

# VELAN

## GEAR ACTUATORS

For multi-turn valves



# PROFILE

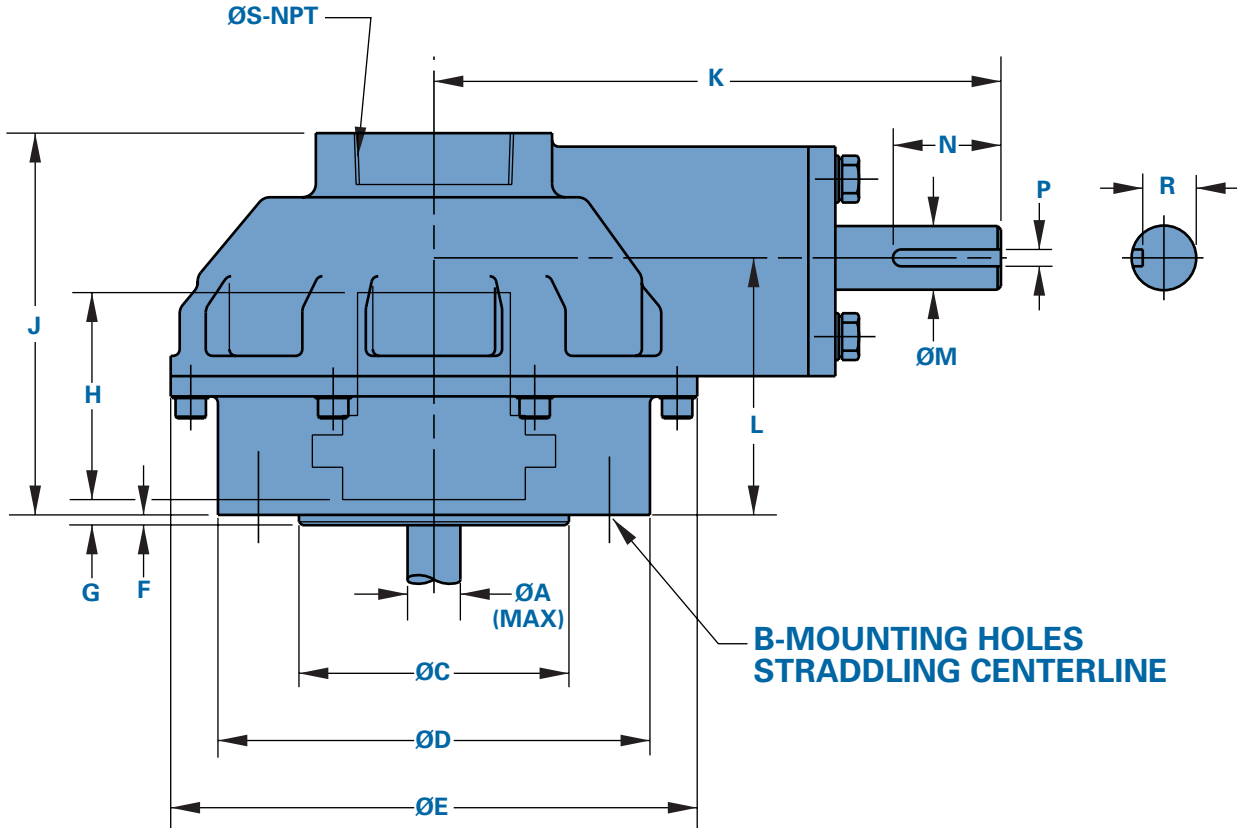
**V**ELAN GEAR ACTUATORS offer a superior combination of features for reliable and dependable service for multi-turn valves. Engineered to meet all applications and environmental conditions our precision in design and quality provide long and safe operational performance in valve control. Velan's V, VT and VTS series of actuators were designed for valves requiring rotary torque or linear thrust. Simple bolt-on adapters and hardware provide easy in-line installation. Optional spur gear attachments are available to reduce manual operating torque.

## CONTENTS

|  |     |
|--|-----|
| Profile.....                             | 2   |
| Sale Offices & Manufacturing Plants..... | 2   |
| VT-SERIES.....                           | 3-4 |
| V-SERIES .....                           | 5   |
| VTS-SERIES .....                         | 6   |
| Technical data .....                     | 7   |
| Construction .....                       | 8   |
| Optional Accessories .....               | 8   |

| TYPES OF UNITS    | USED TO TRANSMIT  |
|-------------------|---|
| <b>VT-SERIES</b>  | • Rotary power and linear force (thrust)                            |
| <b>V-SERIES</b>   | • Rotary power (torque)   |
| <b>VTS-SERIES</b> | • Rotary power and linear force (thrust) with top mounted handwheel |

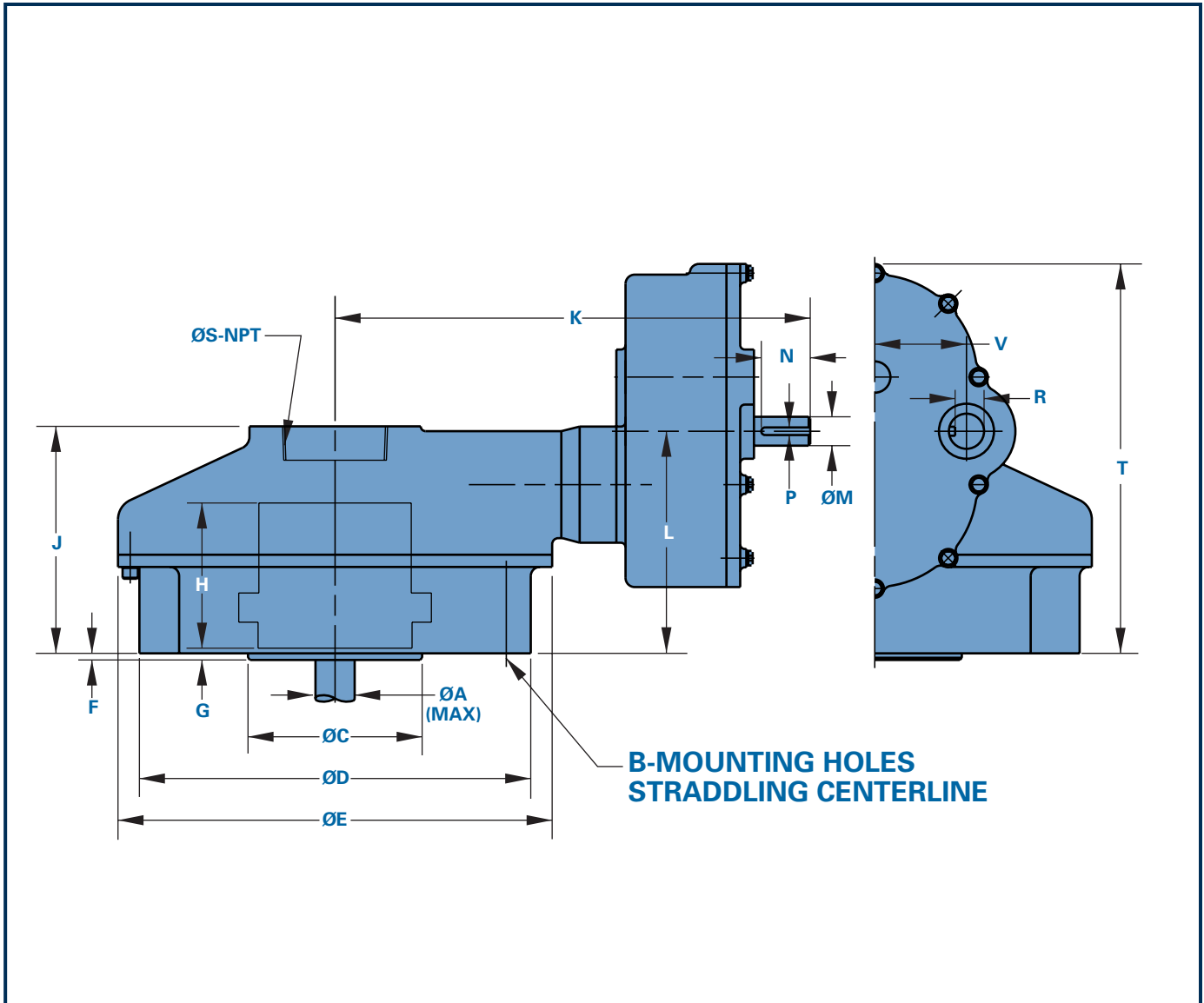
# VT SERIES



**ENVELOPE DIMENSIONS FOR STANDARD "VT" SERIES ACTUATORS (in/mm)**

| UNIT | MSS<br>ISO  | A           | B  | C           | D            | E            | F         | G          | H           | J           | K            | L           | M          | N          | P         | R           | S    |
|------|-------------|-------------|--|-------------|--------------|--------------|-----------|------------|-------------|-------------|--------------|-------------|------------|------------|-----------|-------------|------|
| VT20 | FA14<br>F14 | 2.00<br>51  | (4) 5/8-11UNC X 1.38" DP: 5.50 BCD<br>(4) M16 X 35 MM DP: 140 BCD  | 3.75<br>100 | 6.93<br>176  | 8.06<br>205  | 0.16<br>4 | 0.31<br>8  | 3.00<br>76  | 6.06<br>154 | 8.38<br>213  | 4.00<br>102 | 1.18<br>30 | 1.94<br>49 | 0.31<br>8 | 1.026<br>26 | 2.50 |
| VT30 | FA16<br>F16 | 2.38<br>60  | (4) 3/4-10UNC X 1.75" DP: 6.50 BCD<br>(4) M20 X 45 MM DP: 165 BCD  | 5.00<br>127 | 8.00<br>203  | 9.75<br>248  | 0.19<br>5 | 0.50<br>12 | 4.00<br>102 | 7.03<br>179 | 9.81<br>249  | 4.75<br>121 | 1.18<br>30 | 1.94<br>49 | 0.31<br>8 | 1.026<br>26 | 3.00 |
| VT40 | FA25<br>F25 | 3.13<br>79  | (8) 5/8-11UNC X 1.38" DP: 10.00 BCD<br>(8) M16 X 35 MM DP: 254 BCD | 6.00<br>152 | 11.75<br>298 | 13.38<br>340 | 0.19<br>5 | 0.50<br>12 | 4.75<br>121 | 8.06<br>205 | 11.00<br>279 | 5.44<br>138 | 1.18<br>30 | 1.94<br>49 | 0.31<br>8 | 1.026<br>26 | 4.00 |
| VT50 | FA30<br>F30 | 4.00<br>102 | (8) 3/4-10UNC X 1.75" DP: 11.75 BCD<br>(8) M20 X 45 MM DP: 298 BCD | 7.00<br>178 | 13.63<br>346 | 15.75<br>400 | 0.19<br>5 | 0.25<br>6  | 6.00<br>152 | 8.75<br>222 | 13.38<br>340 | 4.75<br>121 | 1.18<br>30 | 1.94<br>49 | 0.31<br>8 | 1.026<br>26 | 4.00 |

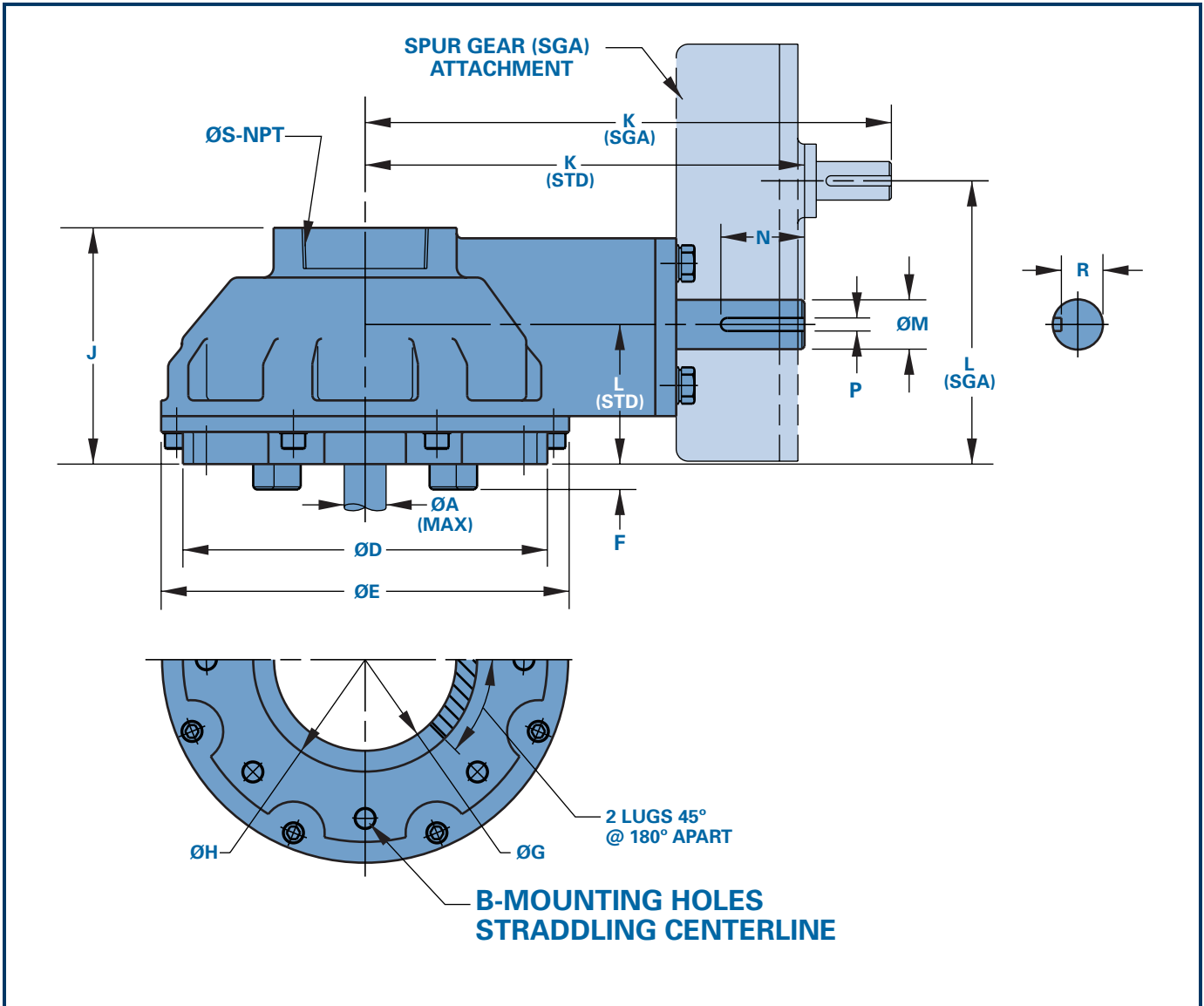
# VT SERIES c/w SGA



**ENVELOPE DIMENSIONS FOR "VT" SERIES ACTUATORS c/w SPUR GEAR ATTACHMENT (in/mm)**

| UNIT  | MSS ISO     | A           | B  | C            | D            | E            | F           | G           | H           | J            | K            | L            | M          | N          | P         | R           | S    | T            | V          |
|-------|-------------|-------------|--|--------------|--------------|--------------|-------------|-------------|-------------|--------------|--------------|--------------|------------|------------|-----------|-------------|------|--------------|------------|
| VT30  | FA16<br>F16 | 2.38<br>51  | (4) 3/4-10UNC X 1.75" DP: 6.50 BCD<br>(4) M20 X 45 MM DP: 165 BCD  | 5.00<br>127  | 8.00<br>203  | 9.75<br>248  | 0.19<br>5   | 0.50<br>12  | 4.00<br>102 | 7.03<br>179  | 12.38<br>341 | 9.53<br>242  | 1.18<br>30 | 1.94<br>49 | 0.31<br>8 | 1.026<br>26 | 2.50 | 11.13<br>283 | N/A        |
| VT40  | FA25<br>F25 | 3.13<br>79  | (8) 5/8-11UNC X 1.38" DP: 10.00 BCD<br>(8) M16 X 35 MM DP: 254 BCD | 6.00<br>152  | 11.75<br>298 | 13.38<br>340 | 0.19<br>5   | 0.50<br>12  | 4.75<br>121 | 8.06<br>205  | 13.63<br>346 | 10.52<br>260 | 1.18<br>30 | 1.94<br>49 | 0.31<br>8 | 1.026<br>26 | 3.00 | 11.18<br>284 | N/A        |
| VT50  | FA30<br>F30 | 4.00<br>102 | (8) 3/4-10UNC X 1.75" DP: 11.75 BCD<br>(8) M20 X 45 MM DP: 298 BCD | 7.00<br>178  | 13.63<br>346 | 15.75<br>400 | 0.19<br>5   | 0.25<br>6   | 6.00<br>152 | 8.75<br>222  | 16.00<br>406 | 9.53<br>242  | 1.18<br>30 | 1.94<br>49 | 0.31<br>8 | 1.026<br>26 | 4.00 | 11.13<br>283 | N/A        |
| VT60  | FB07        | 4.50<br>114 | (8) 1 1/4-7UNC X 2.75" DP: 14.00 BCD                               | 8.50<br>216  | 16.38<br>416 | 17.75<br>451 | 0.19<br>5   | 0.40<br>10  | 5.94<br>151 | 9.25<br>235  | 19.81<br>503 | 9.08<br>231  | 1.18<br>30 | 1.94<br>49 | 0.31<br>8 | 1.026<br>26 | 5.00 | 15.93<br>405 | 3.75<br>95 |
| VT70  | FB08        | 4.50<br>114 | (8) 1 1/2-8UNC X 3.00" DP: 14.00 BCD                               | 8.50<br>216  | 17.00<br>432 | 17.75<br>451 | 0.19<br>5   | —           | 9.38<br>238 | 12.81<br>325 | 19.81<br>503 | 12.58<br>320 | 1.18<br>30 | 1.94<br>49 | 0.31<br>8 | 1.026<br>26 | 5.00 | 19.44<br>494 | 3.75<br>95 |
| VT100 | —           | 5.50<br>140 | (12) 1 1/2-8UN X 2.63" DP: 19.00 BCD                               | 14.56<br>370 | 22.00<br>559 | —            | 0.38<br>9.6 | 0.30<br>7.6 | 8.00<br>203 | 18.56<br>471 | 19.18<br>487 | 17.75<br>451 | 1.18<br>30 | 1.94<br>49 | 0.31<br>8 | 1.026<br>26 | 6.00 | 24.63<br>626 | 3.75<br>95 |

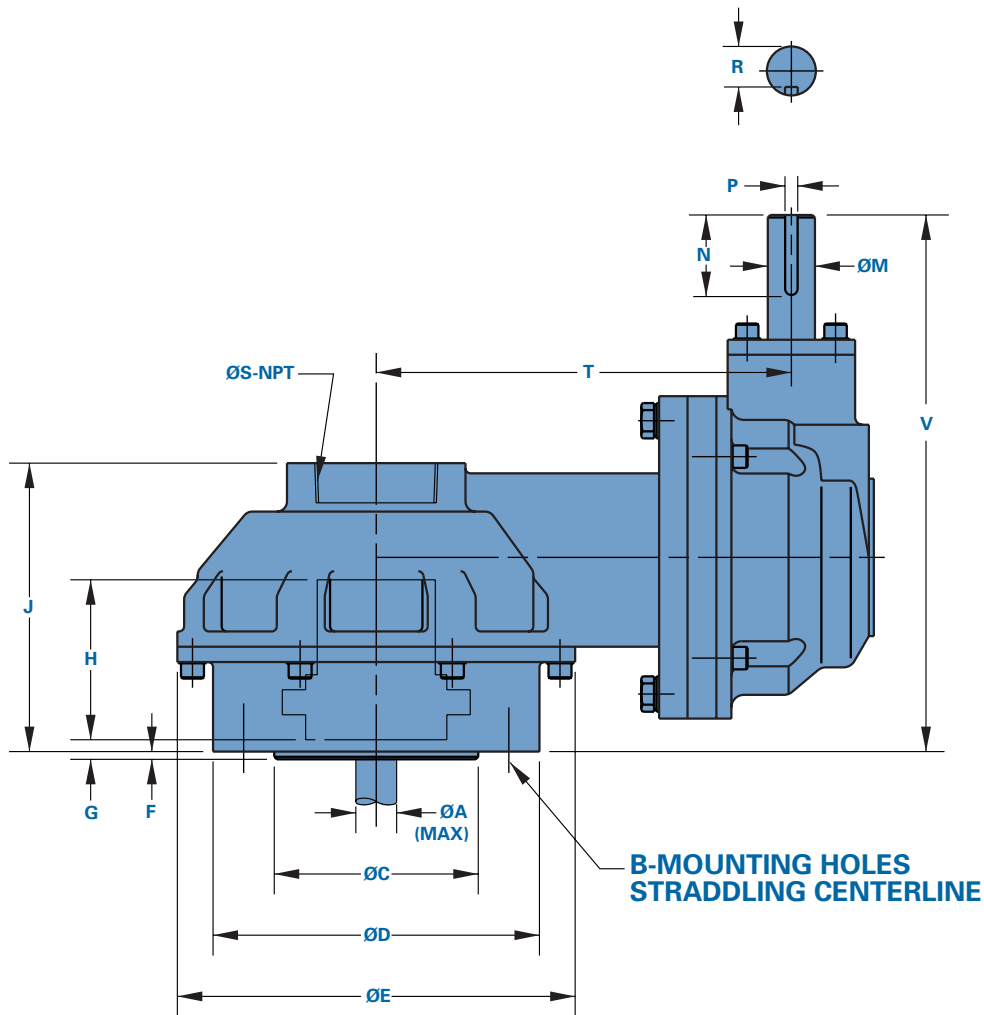
# V SERIES



**ENVELOPE DIMENSIONS FOR "V" SERIES ACTUATORS (in/mm)**

| UNIT | A           | B                                   | D            | E            | F          | G           | H           | J           | K            |              | L           |             | M          | N          | P         | R           | S    |
|------|-------------|-------------------------------------|--------------|--------------|------------|-------------|-------------|-------------|--------------|--------------|-------------|-------------|------------|------------|-----------|-------------|------|
|      |             |                                     |              |              |            |             |             |             | STD          | SGA          | STD         | SGA         |            |            |           |             |      |
| V20  | 2.06<br>52  | (4) 1/2-13UNC x 0.75" DP: 7.63 BCD  | 8.63<br>219  | —            | 0.501<br>3 | 2.75<br>70  | 3.50<br>89  | 4.94<br>125 | 8.38<br>213  | —            | 2.88<br>73  | —           | 1.18<br>30 | 1.94<br>49 | 0.31<br>8 | 1.026<br>26 | 2.50 |
| V30  | 3.00<br>76  | (8) 1/2-13UNC x 0.75" DP: 7.63 BCD  | 8.75<br>222  | 9.75<br>248  | 0.81<br>21 | 4.38<br>111 | 5.38<br>137 | 5.66<br>144 | 10.31<br>262 | 12.38<br>314 | 3.38<br>86  | 8.16<br>207 | 1.18<br>30 | 1.94<br>49 | 0.31<br>8 | 1.026<br>26 | 3.00 |
| V40  | 4.00<br>102 | (8) 1/2-13UNC x 0.75" DP: 7.63 BCD  | 8.75<br>222  | 13.38<br>340 | 0.68<br>17 | 4.38<br>111 | 5.38<br>137 | 6.50<br>165 | 11.00<br>279 | 13.63<br>346 | 3.88<br>99  | 8.66<br>220 | 1.18<br>30 | 1.94<br>49 | 0.31<br>8 | 1.026<br>26 | 4.00 |
| V50  | 4.25<br>108 | (8) 3/4-10UNC x 1.75" DP: 11.75 BCD | 13.25<br>337 | 15.75<br>400 | —          | 4.38<br>111 | 5.75<br>146 | 6.50<br>165 | 13.38<br>340 | 16.00<br>406 | 4.00<br>102 | 8.78<br>223 | 1.18<br>30 | 1.94<br>49 | 0.31<br>8 | 1.026<br>26 | 4.00 |

# VTS SERIES



**ENVELOPE DIMENSIONS FOR STANDARD "VTS" SERIES ACTUATORS (in/mm)**

| UNIT  | MSS<br>ISO | A    | B                                   | C    | D     | E     | F    | G    | H    | J    | K     | L    | M    | N    | P    | R     | S    | T     | V     |
|-------|------------|------|-------------------------------------|------|-------|-------|------|------|------|------|-------|------|------|------|------|-------|------|-------|-------|
| VTS20 | FA14       | 2.00 | (4) 5/8-11UNC X 1.38" DP: 5.50 BCD  | 3.75 | 6.93  | 8.06  | 0.16 | 0.31 | 3.00 | 6.06 | 8.38  | 400  | 1.18 | 1.94 | 0.31 | 1.026 | 2.50 | 9.03  | 12.38 |
|       | F14        | 51   | (4) M16 X 35 MM DP: 140 BCD         | 100  | 176   | 205   | 4    | 8    | 76   | 154  | 213   | 102  | 30   | 49   | 8    | 26    |      | 229   | 314   |
| VTS30 | FA16       | 2.38 | (4) 3/4-10UNC X 1.75" DP: 6.50 BCD  | 5.00 | 8.00  | 9.75  | 0.19 | 0.50 | 4.00 | 7.03 | 9.81  | 4.75 | 1.18 | 1.94 | 0.31 | 1.026 | 3.00 | 10.63 | 13.13 |
|       | F16        | 60   | (4) M20 X 45 MM DP: 165 BCD         | 127  | 203   | 248   | 5    | 12   | 102  | 179  | 249   | 121  | 30   | 49   | 8    | 26    |      | 270   | 334   |
| VTS40 | FA25       | 3.13 | (8) 5/8-11UNC X 1.38" DP: 10.00 BCD | 6.00 | 11.75 | 13.38 | 0.19 | 0.50 | 4.75 | 8.06 | 11.00 | 5.44 | 1.18 | 1.94 | 0.31 | 1.026 | 4.00 | 11.94 | 13.81 |
|       | F25        | 79   | (8) M16 X 35 MM DP: 254 BCD         | 152  | 298   | 340   | 5    | 12   | 121  | 205  | 279   | 138  | 30   | 49   | 8    | 26    |      | 303   | 351   |
| VTS50 | FA30       | 4.00 | (8) 3/4-10UNC X 1.75" DP: 11.75 BCD | 7.00 | 13.63 | 15.75 | 0.19 | 0.25 | 6.00 | 8.75 | 13.38 | 4.75 | 1.18 | 1.94 | 0.31 | 1.026 | 4.00 | 14.31 | 13.13 |
|       | F30        | 102  | (8) M20 X 45 MM DP: 298 BCD         | 178  | 346   | 400   | 5    | 6    | 152  | 222  | 340   | 121  | 30   | 49   | 8    | 26    |      | 363   | 334   |

# TECHNICAL DETAILS

## VT SERIES (Thrust base)

| UNIT   | RATIO |                  | MAXIMUM OUTPUT TORQUE |       | MAXIMUM CAPACITY THRUST |      | MAXIMUM STEM DIAMETER |     | WEIGHT |     |           |     | EFFICIENCY |           |
|--------|-------|------------------|-----------------------|-------|-------------------------|------|-----------------------|-----|--------|-----|-----------|-----|------------|-----------|
|        | Basic | With SGA*        | ft lb                 | Nm    | lb                      | kN   | in                    | mm  | lb     | kg  | With SGA* |     | Basic      | With SGA* |
|        |       |                  |                       |       |                         |      |                       |     |        |     | lb        | kg  |            |           |
| VT-20  | 4:1   | –                | 750                   | 1017  | 40000                   | 178  | 2.000                 | 51  | 50     | 23  | –         | –   | 0.90       | –         |
| VT-30  | 6:1   | 30.0:1           | 1250                  | 1695  | 80000                   | 356  | 2.375                 | 60  | 85     | 39  | 125       | 57  | 0.90       | 0.80      |
| VT-40  | 6:1   | 30.0:1           | 3000                  | 4068  | 100000                  | 445  | 3.125                 | 79  | 155    | 70  | 190       | 89  | 0.90       | 0.80      |
| VT-50  | 8:1   | 40.0:1           | 5000                  | 6780  | 150000                  | 668  | 4.000                 | 102 | 250    | 114 | 290       | 132 | 0.90       | 0.80      |
| VT-60  | –     | 43.0:1<br>81.8:1 | 8000                  | 10850 | 200000                  | 890  | 4.500                 | 114 | –      | –   | 375       | 170 | –          | 0.70      |
| VT-70  | –     | 43.0:1<br>81.8:1 | 8000                  | 10850 | 300000                  | 1335 | 4.500                 | 114 | –      | –   | 500       | 227 | –          | 0.70      |
| VT-100 | –     | 82.4:1           | 12000                 | 16230 | 300000                  | 1335 | 5.500                 | 140 | –      | –   | 1000      | 455 | –          | 0.70      |

\* SGA (Spur gear attachment)

## V SERIES (Torque only)

| UNIT | RATIO |           | MAXIMUM OUTPUT TORQUE |      | MAXIMUM STEM DIAMETER |     | WEIGHT |    |           |     | EFFICIENCY |           |
|------|-------|-----------|-----------------------|------|-----------------------|-----|--------|----|-----------|-----|------------|-----------|
|      | Basic | With SGA* | ft lb                 | Nm   | in                    | mm  | lb     | kg | With SGA* |     | Basic      | With SGA* |
|      |       |           |                       |      |                       |     |        |    | lb        | kg  |            |           |
| V-20 | 4:1   | –         | 750                   | 1017 | 2.061                 | 52  | 45     | 20 | –         | –   | 0.90       | –         |
| V-30 | 6:1   | 30.0:1    | 1250                  | 1695 | 3.000                 | 76  | 65     | 30 | 125       | 57  | 0.90       | 0.80      |
| V-40 | 6:1   | 30.0:1    | 3000                  | 4068 | 4.000                 | 102 | 100    | 45 | 190       | 89  | 0.90       | 0.80      |
| V-50 | 8:1   | 40.0:1    | 5000                  | 6780 | 4.250                 | 108 | 200    | 91 | 290       | 132 | 0.90       | 0.80      |

## VTS SERIES (Thrust base)

| UNIT   | RATIO | MAXIMUM OUTPUT TORQUE |      | MAXIMUM CAPACITY THRUST |     | MAXIMUM STEM DIAMETER |     | WEIGHT |     | EFFICIENCY |
|--------|-------|-----------------------|------|-------------------------|-----|-----------------------|-----|--------|-----|------------|
|        | Basic | ft lb                 | Nm   | lb                      | kN  | in                    | mm  | lb     | kg  | Basic      |
| VTS-20 | 18:1  | 750                   | 1017 | 40000                   | 178 | 2.000                 | 51  | 100    | 45  | 0.80       |
| VTS-30 | 24:1  | 1250                  | 1695 | 80000                   | 356 | 2.375                 | 60  | 135    | 61  | 0.80       |
| VTS-40 | 24:1  | 3000                  | 4068 | 100000                  | 445 | 3.125                 | 79  | 200    | 91  | 0.80       |
| VTS-50 | 32:1  | 5000                  | 6780 | 150000                  | 668 | 4.000                 | 102 | 250    | 114 | 0.80       |

## CONSTRUCTION

The **V, VT, VTS series** of gear actuators are all made from the highest quality materials in order to ensure maximum reliability.

All castings are produced from high strength ductile iron for service in locations where they are subject to heavy accidental blows. Shafts and gears are all supported by anti-friction bearings.

The gear sets are produced from a high-grade alloy steel and hardened. All units are permanently lubricated and are weatherproof for outdoor service.

## OPTIONAL ACCESSORIES

**Several options are available, such as:**

- Handwheels, Chainwheels
- Input shaft locking devices
- Floorstands and stem extensions with remote actuators
- Stem protectors, to protect stem threads from environmental conditions
- Stem position indicators

## GENERAL INFORMATION

### VELAN INC

7007 Côte de Liesse  
Montreal, Qc, Canada  
H4T 1G2

### VELAN VALVE CORPORATION

94 Avenue C  
Williston, VT, USA  
05495-9732

**Tel:** (514) 748-7743 **Fax:** (514) 748-8635 **Web:** <http://www.velan.com>

**NOTE:** *The material in this catalog is for general information. For specific performance data and proper material selection, consult your Velan representative. Although every attempt has been made to ensure that the information contained in this catalog is correct, Velan reserves the right to change designs, materials or specifications without notice.*