# SCC Inc.

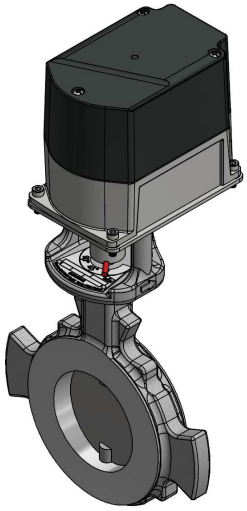
## Technical Instructions

Document No. VA-3100

January 23, 2020

# VA Series

## VA…VKF1x Valve Actuator Assemblies with VKF1… Butterfly Valves



## Description

VA…VKF1x valve actuator assemblies include a Siemens SQM… actuator reliably mounted to a VKF1… butterfly valve.

## Features

- Precision machined components enable a solid shaft coupling
- Shaft coupling provides a positive connection without actuator or valve shaft damage
- VKF1… valve sizes from 1-1/4” to 8”
- Includes Siemens SQM33, SQM40, SQM45, or SQM5 actuator

## Application

VA…VKF1x valve actuator assemblies mount an SQM33, SQM40, SQM45, or SQM5 actuator to a VKF1… butterfly valve. The Siemens VKF1… valve and SQM… actuator are rigidly mounted with precisely engineered brackets and couplings to ensure shaft alignment. VKF1… technical instructions (n7673us) provide sizing and additional valve information.

# Product Part Numbers

The following chart provides VA…VKF1x assembly part number identification including an SQM33, SQM40, or SQM45 actuator. Technical instructions for SQM33 (n7813), SQM40 (n7817), or SQM45 (n7814) actuators are available at www.scccombustion.com.

**VA 45.2 - 2.0 VKF 10**

**Valve Actuator Assembly**

**Actuator**

| | |
|---|---|
| 33 | = SQM33.550A9 (stepper, 27 in-lb, for use with LMV3…) |
| 33.7 | = SQM33.750A9 (stepper, 90 in-lb, for use with LMV3…) |
| 40.11 | = SQM40.115R11 (12.5 sec, 135 Ohm/2-10 VDC, high/low fire feedback) |
| 40.14 | = SQM40.145A21 (12.5 sec, 4-20 mA/135 Ohm/2-10 VDC) |
| 40.15 | = SQM40.155R11 (12.5 sec, 4-20 mA, independent aux switch) |
| 40.16 | = SQM40.165... (12.5 sec, 3-position, high/low fire feedback) |
| 40.18 | = SQM40.185R11 (12.5 sec, 3-position, 3 independent aux switches) |
| 40.21 | = SQM40.215R11 (25 sec, 135 Ohm/2-10 VDC, high/low fire feedback) |
| 40.24 | = SQM40.245A21 (25 sec, 4-20 mA/135 Ohm/2-10 VDC) |
| 40.25 | = SQM40.255... (25 sec, 4-20 mA, independent aux switch) |
| 40.26 | = SQM40.265... (25 sec, 3-position, high/low fire feedback) |
| 40.27 | = SQM40.275R10 (25 sec, high/low basic version) |
| 40.28 | = SQM40.285R11 (25 sec, 3-position, 3 independent aux switches) |
| 45.2 | = SQM45.295B9 (stepper, for use with LMV5…) |

**Voltage**

| | |
|---|---|
| Blank | = 120 Vac SQM40 or standard SQM33 or SQM45 |
| (220) | = 220 Vac (not available for SQM33 or SQM45 actuators) |

**Valve Size**

| | |
|---|---|
| 1.25 | = 1-1/4" VKF1x.032 |
| 1.5 | = 1-1/2" VKF1x.040 |
| 2.0 | = 2" VKF1x.050 |
| 2.5 | = 2-1/2" VKF1x.065 |
| 3.0 | = 3" VKF1x.080 |
| 4.0 | = 4" VKF1x.100 |
| 5.0 | = 5" VKF1x.125 |
| 6.0 | = 6" VKF1x.150 |
| 8.0 | = 8" VKF1x.200 |

**VKF Valve**

**Valve Type**

| | |
|---|---|
| 10 | = Swing-through (360° rotation) |
| 11 | = Mechanical stop at closed position |

# Product Part Numbers (continued)

The following chart provides VA…VKF1x assembly part number identification including an SQM50 actuator. Technical instructions for SQM5 (155-517) actuators are available at www.scccombustion.com.

**VA 50 . 4 Z 7 - 4.0 VKF 10 - N4**

**Valve Actuator Assembly**

**Actuator**

50 = SQM50

**Torque / Timing**

2 = 90 in-lb, 8 sec for 90° stroke
3 = 140 in-lb, 12 sec for 90° stroke
4 = 140 in-lb, 25 sec for 90° stroke

**Control Board**

Blank = AGA56.41A... (4-20 mA input)
A = AGA56.1A97 (position proportional control)
H = AGA56.42A... (0-135 Ω input)
K = AGA56.43A... (0-10 Vdc input)
Z = AGA56.9... (all inputs/outputs)

**Potentiometer**

Blank = ASZ12.30 (1000Ω, 90°) on "G", "H", "K", or "Z" board; none on "A" board
3 = ASZ12.30 (1000Ω, 90°) on "A" board only
7 = ASZ22.30 (1000Ω/1000Ω, 90°)

**Voltage**

Blank = 120 Vac
(220) = 220 Vac
(24) = 24 Vac

**Valve Size**

1.25 = 1-1/4" VKF1x.032
1.5 = 1-1/2" VKF1x.040
2.0 = 2" VKF1x.050
2.5 = 2-1/2" VKF1x.065
3.0 = 3" VKF1x.080
4.0 = 4" VKF1x.100
5.0 = 5" VKF1x.125
6.0 = 6" VKF1x.150
8.0 = 8" VKF1x.200

**VKF Valve**

**Valve Type**

10 = Swing-through (360° rotation)
11 = Mechanical stop at closed position

**Actuator NEMA Rating**

Blank = NEMA 12
N4 = NEMA 4

## Installation

- VKF1… valves can accommodate flow in either direction. The VA…VKF1x assembly may be mounted in either direction for actuator wiring convenience.
- Assembly may be mounted in any position except upside down.
- Valve position indicator shows valve position.

## Dimensions

Dimensions in inches; millimeters in brackets

### VA33…VKF1x Valve Actuator Assemblies

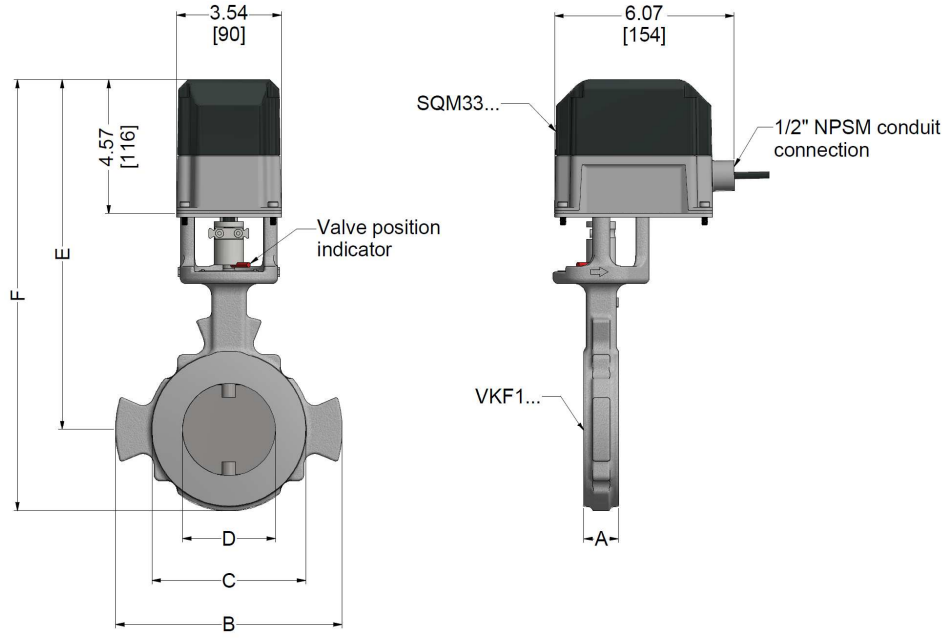



**Table 1: VA33…VKF1x Dimensions[1]**

| Valve Part Number | Valve Size | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| **VKF1x.032** | **1-1/4”** | 1.18 [30] | 4.72 [120] | 2.83 [72] | 1.26 [32] | 10.91 [277] | 12.34 [313] |
| **VKF1x.040** | **1-1/2”** | 1.18 [30] | 5.12 [130] | 3.21 [81] | 1.57 [40] | 11.07 [281] | 12.69 [322] |
| **VKF1x.050** | **2”** | 1.18 [30] | 6.10 [155] | 3.97 [101] | 1.97 [50] | 11.26 [286] | 13.27 [337] |
| **VKF1x.065** | **2-1/2”** | 1.18 [30] | 6.50 [165] | 4.72 [120] | 2.56 [65] | 11.56 [294] | 14.80 [376] |
| **VKF1x.080** | **3”** | 1.18 [30] | 7.68 [195] | 5.21 [132] | 3.15 [80] | 11.85 [301] | 14.63 [372] |
| **VKF1x.100** | **4”** | 1.18 [30] | 8.66 [220] | 6.30 [160] | 3.94 [100] | 12.25 [311] | 16.03 [407] |
| **VKF1x.125** | **5”** | 1.57 [40] | 9.84 [250] | 7.48 [190] | 4.92 [125] | 13.72 [348] | 18.04 [458] |
| **VKF1x.150[2]** | **6”** | 1.57 [40] | 11.81 [300] | 8.50 [216] | 5.91 [150] | 14.22 [361] | 19.72 [501] |
| **VKF1x.200** | **8”** | 1.57 [40] | 13.39 [340] | 10.67 [271] | 7.87 [200] | 15.20 [386] | 21.89 [556] |

[1] Mating flange bolt circles and recommended bolts can be found in VKF1… Technical Instructions n7673us.

[2] Butt-weld flanges and non-standard gaskets must be used when mounting a 6” valve between 8” flanges. See VKF1… Technical Instructions n7673us for more details.

# Dimensions (continued)

Dimensions in inches; millimeters in brackets

### VA40…VKF1x Valve Actuator Assemblies

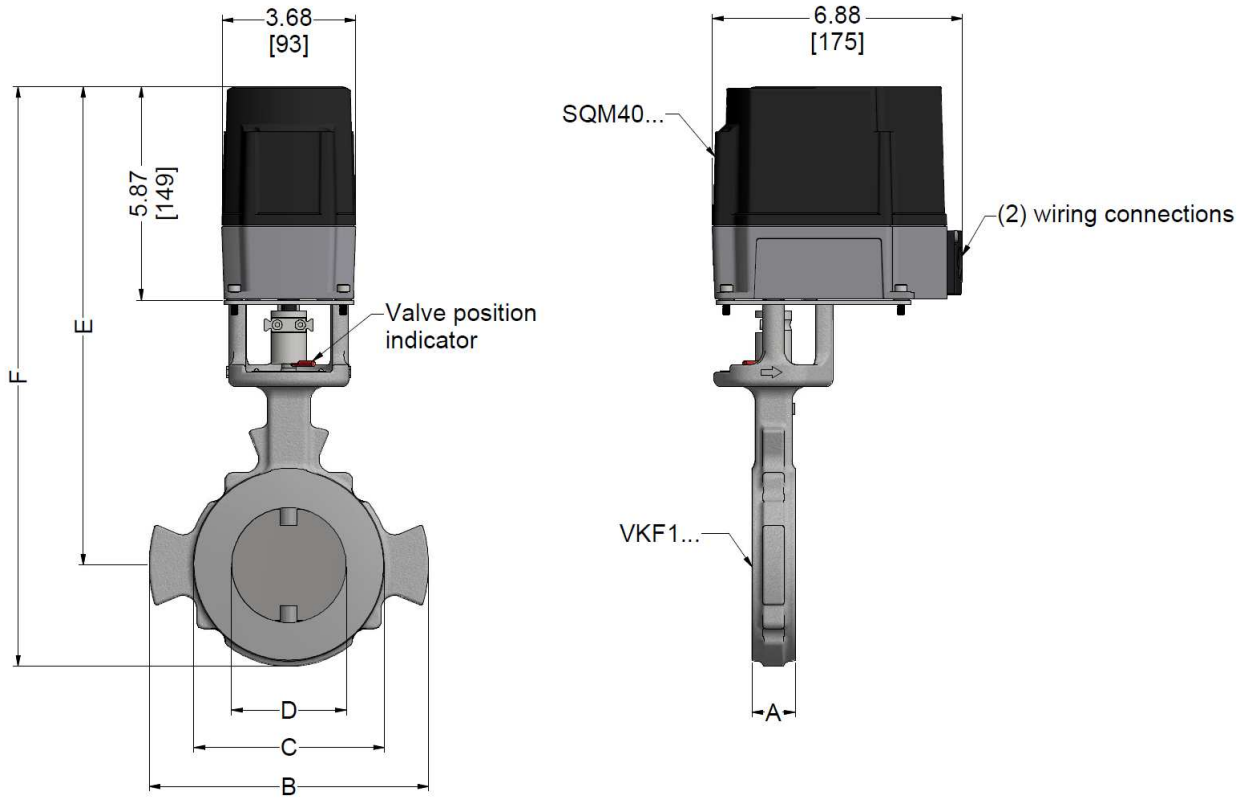



**Table 2: VA40…VKF1x Dimensions[1]**

| Valve Part Number | Valve Size | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| **VKF1x.032** | **1-1/4”** | 1.18 [30] | 4.72 [120] | 2.83 [72] | 1.26 [32] | 12.21 [310] | 13.64 [346] |
| **VKF1x.040** | **1-1/2”** | 1.18 [30] | 5.12 [130] | 3.21 [81] | 1.57 [40] | 12.37 [314] | 13.99 [355] |
| **VKF1x.050** | **2”** | 1.18 [30] | 6.10 [155] | 3.97 [101] | 1.97 [50] | 12.56 [319] | 14.57 [370] |
| **VKF1x.065** | **2-1/2”** | 1.18 [30] | 6.50 [165] | 4.72 [120] | 2.56 [65] | 12.86 [327] | 16.10 [409] |
| **VKF1x.080** | **3”** | 1.18 [30] | 7.68 [195] | 5.21 [132] | 3.15 [80] | 13.15 [334] | 15.93 [405] |
| **VKF1x.100** | **4”** | 1.18 [30] | 8.66 [220] | 6.30 [160] | 3.94 [100] | 13.55 [344] | 17.33 [440] |
| **VKF1x.125** | **5”** | 1.57 [40] | 9.84 [250] | 7.48 [190] | 4.92 [125] | 15.02 [382] | 19.34 [491] |
| **VKF1x.150[2]** | **6”** | 1.57 [40] | 11.81 [300] | 8.50 [216] | 5.91 [150] | 15.52 [394] | 21.02 [534] |
| **VKF1x.200** | **8”** | 1.57 [40] | 13.39 [340] | 10.67 [271] | 7.87 [200] | 16.50 [419] | 23.19 [589] |

[1] Mating flange bolt circles and recommended bolts can be found in VKF1… Technical Instructions n7673us.

[2] Butt-weld flanges and non-standard gaskets must be used when mounting a 6” valve between 8” flanges. See VKF1… Technical Instructions n7673us for more details.

# Dimensions (continued)

Dimensions in inches; millimeters in brackets

### VA45…VKF1x Valve Actuator Assemblies

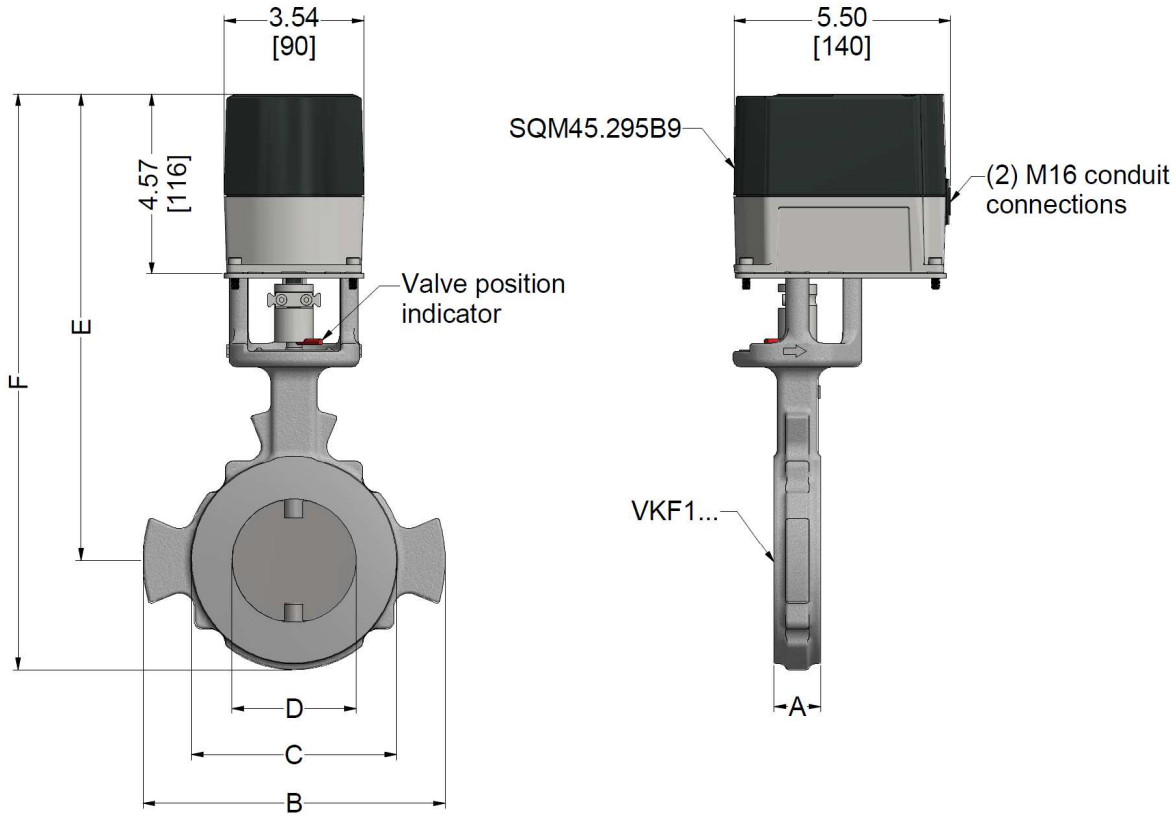



**Table 3: VA45…VKF1x Dimensions[1]**

| Valve Part Number | Valve Size | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| **VKF1x.032** | **1-1/4”** | 1.18 [30] | 4.72 [120] | 2.83 [72] | 1.26 [32] | 10.91 [277] | 12.34 [313] |
| **VKF1x.040** | **1-1/2”** | 1.18 [30] | 5.12 [130] | 3.21 [81] | 1.57 [40] | 11.07 [281] | 12.69 [322] |
| **VKF1x.050** | **2”** | 1.18 [30] | 6.10 [155] | 3.97 [101] | 1.97 [50] | 11.26 [286] | 13.27 [337] |
| **VKF1x.065** | **2-1/2”** | 1.18 [30] | 6.50 [165] | 4.72 [120] | 2.56 [65] | 11.56 [294] | 14.80 [376] |
| **VKF1x.080** | **3”** | 1.18 [30] | 7.68 [195] | 5.21 [132] | 3.15 [80] | 11.85 [301] | 14.63 [372] |
| **VKF1x.100** | **4”** | 1.18 [30] | 8.66 [220] | 6.30 [160] | 3.94 [100] | 12.25 [311] | 16.03 [407] |
| **VKF1x.125** | **5”** | 1.57 [40] | 9.84 [250] | 7.48 [190] | 4.92 [125] | 13.72 [348] | 18.04 [458] |
| **VKF1x.150[2]** | **6”** | 1.57 [40] | 11.81 [300] | 8.50 [216] | 5.91 [150] | 14.22 [361] | 19.72 [501] |
| **VKF1x.200** | **8”** | 1.57 [40] | 13.39 [340] | 10.67 [271] | 7.87 [200] | 15.20 [386] | 21.89 [556] |

[1] Mating flange bolt circles and recommended bolts can be found in VKF1… Technical Instructions n7673us.

[2] Butt-weld flanges and non-standard gaskets must be used when mounting a 6” valve between 8” flanges. See VKF1… Technical Instructions n7673us for more details.

# Dimensions (continued)

Dimensions in inches; millimeters in brackets

### VA50…VKF1x Valve Actuator Assemblies

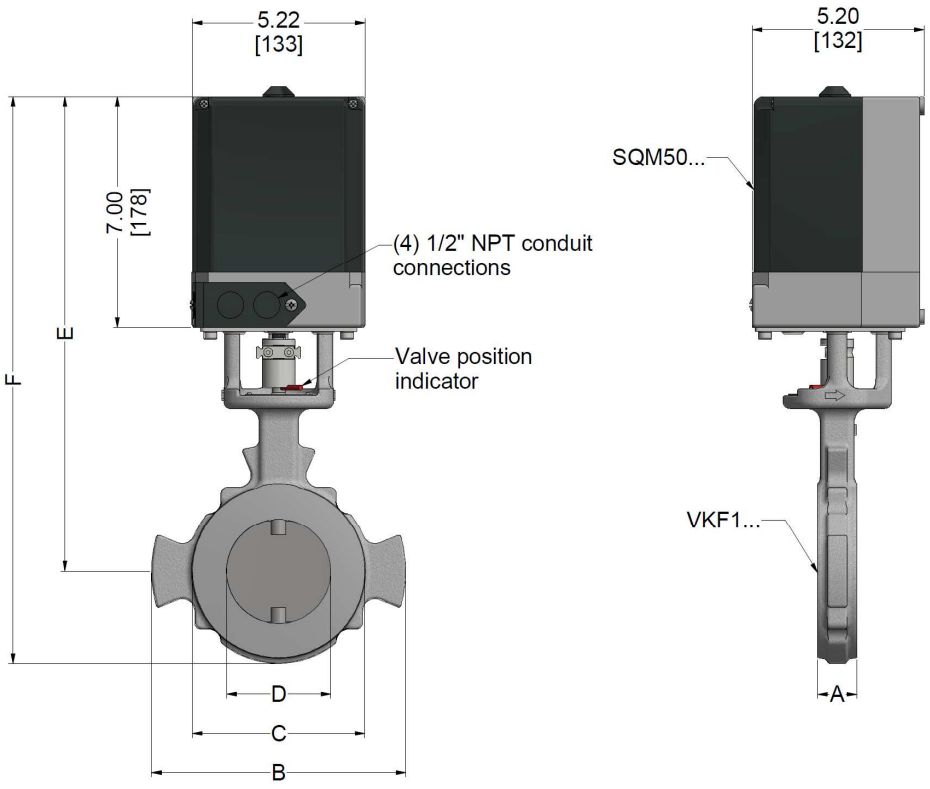



**Table 4: VA50…VKF1x Dimensions[1]**

| Valve Part Number | Valve Size | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| **VKF1x.032** | **1-1/4”** | 1.18 [30] | 4.72 [120] | 2.83 [72] | 1.26 [32] | 13.34 [310] | 14.77 [375] |
| **VKF1x.040** | **1-1/2”** | 1.18 [30] | 5.12 [130] | 3.21 [81] | 1.57 [40] | 13.50 [314] | 15.12 [384] |
| **VKF1x.050** | **2”** | 1.18 [30] | 6.10 [155] | 3.97 [101] | 1.97 [50] | 13.69 [319] | 15.70 [399] |
| **VKF1x.065** | **2-1/2”** | 1.18 [30] | 6.50 [165] | 4.72 [120] | 2.56 [65] | 13.99 [327] | 17.23 [438] |
| **VKF1x.080** | **3”** | 1.18 [30] | 7.68 [195] | 5.21 [132] | 3.15 [80] | 14.28 [334] | 17.06 [433] |
| **VKF1x.100** | **4”** | 1.18 [30] | 8.66 [220] | 6.30 [160] | 3.94 [100] | 14.68 [344] | 18.46 [469] |
| **VKF1x.125** | **5”** | 1.57 [40] | 9.84 [250] | 7.48 [190] | 4.92 [125] | 16.15 [382] | 20.47 [520] |
| **VKF1x.150[2]** | **6”** | 1.57 [40] | 11.81 [300] | 8.50 [216] | 5.91 [150] | 16.65 [394] | 22.15 [563] |
| **VKF1x.200** | **8”** | 1.57 [40] | 13.39 [340] | 10.67 [271] | 7.87 [200] | 17.63 [419] | 24.32 [618] |

[1] Mating flange bolt circles and recommended bolts can be found in VKF1… Technical Instructions n7673us.

[2] Butt-weld flanges and non-standard gaskets must be used when mounting a 6” valve between 8” flanges. See VKF1… Technical Instructions n7673us for more details.

# Dimensions (continued)

Dimensions in inches; millimeters in brackets

### VA50…VKF1x-N4 Valve Actuator Assemblies

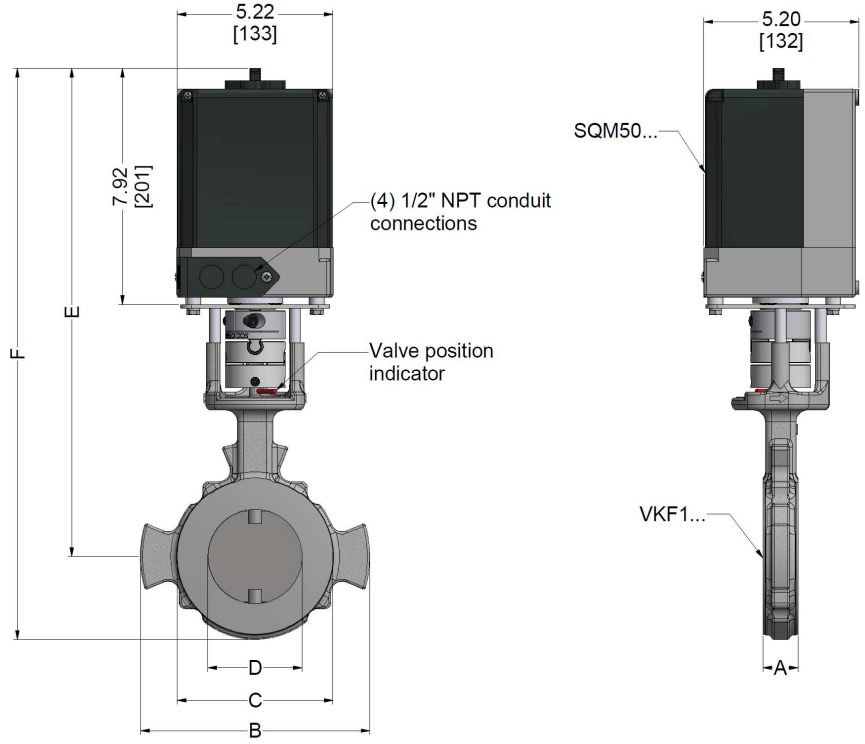



**Table 4: VA50…VKF1x-N4 Dimensions[1]**

| Valve Part Number | Valve Size | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| **VKF1x.032** | **1-1/4”** | 1.18 [30] | 4.72 [120] | 2.83 [72] | 1.26 [32] | 15.42 [392] | 16.86 [428] |
| **VKF1x.040** | **1-1/2”** | 1.18 [30] | 5.12 [130] | 3.21 [81] | 1.57 [40] | 15.58 [396] | 17.20 [437] |
| **VKF1x.050** | **2”** | 1.18 [30] | 6.10 [155] | 3.97 [101] | 1.97 [50] | 15.77 [401] | 17.78 [452] |
| **VKF1x.065** | **2-1/2”** | 1.18 [30] | 6.50 [165] | 4.72 [120] | 2.56 [65] | 16.07 [408] | 19.32 [491] |
| **VKF1x.080** | **3”** | 1.18 [30] | 7.68 [195] | 5.21 [132] | 3.15 [80] | 16.36 [416] | 19.14 [486] |
| **VKF1x.100** | **4”** | 1.18 [30] | 8.66 [220] | 6.30 [160] | 3.94 [100] | 16.76 [426] | 20.54 [522] |
| **VKF1x.125** | **5”** | 1.57 [40] | 9.84 [250] | 7.48 [190] | 4.92 [125] | 18.24 [463] | 22.55 [573] |
| **VKF1x.150[2]** | **6”** | 1.57 [40] | 11.81 [300] | 8.50 [216] | 5.91 [150] | 18.73 [476] | 24.24 [616] |
| **VKF1x.200** | **8”** | 1.57 [40] | 13.39 [340] | 10.67 [271] | 7.87 [200] | 19.71 [501] | 26.40 [671] |

[1] Mating flange bolt circles and recommended bolts can be found in VKF1… Technical Instructions n7673us.

[2] Butt-weld flanges and non-standard gaskets must be used when mounting a 6” valve between 8” flanges. See VKF1… Technical Instructions n7673us for more details.

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