONENTS

# Rubber Guidebook

## V-SEAL





The V-Seal is a versatile all-rubber seal that mounts directly onto the shaft and provides axial sealing against a counter face, housing, seal case, or similar surface. Its long, flexible lip is specifically designed to function like a mechanical face seal, effectively retaining lubricants and excluding contaminants. The V-Seal can serve as either a primary seal or a secondary backup seal.

It performs exceptionally well in dry applications and offers superior capability to accommodate greater levels of eccentricity and misalignment compared to most radial lip-type seals.

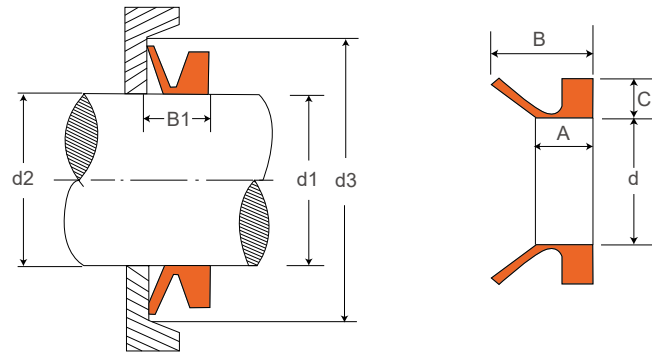
DSC offers V-seals in compliance with various standards, available in both millimeter and inch dimensions.

- VA Seal
- VL Seal
- VS Seal

### Full Size Charts

Full size and material specifications are accessible via our website or the included QR code.





### VA Standard Size

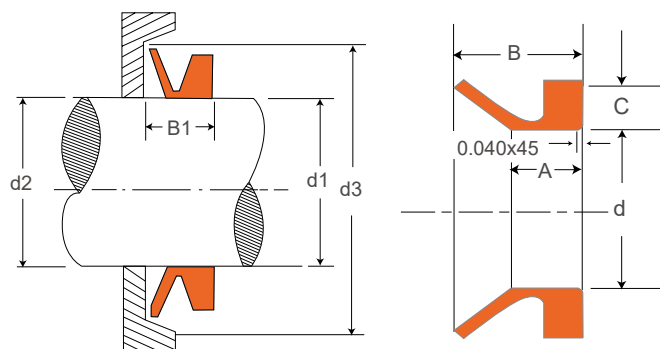
#### MEASUREMENTS IN MILLIMETERS

| SIZE NUMBERS | d1    |         | d     | c   | A   | B    | d2   | d3    | B1         |
|--------------|-------|---------|-------|-----|-----|------|------|-------|------------|
| VA-003       | 2.7   | - 3.5   | 2.5   | 1.5 | 2.0 | 3.0  | d1+1 | d1+4  | 2.5 ± 0.3  |
| VA-004       | 3.5   | - 4.5   | 3.2   | 2.0 | 2.4 | 3.7  | d1+1 | d1+6  | 3.0 ± 0.4  |
| VA-005       | 4.5   | - 5.5   | 4.0   | 2.0 | 2.4 | 3.7  | d1+1 | d1+6  | 3.0 ± 0.4  |
| VA-006       | 5.5   | - 6.5   | 5.0   | 2.0 | 2.4 | 3.7  | d1+1 | d1+6  | 3.0 ± 0.4  |
| VA-007       | 6.5   | - 8.0   | 6.0   | 2.0 | 2.4 | 3.7  | d1+1 | d1+6  | 3.0 ± 0.4  |
| VA-008       | 8.0   | - 9.5   | 7.0   | 2.0 | 2.4 | 3.7  | d1+1 | d1+6  | 3.0 ± 0.4  |
| VA-010       | 9.5   | - 11.5  | 9.0   | 3.0 | 3.4 | 5.5  | d1+2 | d1+9  | 4.5 ± 0.6  |
| VA-0012      | 11.5  | - 13.5  | 10.5  | 3.0 | 3.4 | 5.5  | d1+2 | d1+9  | 4.5 ± 0.6  |
| VA-0013      | 13.5  | - 15.5  | 11.7  | 3.0 | 3.4 | 5.5  | d1+2 | d1+9  | 4.5 ± 0.6  |
| VA-0014      | 15.5  | - 17.5  | 12.5  | 3.0 | 3.4 | 5.5  | d1+2 | d1+9  | 4.5 ± 0.6  |
| VA-0016      | 15.5  | - 17.5  | 14.0  | 3.0 | 3.4 | 5.5  | d1+2 | d1+9  | 4.5 ± 0.6  |
| VA-0018      | 17.5  | - 19.0  | 16.0  | 3.0 | 3.4 | 5.5  | d1+2 | d1+9  | 4.5 ± 0.6  |
| VA-0020      | 19.0  | - 21.0  | 18.0  | 4.0 | 4.7 | 7.5  | d1+2 | d1+12 | 6.0 ± 0.8  |
| VA-0022      | 21.0  | - 24.0  | 20.0  | 4.0 | 4.7 | 7.5  | d1+2 | d1+12 | 6.0 ± 0.8  |
| VA-0025      | 24.0  | - 27.0  | 22.0  | 4.0 | 4.7 | 7.5  | d1+2 | d1+12 | 6.0 ± 0.8  |
| VA-0028      | 27.0  | - 29.0  | 25.0  | 4.0 | 4.7 | 7.5  | d1+3 | d1+12 | 6.0 ± 0.8  |
| VA-0030      | 29.0  | - 31.0  | 27.0  | 4.0 | 4.7 | 7.5  | d1+3 | d1+12 | 6.0 ± 0.8  |
| VA-0032      | 31.0  | - 33.0  | 29.0  | 4.0 | 4.7 | 7.5  | d1+3 | d1+12 | 6.0 ± 0.8  |
| VA-0035      | 33.0  | - 36.0  | 31.0  | 4.0 | 4.7 | 7.5  | d1+3 | d1+12 | 6.0 ± 0.8  |
| VA-0038      | 36.0  | - 38.0  | 34.0  | 4.0 | 4.7 | 7.5  | d1+3 | d1+12 | 6.0 ± 0.8  |
| VA-0040      | 38.0  | - 43.0  | 36.0  | 5.5 | 5.5 | 9.0  | d1+3 | d1+15 | 7.0 ± 1.0  |
| VA-0045      | 43.0  | - 48.0  | 40.0  | 5.0 | 5.5 | 9.0  | d1+3 | d1+15 | 7.0 ± 1.0  |
| VA-0050      | 48.0  | - 53.0  | 45.0  | 5.0 | 5.5 | 9.0  | d1+3 | d1+15 | 7.0 ± 1.0  |
| VA-0055      | 53.0  | - 58.0  | 49.0  | 5.0 | 5.5 | 9.0  | d1+3 | d1+15 | 7.0 ± 1.0  |
| VA-0060      | 58.0  | - 63.0  | 54.0  | 5.0 | 5.5 | 9.0  | d1+3 | d1+15 | 7.0 ± 1.0  |
| VA-0065      | 63.0  | - 68.0  | 58.0  | 5.0 | 5.5 | 9.0  | d1+3 | d1+15 | 7.0 ± 1.0  |
| VA-0070      | 68.0  | - 73.0  | 63.0  | 6.0 | 6.8 | 11.0 | d1+4 | d1+18 | 9.0 ± 1.2  |
| VA-0075      | 73.0  | - 78.0  | 67.0  | 6.0 | 6.0 | 6.8  | d1+4 | d1+18 | 9.0 ± 1.2  |
| VA-0080      | 78.0  | - 83.0  | 72.0  | 6.0 | 6.8 | 11.0 | d1+4 | d1+18 | 9.0 ± 1.2  |
| VA-0085      | 83.0  | - 88.0  | 76.0  | 6.0 | 6.8 | 11.0 | d1+4 | d1+18 | 9.0 ± 1.2  |
| VA-0090      | 88.0  | - 93.0  | 81.0  | 6.0 | 6.8 | 11.0 | d1+4 | d1+18 | 9.0 ± 1.2  |
| VA-0095      | 93.0  | - 98.0  | 85.0  | 6.0 | 6.8 | 11.0 | d1+4 | d1+18 | 9.0 ± 1.2  |
| VA-0100      | 98.0  | - 105.0 | 90.0  | 6.0 | 6.8 | 11.0 | d1+4 | d1+18 | 9.0 ± 1.2  |
| VA-0110      | 105.0 | - 115.0 | 99.0  | 7.0 | 7.9 | 12.8 | d1+4 | d1+21 | 10.5 ± 1.5 |
| VA-0120      | 115.0 | - 125.0 | 108.0 | 7.0 | 7.9 | 12.8 | d1+4 | d1+21 | 10.5 ± 1.5 |

| VA Standard Size            |        |          |        |      |      |      |       |       |            |
|-----------------------------|--------|----------|--------|------|------|------|-------|-------|------------|
| MEASUREMENTS IN MILLIMETERS |        |          |        |      |      |      |       |       |            |
| SIZE NUMBERS                | d1     |          | d      | c    | A    | B    | d2    | d3    | B1         |
| VA-0130                     | 125.0  | - 135.0  | 117.0  | 7.0  | 7.9  | 12.8 | d1+4  | d1+21 | 10.5 ± 1.5 |
| VA-0140                     | 135.0  | - 145.0  | 126.0  | 7.0  | 7.9  | 12.8 | d1+4  | d1+21 | 10.5 ± 1.5 |
| VA-0150                     | 145.0  | - 155.0  | 135.0  | 7.0  | 7.9  | 12.8 | d1+4  | d1+21 | 10.5 ± 1.5 |
| VA-0160                     | 155.0  | - 165.0  | 144.0  | 8.0  | 9.0  | 14.5 | d1+5  | d1+24 | 12.0 ± 1.8 |
| VA-0170                     | 165.0  | - 175.0  | 153.0  | 8.0  | 9.0  | 14.5 | d1+5  | d1+24 | 12.0 ± 1.8 |
| VA-0180                     | 175.0  | - 185.0  | 162.0  | 8.0  | 9.0  | 14.5 | d1+5  | d1+24 | 12.0 ± 1.8 |
| VA-0190                     | 185.0  | - 195.0  | 171.0  | 8.0  | 9.0  | 14.5 | d1+5  | d1+24 | 12.0 ± 1.8 |
| VA-0199                     | 195.0  | - 210.0  | 180.0  | 8.0  | 9.0  | 14.5 | d1+5  | d1+24 | 12.0 ± 1.8 |
| VA-0200                     | 190.0  | - 210.0  | 180.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0220                     | 210.0  | - 235.0  | 198.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0250                     | 235.0  | - 265.0  | 225.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0275                     | 265.0  | - 290.0  | 247.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0300                     | 290.0  | - 310.0  | 270.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0325                     | 310.0  | - 335.0  | 292.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0350                     | 335.0  | - 365.0  | 315.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0375                     | 365.0  | - 390.0  | 337.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0400                     | 390.0  | - 430.0  | 360.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0450                     | 430.0  | - 480.0  | 405.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0500                     | 480.0  | - 530.0  | 450.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0550                     | 530.0  | - 580.0  | 495.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0600                     | 580.0  | - 630.0  | 540.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0650                     | 630.0  | - 665.0  | 600.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0700                     | 665.0  | - 705.0  | 630.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0725                     | 705.0  | - 745.0  | 670.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0750                     | 745.0  | - 785.0  | 705.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0800                     | 785.0  | - 830.0  | 745.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0850                     | 830.0  | - 875.0  | 785.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0900                     | 875.0  | - 920.0  | 825.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-0950                     | 920.0  | - 965.0  | 865.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1000                     | 965.0  | - 1015.0 | 910.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1050                     | 1015.0 | - 1065.0 | 955.0  | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1100                     | 1065.0 | - 1115.0 | 1000.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1150                     | 1115.0 | - 1165.0 | 1045.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1200                     | 1165.0 | - 1215.0 | 1090.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1250                     | 1215.0 | - 1270.0 | 1135.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1300                     | 1270.0 | - 1320.0 | 1180.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1350                     | 1320.0 | - 1370.0 | 1225.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1400                     | 1370.0 | - 1420.0 | 1270.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1450                     | 1420.0 | - 1470.0 | 1315.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1500                     | 1470.0 | - 1520.0 | 1360.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1550                     | 1520.0 | - 1570.0 | 1405.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1600                     | 1570.0 | - 1620.0 | 1450.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1650                     | 1620.0 | - 1670.0 | 1495.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1670                     | 1670.0 | - 1720.0 | 1540.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1750                     | 1720.0 | - 1770.0 | 1585.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1800                     | 1770.0 | - 1820.0 | 1630.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1850                     | 1820.0 | - 1870.0 | 1675.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1900                     | 1870.0 | - 1920.0 | 1720.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-1950                     | 1920.0 | - 1970.0 | 1765.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |
| VA-2000                     | 1970.0 | - 2020.0 | 1810.0 | 15.0 | 14.0 | 25.0 | d1+10 | d1+45 | 20.0 ± 4.0 |

| VA Standard Size     |       |         |       |       |       |       |          |          |             |
|----------------------|-------|---------|-------|-------|-------|-------|----------|----------|-------------|
| MEASUREMENTS IN INCH |       |         |       |       |       |       |          |          |             |
| SIZE NUMBERS         | d1    |         | d     | c     | A     | B     | d2       | d3       | B1          |
| VA-003               | 0.106 | - 0.138 | 0.098 | 0.059 | 0.079 | 0.118 | d1+0.039 | d1+0.157 | 0.098±0.012 |
| VA-004               | 0.138 | - 0.177 | 0.126 | 0.079 | 0.094 | 0.146 | d1+0.039 | d1+0.236 | 0.118±0.016 |
| VA-005               | 0.177 | - 0.217 | 0.157 | 0.079 | 0.094 | 0.146 | d1+0.039 | d1+0.236 | 0.118±0.016 |
| VA-006               | 0.217 | - 0.256 | 0.197 | 0.079 | 0.094 | 0.146 | d1+0.039 | d1+0.236 | 0.118±0.016 |
| VA-007               | 0.256 | - 0.315 | 0.236 | 0.079 | 0.094 | 0.146 | d1+0.039 | d1+0.236 | 0.118±0.016 |
| VA-008               | 0.315 | - 0.374 | 0.276 | 0.079 | 0.094 | 0.146 | d1+0.039 | d1+0.236 | 0.118±0.016 |
| VA-010               | 0.374 | - 0.453 | 0.354 | 0.118 | 0.134 | 0.217 | d1+0.079 | d1+0.354 | 0.177±0.024 |
| VA-0012              | 0.453 | - 0.531 | 0.413 | 0.118 | 0.134 | 0.217 | d1+0.079 | d1+0.354 | 0.177±0.024 |
| VA-0013              | 0.531 | - 0.610 | 0.461 | 0.118 | 0.134 | 0.217 | d1+0.079 | d1+0.354 | 0.177±0.024 |
| VA-0014              | 0.610 | - 0.689 | 0.492 | 0.118 | 0.134 | 0.217 | d1+0.079 | d1+0.354 | 0.177±0.024 |
| VA-0016              | 0.610 | - 0.689 | 0.551 | 0.118 | 0.134 | 0.217 | d1+0.079 | d1+0.354 | 0.177±0.024 |
| VA-0018              | 0.689 | - 0.748 | 0.630 | 0.118 | 0.134 | 0.217 | d1+0.079 | d1+0.354 | 0.177±0.024 |
| VA-0020              | 0.748 | - 0.827 | 0.709 | 0.157 | 0.185 | 0.295 | d1+0.079 | d1+0.472 | 0.236±0.031 |
| VA-0022              | 0.827 | - 0.945 | 0.787 | 0.157 | 0.185 | 0.295 | d1+0.079 | d1+0.472 | 0.236±0.031 |
| VA-0025              | 0.945 | - 1.063 | 0.866 | 0.157 | 0.185 | 0.295 | d1+0.079 | d1+0.472 | 0.236±0.031 |
| VA-0028              | 1.063 | - 1.142 | 0.984 | 0.157 | 0.185 | 0.295 | d1+0.118 | d1+0.472 | 0.236±0.031 |
| VA-0030              | 1.142 | - 1.220 | 1.063 | 0.157 | 0.185 | 0.295 | d1+0.118 | d1+0.472 | 0.236±0.031 |
| VA-0032              | 1.220 | - 1.299 | 1.142 | 0.157 | 0.185 | 0.295 | d1+0.118 | d1+0.472 | 0.236±0.031 |
| VA-0035              | 1.299 | - 1.417 | 1.220 | 0.157 | 0.185 | 0.295 | d1+0.118 | d1+0.472 | 0.236±0.031 |
| VA-0038              | 1.417 | - 1.496 | 1.339 | 0.157 | 0.185 | 0.295 | d1+0.118 | d1+0.472 | 0.236±0.031 |
| VA-0040              | 1.496 | - 1.693 | 1.417 | 0.217 | 0.217 | 0.354 | d1+0.118 | d1+0.591 | 0.276±0.039 |
| VA-0045              | 1.693 | - 1.890 | 1.575 | 0.197 | 0.217 | 0.354 | d1+0.118 | d1+0.591 | 0.276±0.039 |
| VA-0050              | 1.890 | - 2.087 | 1.772 | 0.197 | 0.217 | 0.354 | d1+0.118 | d1+0.591 | 0.276±0.039 |
| VA-0055              | 2.087 | - 2.283 | 1.929 | 0.197 | 0.217 | 0.354 | d1+0.118 | d1+0.591 | 0.276±0.039 |
| VA-0060              | 2.283 | - 2.480 | 2.126 | 0.197 | 0.217 | 0.354 | d1+0.118 | d1+0.591 | 0.276±0.039 |
| VA-0065              | 2.480 | - 2.677 | 2.283 | 0.197 | 0.217 | 0.354 | d1+0.118 | d1+0.591 | 0.276±0.039 |
| VA-0070              | 2.677 | - 2.874 | 2.480 | 0.236 | 0.268 | 0.433 | d1+0.157 | d1+0.709 | 0.354±0.047 |
| VA-0075              | 2.874 | - 3.071 | 2.638 | 0.236 | 0.268 | 0.433 | d1+0.157 | d1+0.709 | 0.354±0.047 |
| VA-0080              | 3.071 | - 3.268 | 2.835 | 0.236 | 0.268 | 0.433 | d1+0.157 | d1+0.709 | 0.354±0.047 |
| VA-0085              | 3.268 | - 3.465 | 2.992 | 0.236 | 0.268 | 0.433 | d1+0.157 | d1+0.709 | 0.354±0.047 |
| VA-0090              | 3.465 | - 3.661 | 3.189 | 0.236 | 0.268 | 0.433 | d1+0.157 | d1+0.709 | 0.354±0.047 |
| VA-0095              | 3.661 | - 3.858 | 3.346 | 0.236 | 0.268 | 0.433 | d1+0.157 | d1+0.709 | 0.354±0.047 |
| VA-0100              | 3.858 | - 4.134 | 3.543 | 0.236 | 0.268 | 0.433 | d1+0.157 | d1+0.709 | 0.354±0.047 |
| VA-0110              | 4.134 | - 4.528 | 3.898 | 0.276 | 0.311 | 0.504 | d1+0.157 | d1+0.827 | 0.413±0.059 |
| VA-0120              | 4.528 | - 4.921 | 4.252 | 0.276 | 0.311 | 0.504 | d1+0.157 | d1+0.827 | 0.413±0.059 |
| VA-0130              | 4.921 | - 5.315 | 4.606 | 0.276 | 0.311 | 0.504 | d1+0.157 | d1+0.827 | 0.413±0.059 |
| VA-0140              | 5.315 | - 5.709 | 4.961 | 0.276 | 0.311 | 0.504 | d1+0.157 | d1+0.827 | 0.413±0.059 |
| VA-0150              | 5.709 | - 6.102 | 5.315 | 0.276 | 0.311 | 0.504 | d1+0.157 | d1+0.827 | 0.413±0.059 |
| VA-0160              | 6.102 | - 6.496 | 5.669 | 0.315 | 0.354 | 0.571 | d1+0.197 | d1+0.945 | 0.472±0.071 |
| VA-0170              | 6.496 | - 6.890 | 6.024 | 0.315 | 0.354 | 0.571 | d1+0.197 | d1+0.945 | 0.472±0.071 |
| VA-0180              | 6.890 | - 7.283 | 6.378 | 0.315 | 0.354 | 0.571 | d1+0.197 | d1+0.945 | 0.472±0.071 |
| VA-0190              | 7.283 | - 7.677 | 6.732 | 0.315 | 0.354 | 0.571 | d1+0.197 | d1+0.945 | 0.472±0.071 |
| VA-0199              | 7.677 | - 8.268 | 7.087 | 0.315 | 0.354 | 0.571 | d1+0.197 | d1+0.945 | 0.472±0.071 |
| VA-0200              | 7.480 | - 8.268 | 7.087 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0220              | 8.268 | - 9.252 | 7.795 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |

| VA Standard Size     |        |          |        |       |       |       |          |          |             |
|----------------------|--------|----------|--------|-------|-------|-------|----------|----------|-------------|
| MEASUREMENTS IN INCH |        |          |        |       |       |       |          |          |             |
| SIZE NUMBERS         | d1     |          | d      | c     | A     | B     | d2       | d3       | B1          |
| VA-0250              | 9.252  | - 10.433 | 8.858  | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0275              | 10.433 | - 11.417 | 9.724  | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0300              | 11.417 | - 12.205 | 10.630 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0325              | 12.205 | - 13.189 | 11.496 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0350              | 13.189 | - 14.370 | 12.402 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0375              | 14.370 | - 15.354 | 13.268 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0400              | 15.354 | - 16.929 | 14.173 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0450              | 16.929 | - 18.898 | 15.945 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0500              | 18.898 | - 20.866 | 17.717 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0550              | 20.866 | - 22.835 | 19.488 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0600              | 22.835 | - 24.803 | 21.260 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0650              | 24.803 | - 26.181 | 23.622 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0700              | 26.181 | - 27.756 | 24.803 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0725              | 27.756 | - 29.331 | 26.378 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0750              | 29.331 | - 30.905 | 27.756 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0800              | 30.905 | - 32.677 | 29.331 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0850              | 32.677 | - 34.449 | 30.905 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0900              | 34.449 | - 36.220 | 32.480 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-0950              | 36.220 | - 37.992 | 34.055 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1000              | 37.992 | - 39.961 | 35.827 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1050              | 39.961 | - 41.929 | 37.598 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1100              | 41.929 | - 43.898 | 39.370 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1150              | 43.898 | - 45.866 | 41.142 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1200              | 45.866 | - 47.835 | 42.913 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1250              | 47.835 | - 50.000 | 44.685 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1300              | 50.000 | - 51.968 | 46.457 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1350              | 51.968 | - 53.937 | 48.228 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1400              | 53.937 | - 55.905 | 50.000 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1450              | 55.905 | - 57.874 | 51.772 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1500              | 57.874 | - 59.842 | 53.543 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1550              | 59.842 | - 61.811 | 55.315 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1600              | 61.811 | - 63.779 | 57.087 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1650              | 63.779 | - 65.748 | 58.858 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1670              | 65.748 | - 67.716 | 60.630 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1750              | 67.716 | - 69.685 | 62.401 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1800              | 69.685 | - 71.653 | 64.173 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1850              | 71.653 | - 73.622 | 65.945 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1900              | 73.622 | - 75.590 | 67.716 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-1950              | 75.590 | - 77.559 | 69.488 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |
| VA-2000              | 77.559 | - 79.527 | 71.260 | 0.591 | 0.551 | 0.984 | d1+0.394 | d1+1.772 | 0.787±0.157 |

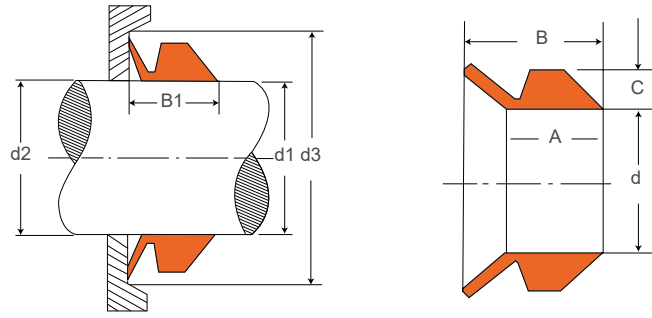


### VL Standard Size

#### MEASUREMENTS IN MILLIMETERS

| SIZE NUMBERS | d1            | d     | c   | A   | B    | d2  | d3   | B1        |
|--------------|---------------|-------|-----|-----|------|-----|------|-----------|
| VL-110       | 105.0 - 115.0 | 99.0  | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-120       | 115.0 - 125.0 | 108.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-130       | 125.0 - 135.0 | 117.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-140       | 135.0 - 145.0 | 126.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-150       | 145.0 - 155.0 | 135.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-160       | 155.0 - 165.0 | 144.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-170       | 165.0 - 175.0 | 153.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-180       | 175.0 - 185.0 | 162.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-190       | 185.0 - 195.0 | 171.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-200       | 195.0 - 210.0 | 182.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-220       | 210.0 - 233.0 | 198.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-250       | 233.0 - 260.0 | 225.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-275       | 260.0 - 285.0 | 247.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-300       | 285.0 - 310.0 | 270.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-325       | 310.0 - 335.0 | 292.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-350       | 335.0 - 365.0 | 315.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-375       | 365.0 - 385.0 | 337.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-400       | 385.0 - 410.0 | 360.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-425       | 410.0 - 440.0 | 382.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-450       | 440.0 - 480.0 | 405.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-500       | 480.0 - 530.0 | 450.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-525       | 510.0 - 540.0 | 472.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-550       | 530.0 - 580.0 | 495.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |
| VL-600       | 580.0 - 630.0 | 540.0 | 6.5 | 6.0 | 10.5 | C+5 | C+20 | 8.0 ± 1.5 |

| VL Standard Size     |        |          |        |       |       |       |         |         |             |
|----------------------|--------|----------|--------|-------|-------|-------|---------|---------|-------------|
| MEASUREMENTS IN INCH |        |          |        |       |       |       |         |         |             |
| SIZE NUMBERS         | d1     |          | d      | c     | A     | B     | d2      | d3      | B1          |
| VL-110               | 4.134  | - 4.528  | 3.898  | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-120               | 4.528  | - 4.921  | 4.252  | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-130               | 4.921  | - 5.315  | 4.606  | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-140               | 5.315  | - 5.709  | 4.961  | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-150               | 5.709  | - 6.102  | 5.315  | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-160               | 6.102  | - 6.496  | 5.669  | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-170               | 6.496  | - 6.890  | 6.024  | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-180               | 6.890  | - 7.283  | 6.378  | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-190               | 7.283  | - 7.677  | 6.732  | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-200               | 7.677  | - 8.268  | 7.165  | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-220               | 8.268  | - 9.173  | 7.795  | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-250               | 9.173  | - 10.236 | 8.858  | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-275               | 10.236 | - 11.220 | 9.724  | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-300               | 11.220 | - 12.205 | 10.630 | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-325               | 12.205 | - 13.189 | 11.496 | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-350               | 13.189 | - 14.370 | 12.402 | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-375               | 14.370 | - 15.157 | 13.268 | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-400               | 15.157 | - 16.142 | 14.173 | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-425               | 16.142 | - 17.323 | 15.039 | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-450               | 17.323 | - 18.898 | 15.945 | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-500               | 18.898 | - 20.866 | 17.717 | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-525               | 20.079 | - 21.260 | 18.583 | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-550               | 20.866 | - 22.835 | 19.488 | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |
| VL-600               | 22.835 | - 24.803 | 21.260 | 0.256 | 0.236 | 0.413 | C+0.197 | C+0.787 | 0.315±0.059 |



## VS Standard Size

## MEASUREMENTS IN MILLIMETERS

| SIZE NUMBERS | d1    |         | d     | c   | A    | B    | d2   | d3    | B1         |
|--------------|-------|---------|-------|-----|------|------|------|-------|------------|
| VS-005       | 4.5   | - 5.5   | 4.0   | 2.0 | 3.9  | 5.2  | d1+1 | d1+6  | 4.5 ± 0.4  |
| VS-006       | 5.5   | - 6.5   | 5.0   | 2.0 | 3.9  | 5.2  | d1+1 | d1+6  | 4.5 ± 0.4  |
| VS-007       | 6.5   | - 8.0   | 6.0   | 2.0 | 3.9  | 5.2  | d1+1 | d1+6  | 4.5 ± 0.4  |
| VS-008       | 8.0   | - 9.5   | 7.0   | 2.0 | 3.9  | 5.2  | d1+1 | d1+6  | 4.5 ± 0.4  |
| VS-010       | 9.5   | - 11.5  | 9.0   | 3.0 | 5.6  | 7.7  | d1+2 | d1+9  | 6.7 ± 0.6  |
| VS-012       | 11.5  | - 13.5  | 10.5  | 3.0 | 5.6  | 7.7  | d1+2 | d1+9  | 6.7 ± 0.6  |
| VS-014       | 13.5  | - 15.5  | 12.5  | 3.0 | 5.6  | 7.7  | d1+2 | d1+9  | 6.7 ± 0.6  |
| VS-016       | 15.5  | - 17.5  | 14.0  | 3.0 | 5.6  | 7.7  | d1+2 | d1+9  | 6.7 ± 0.6  |
| VS-018       | 17.5  | - 19.0  | 16.0  | 3.0 | 5.6  | 7.7  | d1+2 | d1+9  | 6.7 ± 0.6  |
| VS-020       | 19.0  | - 21.0  | 18.0  | 4.0 | 7.9  | 10.5 | d1+2 | d1+12 | 9.0 ± 0.8  |
| VS-022       | 21.0  | - 24.0  | 20.0  | 4.0 | 7.9  | 10.5 | d1+2 | d1+12 | 9.0 ± 0.8  |
| VS-025       | 24.0  | - 27.0  | 22.0  | 4.0 | 7.9  | 10.5 | d1+2 | d1+12 | 9.0 ± 0.8  |
| VS-028       | 27.0  | - 29.0  | 25.0  | 4.0 | 7.9  | 10.5 | d1+3 | d1+12 | 9.0 ± 0.8  |
| VS-030       | 29.0  | - 31.0  | 27.0  | 4.0 | 7.9  | 10.5 | d1+3 | d1+12 | 9.0 ± 0.8  |
| VS-032       | 31.0  | - 33.0  | 29.0  | 4.0 | 7.9  | 10.5 | d1+3 | d1+12 | 9.0 ± 0.8  |
| VS-035       | 33.0  | - 36.0  | 31.0  | 4.0 | 7.9  | 10.5 | d1+3 | d1+12 | 9.0 ± 0.8  |
| VS-038       | 36.0  | - 38.0  | 34.0  | 4.0 | 7.9  | 10.5 | d1+3 | d1+12 | 9.0 ± 0.8  |
| VS-040       | 38.0  | - 43.0  | 36.0  | 5.0 | 9.5  | 13.0 | d1+3 | d1+15 | 11.0 ± 1.0 |
| VS-045       | 43.0  | - 48.0  | 40.0  | 5.0 | 9.5  | 13.0 | d1+3 | d1+15 | 11.0 ± 1.0 |
| VS-050       | 48.0  | - 53.0  | 45.0  | 5.0 | 9.5  | 13.0 | d1+3 | d1+15 | 11.0 ± 1.0 |
| VS-055       | 53.0  | - 58.0  | 49.0  | 5.0 | 9.5  | 13.0 | d1+3 | d1+15 | 11.0 ± 1.0 |
| VS-060       | 58.0  | - 63.0  | 54.0  | 5.0 | 9.5  | 13.0 | d1+3 | d1+15 | 11.0 ± 1.0 |
| VS-065       | 63.0  | - 68.0  | 58.0  | 5.0 | 9.5  | 13.0 | d1+3 | d1+15 | 11.0 ± 1.0 |
| VS-070       | 68.0  | - 73.0  | 63.0  | 6.0 | 11.3 | 15.5 | d1+4 | d1+18 | 13.5 ± 1.2 |
| VS-075       | 73.0  | - 78.0  | 67.0  | 6.0 | 11.3 | 15.5 | d1+4 | d1+18 | 13.5 ± 1.2 |
| VS-080       | 78.0  | - 83.0  | 72.0  | 6.0 | 11.3 | 15.5 | d1+4 | d1+18 | 13.5 ± 1.2 |
| VS-085       | 83.0  | - 88.0  | 76.0  | 6.0 | 11.3 | 15.5 | d1+4 | d1+18 | 13.5 ± 1.2 |
| VS-090       | 88.0  | - 93.0  | 81.0  | 6.0 | 11.3 | 15.5 | d1+4 | d1+18 | 13.5 ± 1.2 |
| VS-095       | 93.0  | - 98.0  | 85.0  | 6.0 | 11.3 | 15.5 | d1+4 | d1+18 | 13.5 ± 1.2 |
| VS-100       | 98.0  | - 105.0 | 90.0  | 6.0 | 11.3 | 15.5 | d1+4 | d1+18 | 13.5 ± 1.2 |
| VS-110       | 105.0 | - 115.0 | 99.0  | 7.0 | 13.1 | 18.0 | d1+4 | d1+21 | 15.5 ± 1.5 |
| VS-120       | 115.0 | - 125.0 | 108.0 | 7.0 | 13.1 | 18.0 | d1+4 | d1+21 | 15.5 ± 1.5 |
| VS-130       | 125.0 | - 135.0 | 117.0 | 7.0 | 13.1 | 18.0 | d1+4 | d1+21 | 15.5 ± 1.5 |
| VS-140       | 135.0 | - 145.0 | 126.0 | 7.0 | 13.1 | 18.0 | d1+4 | d1+21 | 15.5 ± 1.5 |
| VS-150       | 145.0 | - 155.0 | 135.0 | 7.0 | 13.1 | 18.0 | d1+4 | d1+21 | 15.5 ± 1.5 |
| VS-160       | 155.0 | - 165.0 | 144.0 | 8.0 | 15.0 | 20.5 | d1+5 | d1+24 | 18.0 ± 1.8 |
| VS-170       | 165.0 | - 175.0 | 153.0 | 8.0 | 15.0 | 20.5 | d1+5 | d1+24 | 18.0 ± 1.8 |
| VS-180       | 175.0 | - 185.0 | 162.0 | 8.0 | 15.0 | 20.5 | d1+5 | d1+24 | 18.0 ± 1.8 |
| VS-190       | 185.0 | - 195.0 | 171.0 | 8.0 | 15.0 | 20.5 | d1+5 | d1+24 | 18.0 ± 1.8 |
| VS-199       | 195.0 | - 210.0 | 180.0 | 8.0 | 15.0 | 20.5 | d1+5 | d1+24 | 18.0 ± 1.8 |

| VS Standard Size     |       |         |       |       |       |       |          |          |             |
|----------------------|-------|---------|-------|-------|-------|-------|----------|----------|-------------|
| MEASUREMENTS IN INCH |       |         |       |       |       |       |          |          |             |
| SIZE NUMBERS         | d1    |         | d     | c     | A     | B     | d2       | d3       | B1          |
| VS-005               | 0.177 | - 0.217 | 0.157 | 0.079 | 0.154 | 0.205 | d1+0.039 | d1+0.236 | 0.177±0.016 |
| VS-006               | 0.217 | - 0.256 | 0.197 | 0.079 | 0.154 | 0.205 | d1+0.039 | d1+0.236 | 0.177±0.016 |
| VS-007               | 0.256 | - 0.315 | 0.236 | 0.079 | 0.154 | 0.205 | d1+0.039 | d1+0.236 | 0.177±0.016 |
| VS-008               | 0.315 | - 0.374 | 0.276 | 0.079 | 0.154 | 0.205 | d1+0.039 | d1+0.236 | 0.177±0.016 |
| VS-010               | 0.374 | - 0.453 | 0.354 | 0.118 | 0.220 | 0.303 | d1+0.079 | d1+0.354 | 0.264±0.024 |
| VS-012               | 0.453 | - 0.531 | 0.413 | 0.118 | 0.220 | 0.303 | d1+0.079 | d1+0.354 | 0.264±0.024 |
| VS-014               | 0.531 | - 0.610 | 0.492 | 0.118 | 0.220 | 0.303 | d1+0.079 | d1+0.354 | 0.264±0.024 |
| VS-016               | 0.610 | - 0.689 | 0.551 | 0.118 | 0.220 | 0.303 | d1+0.079 | d1+0.354 | 0.264±0.024 |
| VS-018               | 0.689 | - 0.748 | 0.630 | 0.118 | 0.220 | 0.303 | d1+0.079 | d1+0.354 | 0.264±0.024 |
| VS-020               | 0.748 | - 0.827 | 0.709 | 0.157 | 0.311 | 0.413 | d1+0.079 | d1+0.472 | 0.354±0.031 |
| VS-022               | 0.827 | - 0.945 | 0.787 | 0.157 | 0.311 | 0.413 | d1+0.079 | d1+0.472 | 0.354±0.031 |
| VS-025               | 0.945 | - 1.063 | 0.866 | 0.157 | 0.311 | 0.413 | d1+0.079 | d1+0.472 | 0.354±0.031 |
| VS-028               | 1.063 | - 1.142 | 0.984 | 0.157 | 0.311 | 0.413 | d1+0.118 | d1+0.472 | 0.354±0.031 |
| VS-030               | 1.142 | - 1.220 | 1.063 | 0.157 | 0.311 | 0.413 | d1+0.118 | d1+0.472 | 0.354±0.031 |
| VS-032               | 1.220 | - 1.299 | 1.142 | 0.157 | 0.311 | 0.413 | d1+0.118 | d1+0.472 | 0.354±0.031 |
| VS-035               | 1.299 | - 1.417 | 1.220 | 0.157 | 0.311 | 0.413 | d1+0.118 | d1+0.472 | 0.354±0.031 |
| VS-038               | 1.417 | - 1.496 | 1.339 | 0.157 | 0.311 | 0.413 | d1+0.118 | d1+0.472 | 0.354±0.031 |
| VS-040               | 1.496 | - 1.693 | 1.417 | 0.197 | 0.374 | 0.512 | d1+0.118 | d1+0.591 | 0.433±0.039 |
| VS-045               | 1.693 | - 1.890 | 1.575 | 0.197 | 0.374 | 0.512 | d1+0.118 | d1+0.591 | 0.433±0.039 |
| VS-050               | 1.890 | - 2.087 | 1.772 | 0.197 | 0.374 | 0.512 | d1+0.118 | d1+0.591 | 0.433±0.039 |
| VS-055               | 2.087 | - 2.283 | 1.929 | 0.197 | 0.374 | 0.512 | d1+0.118 | d1+0.591 | 0.433±0.039 |
| VS-060               | 2.283 | - 2.480 | 2.126 | 0.197 | 0.374 | 0.512 | d1+0.118 | d1+0.591 | 0.433±0.039 |
| VS-065               | 2.480 | - 2.677 | 2.283 | 0.197 | 0.374 | 0.512 | d1+0.118 | d1+0.591 | 0.433±0.039 |
| VS-070               | 2.677 | - 2.874 | 2.480 | 0.236 | 0.445 | 0.610 | d1+0.157 | d1+0.709 | 0.531±0.047 |
| VS-075               | 2.874 | - 3.071 | 2.638 | 0.236 | 0.445 | 0.610 | d1+0.157 | d1+0.709 | 0.531±0.047 |
| VS-080               | 3.071 | - 3.268 | 2.835 | 0.236 | 0.445 | 0.610 | d1+0.157 | d1+0.709 | 0.531±0.047 |
| VS-085               | 3.268 | - 3.465 | 2.992 | 0.236 | 0.445 | 0.610 | d1+0.157 | d1+0.709 | 0.531±0.047 |
| VS-090               | 3.465 | - 3.661 | 3.189 | 0.236 | 0.445 | 0.610 | d1+0.157 | d1+0.709 | 0.531±0.047 |
| VS-095               | 3.661 | - 3.858 | 3.346 | 0.236 | 0.445 | 0.610 | d1+0.157 | d1+0.709 | 0.531±0.047 |
| VS-100               | 3.858 | - 4.134 | 3.543 | 0.236 | 0.445 | 0.610 | d1+0.157 | d1+0.709 | 0.531±0.047 |
| VS-110               | 4.134 | - 4.528 | 3.898 | 0.276 | 0.516 | 0.709 | d1+0.157 | d1+0.827 | 0.610±0.059 |
| VS-120               | 4.528 | - 4.921 | 4.252 | 0.276 | 0.516 | 0.709 | d1+0.157 | d1+0.827 | 0.610±0.059 |
| VS-130               | 4.921 | - 5.315 | 4.606 | 0.276 | 0.516 | 0.709 | d1+0.157 | d1+0.827 | 0.610±0.059 |
| VS-140               | 5.315 | - 5.709 | 4.961 | 0.276 | 0.516 | 0.709 | d1+0.157 | d1+0.827 | 0.610±0.059 |
| VS-150               | 5.709 | - 6.102 | 5.315 | 0.276 | 0.516 | 0.709 | d1+0.157 | d1+0.827 | 0.610±0.059 |
| VS-160               | 6.102 | - 6.496 | 5.669 | 0.315 | 0.591 | 0.807 | d1+0.197 | d1+0.945 | 0.709±0.071 |
| VS-170               | 6.496 | - 6.890 | 6.024 | 0.315 | 0.591 | 0.807 | d1+0.197 | d1+0.945 | 0.709±0.071 |
| VS-180               | 6.890 | - 7.283 | 6.378 | 0.315 | 0.591 | 0.807 | d1+0.197 | d1+0.945 | 0.709±0.071 |
| VS-190               | 7.283 | - 7.677 | 6.732 | 0.315 | 0.591 | 0.807 | d1+0.197 | d1+0.945 | 0.709±0.071 |
| VS-199               | 7.677 | - 8.268 | 7.087 | 0.315 | 0.591 | 0.807 | d1+0.197 | d1+0.945 | 0.709±0.071 |



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