

# VKD Series Automated Ball Valves

## Product Data Sheet



### < STANDARDS >



ASTM D1784  
ASTM D2464  
ASTM D2466  
ASTM D2467  
ASTM D4101  
ASTM F1498  
ASTM F437  
ASTM F439



ANSI B1.20.1



ISO 11922-1

IPEX VKD Series Automated Ball Valves offer a variety of advanced features such as the patented seat stop carrier, a high quality stem and ball support system, and the new DUAL BLOCK® system which locks the union nuts, preventing back-off due to vibration or thermal cycling. Deep grooves, thick o-rings, and cushioned Teflon® seats contribute to strong seals at pressures up to 232psi while an integral mounting flange and support bracketing combine for simple adaptation for actuation and anchoring. VKD Series Automated Ball Valves are part of our complete systems of pipe, valves, and fittings, engineered and manufactured to our strict quality, performance, and dimensional standards.

### Valve Availability

Body Material:	PVC, CPVC, PP
Size Range:	1/2" through 4"
Pressure:	232psi, 150psi (PP)
Seats:	Teflon® (PTFE)
Seals:	EPDM or FPM
End Connections:	Socket (IPS), Threaded (FNPT), Socket (Metric)
Actuator Control:	Double Acting Pneumatic, Spring Return Pneumatic, Electric

**Note:** PVDF valves available on request.

# VKD Series Automated Ball Valves

## Sample Specification

### Samples Specifications

#### 1.0 Ball Valves - VKD

##### 1.1 Material

- The valve body, stem, ball and unions shall be made of PVC compound which shall meet or exceed the requirements of cell classification 12454 according to ASTM D1784.
- or The valve body, stem, ball and unions shall be made of Corzan® CPVC compound which shall meet or exceed the requirements of 23447 according to ASTM D1784.
- or The valve body, stem, ball and unions shall be made of stabilized PP homopolymer compound, also containing a RAL 7032 pigment, which shall meet or exceed the requirements of Type I Polypropylene according to ASTM D4101.

##### 1.2 Seats

- The ball seats shall be made of Teflon® (PTFE).

##### 1.3 Seals

- The o-ring seals shall be made of EPDM.
- or The o-ring seals shall be made of FPM.

#### 2.0 Connections

##### 2.1 Socket style

- The IPS socket PVC end connectors shall conform to the dimensional standards ASTM D2466 and ASTM D2467.
- or The IPS socket CPVC end connectors shall conform to the dimensional standard ASTM F439.
- or The Metric socket PP end connectors shall conform to the dimensional standard ISO 11922-1.

##### 2.2 Threaded style

- The female NPT threaded PVC end connectors shall conform to the dimensional standards ASTM D2464, ASTM F1498, and ANSI B1.20.1.
- or The female NPT threaded CPVC end connectors shall conform to the dimensional standards ASTM F437, ASTM F1498, and ANSI B1.20.1.
- or The female NPT threaded PP end connectors shall conform to the dimensional standards ASTM F1498, and ANSI B1.20.1.

#### 3.0 Design Features

- The valve shall be double blocking with union ends.
- All valves shall be full port.
- All valves shall allow for bi-directional flow.
- The valve body shall be single end entry with a threaded carrier (ball seat support).
- The threaded carrier shall be adjustable with the valve installed.
- The valve body shall have an expansion and contraction compensating groove on the molded end.
- The valve body, union nuts and carrier shall have deep square style threads for increased strength.
- The ball and stem shall be machined smooth to minimize wear on valve seats and seals.
- All valve seats shall have o-ring backing cushions to compensate for wear and prevent seizure of the ball.
- The stem design shall feature double o-ring seals as well as a safety shear point above the o-rings.
- All valves shall have integrally molded mounting features for actuation.
- All valves shall have integrally molded support bracketing for anchoring.
- The valve shall include the Dual Block® union nut locking mechanism.

#### 3.1 Pressure Testing

- All valves shall have been pressure tested in both the open and closed positions by the manufacturer.

#### 3.2 Pressure Rating

- All PVC and CPVC valves shall be rated at 232psi at 73°F.
- All PP valves shall be rated at 150psi at 73°F.

#### 3.3 Markings

- All valves shall be marked to indicate size, material designation, and manufacturers name or trade mark.

#### 3.4 Color Coding

- All PVC valves shall be color-coded dark gray.
- or All CPVC valves shall be color-coded light gray.
- or All PP valves shall be color coded beige gray.

# VKD Series Automated Ball Valves

## Sample Specification (cont'd)

### 4.0

All valves shall be Xirtec® 140, Corzan® or SFPP by IPEX or approved equal.

### 5.0 Actuators

- All Actuators shall be factory installed by IPEX

#### Pneumatic Actuator:

- Shall be sized for 80 psi control air pressure
- Shall be dual piston rack and pinion design with linear torque output.
- Body shall be Technopolymer UT series or Anodized Aluminum MT series with standard position indicator and NAMUR VDI/VDE 3845 and ISO 5211 mounting dimensions.
- All models shall be operable using air, water, nitrogen or compatible hydraulic fluids from 40 – 120psi.
- Aluminum body models shall feature dual travel stops that provide +/- 10° stroke rotation on both the opening and closing phases.
- All external fasteners shall be stainless steel.

#### Electric Actuator:

- Shall have 100VAC – 240VAC reversing motors with torque limiters, thermal protection, auxiliary limit switches, NEMA 4X enclosure\*, manual override, and position indicator as standard.
- or
- Shall have 24VDC reversing motors with torque limiters, thermal protection, auxiliary limit switches, NEMA 4X enclosure\*, manual override, and position indicator as standard.
  - 4-20mA positioner, battery backup, and 180° rotation models shall be available in 100 – 240VAC and 24VDC
  - All models shall have ISO 5211 mounting dimensions

\* Type 4X Indoor Use Only Enclosure

# VKD Series Automated Ball Valves

## Sample Specification (cont'd)

### Valve Selection

Size (inches)	Body Material	Seal Material	IPEX Part Number							
			Pneumatic Double Acting		Pneumatic Spring Return, Normally Closed		Pneumatic Spring Return, Normally Open		Electric Double Acting, 100-240 VAC	
			IPS Socket	FNPT Threaded	IPS Socket	FNPT Threaded	IPS Socket	FNPT Threaded	IPS Socket	FNPT Threaded
1/2	PVC	EPDM	253296		253332		253368		253404	
		FPM	253305		253341		253377		253413	
	CPVC	EPDM	253314		253350		253386		253422	
		FPM	253323		253359		253395		253431	
3/4	PVC	EPDM	253297		253333		253369		253405	
		FPM	253306		253342		253378		253414	
	CPVC	EPDM	253315		253351		253387		253423	
		FPM	253324		253360		253396		253432	
1	PVC	EPDM	253298		253334		253370		253406	
		FPM	253307		253343		253379		2534715	
	CPVC	EPDM	253316		253352		253388		253424	
		FPM	253325		253361		253397		253433	
1-1/4	PVC	EPDM	253299		253335		253371		253407	
		FPM	253308		253344		253380		253416	
	CPVC	EPDM	253317		253353		253389		253425	
		FPM	253326		253362		253398		253434	
1-1/2	PVC	EPDM	253300		253336		253372		253408	
		FPM	253309		253345		253381		253417	
	CPVC	EPDM	253318		253354		253390		253426	
		FPM	253327		253363		253399		253435	
2	PVC	EPDM	253301		253337		253353		253409	
		FPM	253310		253346		253382		253418	
	CPVC	EPDM	253319		253355		253391		253427	
		FPM	253328		253364		253400		253436	
2-1/2	PVC	EPDM	253302	-	253338	-	253374	-	253410	-
		FPM	253311	-	253347	-	253383	-	253419	-
	CPVC	EPDM	253320	-	253356	-	253392	-	253428	-
		FPM	253329	-	253365	-	253401	-	253437	-
3	PVC	EPDM	253303	-	253339	-	253375	-	253411	-
		FPM	253312	-	253348	-	253384	-	253420	-
	CPVC	EPDM	253321	-	253357	-	253393	-	253429	-
		FPM	253330	-	253366	-	253402	-	253438	-
4	PVC	EPDM	253304	-	253340	-	253376	-	253412	-
		FPM	253313	-	253349	-	253385	-	253421	-
	CPVC	EPDM	253322	-	253358	-	253394	-	253430	-
		FPM	253331	-	253367	-	253403	-	253439	-

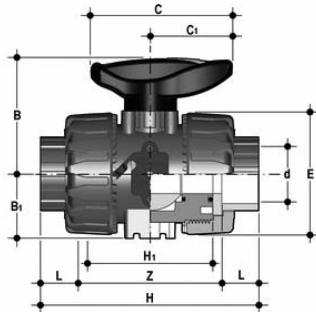
# VKD Series Automated Ball Valves

## Technical Data

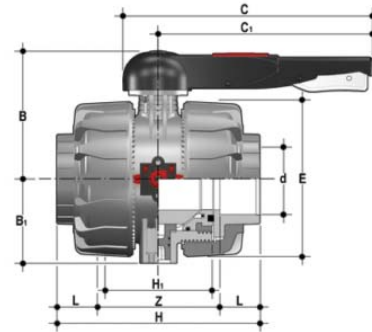
### Dimensions

#### IPS Socket Connections

Sizes: 1/2" – 2"



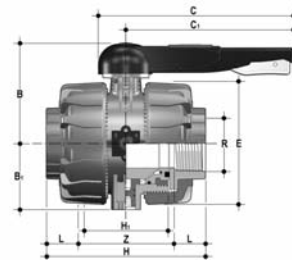
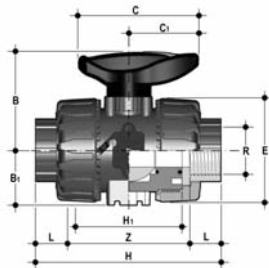
Sizes: 2-1/2" – 4"



Dimensions (inches)

Size	d	L	Z	H	H1	E	B1	B	C1	C
1/2	0.84	0.89	2.83	4.61	2.56	2.13	1.14	2.13	1.57	2.64
3/4	1.05	1.00	3.07	5.08	2.76	2.56	1.36	2.56	1.93	3.35
1	1.32	1.13	3.33	5.59	3.07	2.87	1.54	2.74	1.93	3.35
1-1/4	1.66	1.26	3.86	6.38	3.46	3.39	1.81	3.25	2.52	4.25
1-1/2	1.90	1.38	4.02	6.77	3.66	3.86	2.05	3.50	2.52	4.25
2	2.38	1.50	4.83	7.83	4.37	4.80	2.44	4.25	2.99	5.28
2-1/2	2.88	1.75	5.75	9.25	5.24	6.46	3.43	6.46	6.89	8.86
3	3.50	1.89	6.85	10.63	5.87	7.99	4.13	6.97	10.71	12.87
4	4.50	2.26	7.60	12.13	6.57	9.37	5.08	7.80	12.99	15.16

#### Female NPT Threaded Connections



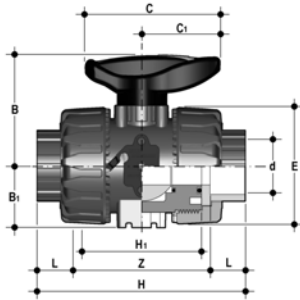
Dimension (inches)

Size	R	H	L	Z	H1	E	B1	B	C1	C
3/8	3/8-UPT	4.06	0.54	2.98	2.56	2.13	1.14	2.13	1.57	2.69
1/2	1/2-NPT	4.37	0.70	2.97	2.56	2.13	1.14	2.13	1.57	2.64
3/4	3/4-NPT	4.61	0.71	3.19	2.76	2.56	1.36	2.56	1.93	3.35
1	1-NPT	5.31	0.89	3.54	3.07	2.87	1.54	2.74	1.93	3.35
1-1/4	1-1/4-NPT	6.02	0.99	4.05	3.46	3.39	1.81	3.25	2.52	4.25
1-1/2	1-1/2-NPT	6.14	0.97	4.20	3.66	3.86	2.05	3.50	2.52	4.25
2	2-NPT	7.32	1.17	4.99	4.37	4.80	2.44	4.25	2.99	5.28
2-1/2	2-1/2-NPT	9.25	1.31	6.64	5.24	6.46	3.43	6.46	6.89	8.86
3	3-NPT	10.63	1.40	7.83	5.87	7.99	4.13	6.97	10.71	12.87
4	4-NPT	12.13	1.48	9.17	6.57	9.37	5.08	7.68	12.99	15.16

# VKD Series Automated Ball Valves

## Technical Data

### Metric Socket Connections

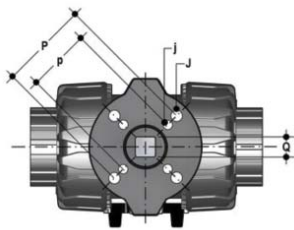


Dimension (inches)

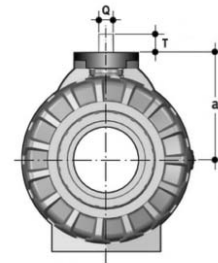
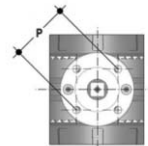
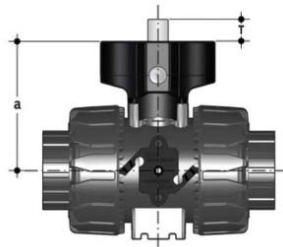
Size	d	H	L	Z	H1	E	B1	B	C1	C
20mm	0.79	4.02	0.57	2.87	2.56	2.13	1.14	2.13	1.57	2.64
25mm	0.98	4.49	0.63	3.23	2.76	2.56	1.36	2.56	1.93	3.35
32mm	1.26	4.96	0.71	3.54	3.07	2.87	1.54	2.74	1.93	3.35
40mm	1.57	5.55	0.81	3.94	3.35	3.39	1.81	3.25	2.52	4.25
50mm	1.97	6.46	0.93	4.61	3.66	3.86	2.05	3.50	2.52	4.25
63mm	2.48	7.83	1.08	5.67	4.37	4.80	2.44	4.25	2.99	5.28

### Automation Pad

Sizes: 1/2" – 2"



Sizes: 2-1/2" – 4"



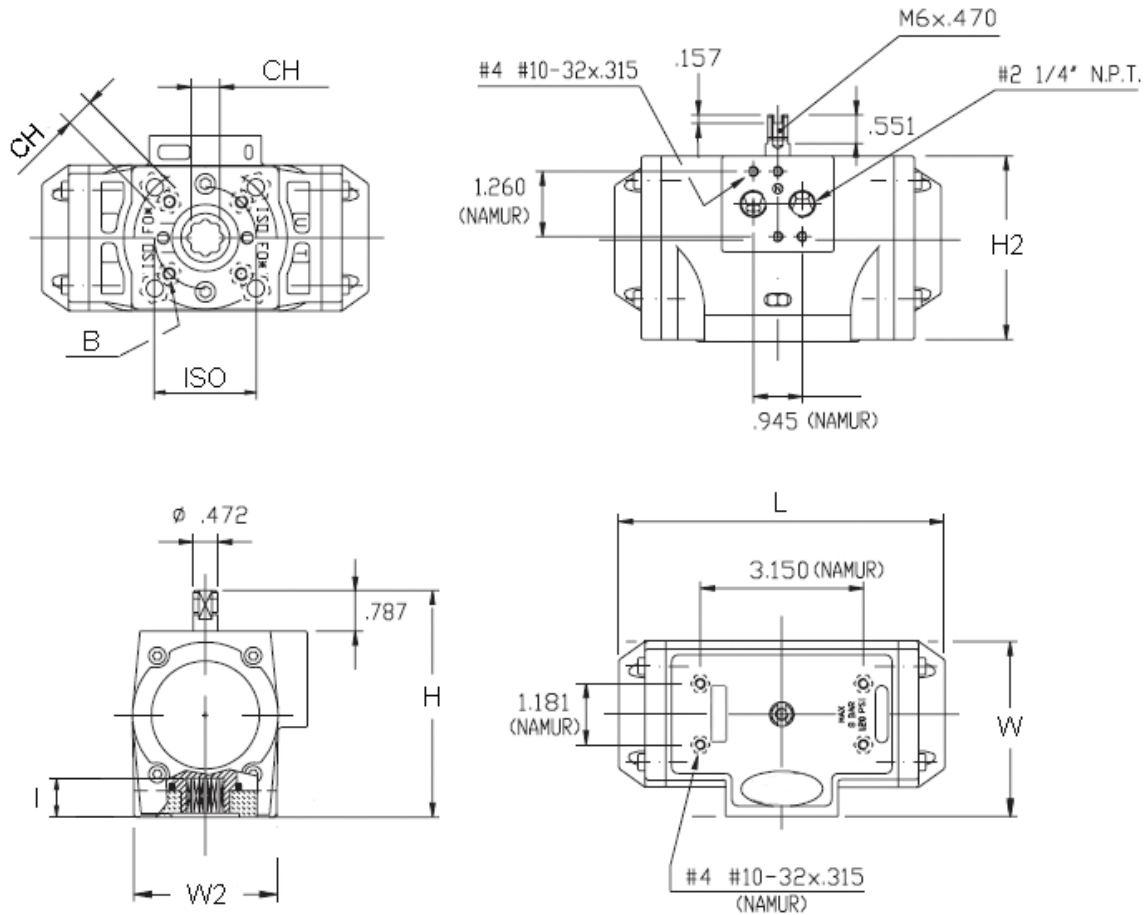
Dimensions (inches)

Size	a	T	Q	p / P	j / J
1/2	2.28	0.47	0.43	F03 / F04	0.22
3/4	2.89	0.47	0.43	F03 / F05 or F04	0.22 / 0.26 or 0.22
1	2.91	0.47	0.43	F03 / F05 or F04	0.22 / 0.26 or 0.22
1-1/4	3.82	0.63	0.43 or 0.55	F05	0.26
1-1/2	4.09	0.63	0.43 or 0.55	F05	0.26
2	4.49	0.63	0.43 or 0.55	F05 / F07	0.26 / 0.33
2-1/2	4.69	0.63	0.55	F07	-
3	5.20	0.63	0.55	F07	-
4	5.91	0.75	0.67	F07	-

# VKD Series Automated Ball Valves

## Technical Data

Models UT11, UT14, UT19



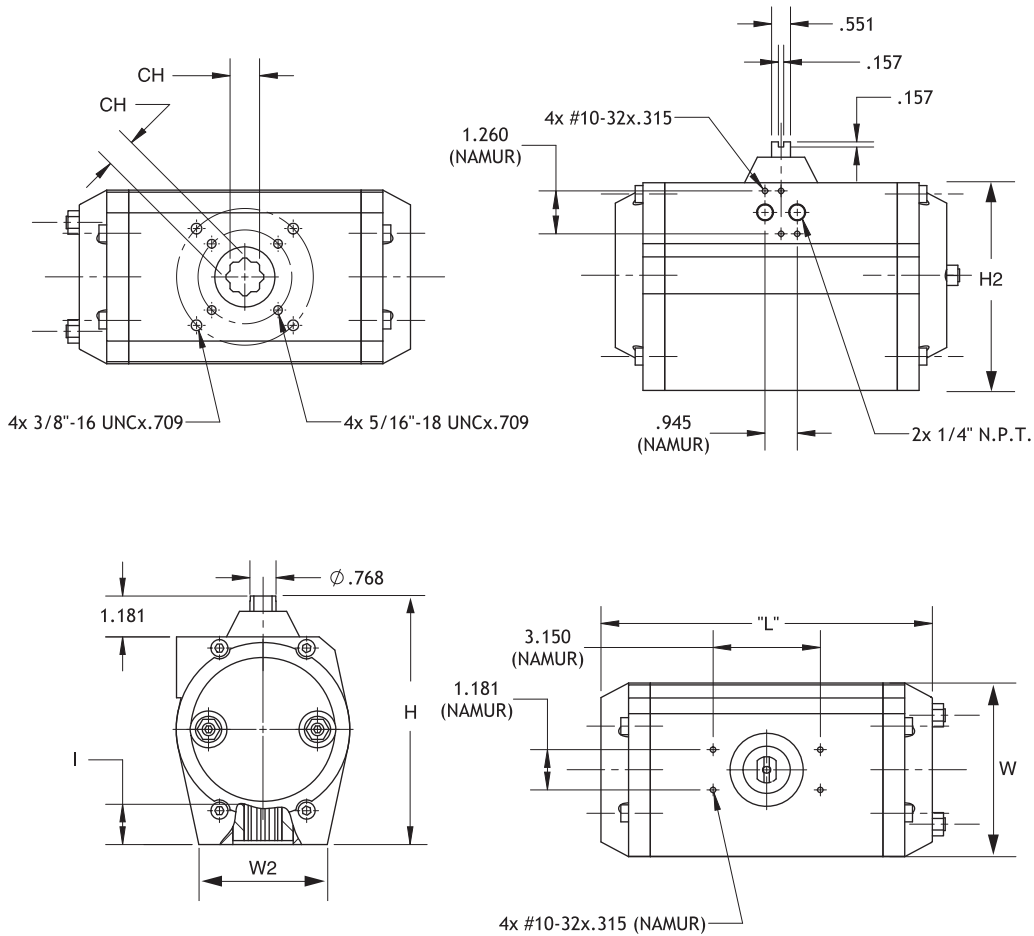
Dimensions (inches)

Valve Size	Double Acting Model	ISO	CH	L	W	W2	H	H2	I	B
1/2	UT11DA	F04	0.43	4.69	2.64	2.09	3.58	2.76	0.49	10-32 UNF x 0.40
3/4	UT11DA	F04	0.43	4.69	2.64	2.09	3.58	2.76	0.49	10-32 UNF x 0.40
1	UT11DA	F04	0.43	4.69	2.64	2.09	3.58	2.76	0.49	10-32 UNF x 0.40
1-1/4	UT14DA	F05 / F07	0.55	6.30	3.39	2.76	4.37	3.54	0.75	1/4-20 UNC x 0.51
1-1/2	UT14DA	F05 / F07	0.55	6.30	3.39	2.76	4.37	3.54	0.75	1/4-20 UNC x 0.51
2	UT14DA	F05 / F07	0.55	6.30	3.39	2.76	4.37	3.54	0.75	1/4-20 UNC x 0.51
2-1/2	UT19DA	F05 / F07	0.67	6.89	3.98	2.76	5.22	4.39	0.91	5/16-18 UNC x 0.51
3	UT19DA	F05 / F07	0.67	6.89	3.98	2.76	5.22	4.39	0.91	5/16-18 UNC x 0.51
4	MT26DA	F05 / F07	0.67	9.41	3.78	3.01	5.04	3.86	0.75	5/16-18 UNC x 0.51

# VKD Series Automated Ball Valves

## Technical Data

Models UT26, UT31, UT36



Dimensions (inches)

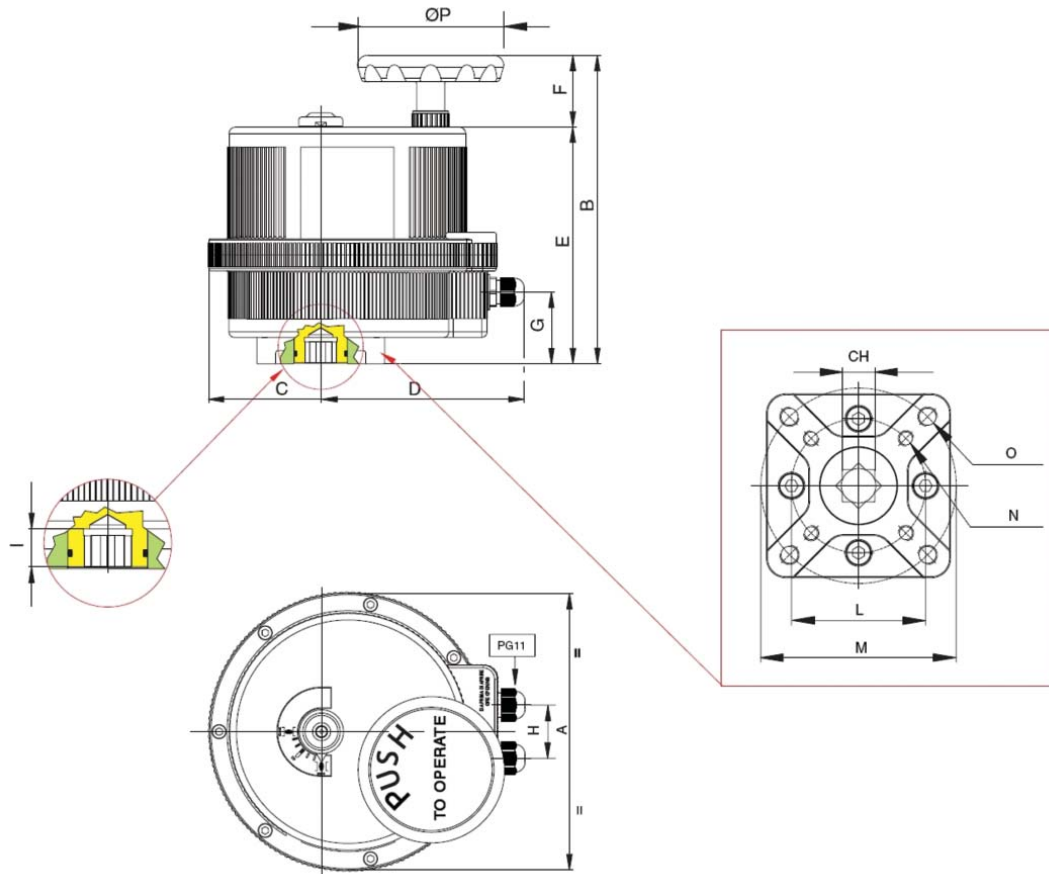
Valve Size	Spring Return Model	ISO	CH	L	W	W2	H	H2	I	B
1/2	UT11S2	F04	0.43	4.69	2.64	2.09	3.58	2.76	0.49	10-32 UNF x 0.40
3/4	UT11S2	F04	0.43	4.69	2.64	2.09	3.58	2.76	0.49	10-32 UNF x 0.40
1	UT11S2	F04	0.43	4.69	2.64	2.09	3.58	2.76	0.49	10-32 UNF x 0.40
1-1/4	UT14S4	F05 / F07	0.55	6.30	3.39	2.76	4.37	3.54	0.75	1/4-20 UNC x 0.51
1-1/2	UT19S5	F05 / F07	0.67	6.89	3.98	2.76	5.22	4.39	0.91	5/16-18 UNC x 0.51
2	UT19S5	F05 / F07	0.67	6.89	3.98	2.76	5.22	4.39	0.91	5/16-18 UNC x 0.51
2-1/2	MT31S4	F05 / F07	0.67	9.06	4.49	3.56	5.79	4.62	0.91	5/16-18 UNC x 0.51
3	MT31S4	F05 / F07	0.67	9.06	4.49	3.56	5.79	4.62	0.91	5/16-18 UNC x 0.51
4	MT36S4	F05 / F07	0.87	9.69	5.10	3.76	7.24	6.06	1.18	3/8-16 UNC x 0.71



# VKD Series Automated Ball Valves

## Technical Data

### Electric Actuator Dimensions



Dimensions (inches)

Valve Size	Actuator Model	ISO	CH	A	B	C	D	E	F	G	H	I	L	M	N	O	ØP
1/2	VB015	F03/F05	0.43	4.84	5.57	1.67	4.74	4.96	0.61	4.06	1.26	0.55	1.42	1.97	10-24 UNC 2BX0.47	1/4-20 UNC 2BX0.55	2.68
3/4	VB015	F03/F05	0.43	4.84	5.57	1.67	4.74	4.96	0.61	4.06	1.26	0.55	1.42	1.97	10-24 UNC 2BX0.47	1/4-20 UNC 2BX0.55	2.68
1	VB015	F03/F05	0.43	4.84	5.57	1.67	4.74	4.96	0.61	4.06	1.26	0.55	1.42	1.97	10-24 UNC 2BX0.47	1/4-20 UNC 2BX0.55	2.68
1-1/4	VB015	F03/F05	0.43	4.84	5.57	1.67	4.74	4.96	0.61	4.06	1.26	0.55	1.42	1.97	10-24 UNC 2BX0.47	1/4-20 UNC 2BX0.55	2.68
1-1/2	VB015	F03/F05	0.43	4.84	5.57	1.67	4.74	4.96	0.61	4.06	1.26	0.55	1.42	1.97	10-24 UNC 2BX0.47	1/4-20 UNC 2BX0.55	2.68
2	VB030	F03/F05	0.43	6.18	7.40	2.38	5.12	5.75	1.64	1.30	1.42	0.47	1.42	1.97	10-24 UNC 2BX0.47	1/4-20 UNC 2BX0.55	2.56
2-1/2	VB060	F05/F07	0.55	7.28	8.46	2.66	5.77	6.81	1.65	2.01	1.42	0.63	1.97	2.76	1/4-20 UNC 2BX0.59	5/16-18 UNC 2BX0.67	2.56
3	VB060	F05/F07	0.55	7.28	8.46	2.66	5.77	6.81	1.65	2.01	1.42	0.63	1.97	2.76	1/4-20 UNC 2BX0.59	5/16-18 UNC 2BX0.67	2.56
4	VB110	F07/F10	0.67	8.31	9.14	3.31	6.02	7.01	2.13	2.13	1.58	0.75	2.76	4.02	5/16-18 UNC 2BX0.79	3/8-16 UNC 2BX0.79	4.33

# VKD Series Automated Ball Valves

## Technical Data



**Note:** Pneumatic actuator performance is based on 80 psi available control air pressure.

Valve Size (inches)	Double Acting Pneumatic	Actuator Model Spring Return Pneumatic	Electric
1/2	UT11DA	UT11S2	VB015
3/4	UT11DA	UT11S2	VB015
1	UT11DA	UT11S2	VB015
1-1/4	UT14DA	UT14S4	VB015
1-1/2	UT14DA	UT19S5	VB030
2	UT14DA	UT19S5	VB030
2-1/2	UT19DA	MT31S4	VB060
3	UT19DA	MT31S4	VB060
4	MT26DA	MT36S4	VB110

### Pneumatic Actuator Torque Data

Valve Size (inches)	Double Acting		Model	Spring Set (standard)	Spring Torque (in-lbs)		Air Torque (in-lbs)	
	Model	Torque (in-lbs)			Start	End	Start	End
1/2	UT11DA	125	UT11S2	S2	66	44	81	59
3/4	UT11DA	125	UT11S2	S2	66	44	81	59
1	UT11DA	125	UT11S2	S2	66	44	81	59
1-1/4	UT14DA	275	UT14S4	S4	150	107	168	125
1-1/2	UT14DA	275	UT19S5	S5	307	230	270	193
2	UT14DA	275	UT19S5	S5	307	230	270	193
2-1/2	UT19DA	500	MT31S4	S4	502	374	626	498
3	UT19DA	500	MT31S4	S4	502	374	626	498
4	MT26DA	750	MT36S4	S4	824	614	986	776

### Pneumatic Actuator Weights and Air Consumption

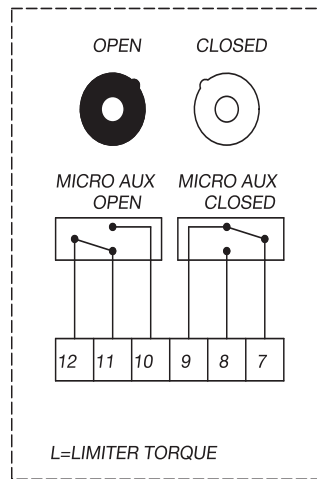
Valve Size (inches)	Double Acting			Spring Return		
	Model	Weight (lbs)	Air Cons. (in <sup>3</sup> )	Model	Weight (lbs)	Air Cons. (in <sup>3</sup> )
1/2	UT11DA	1.26	13.5	UT11S2	1.44	8.0
3/4	UT11DA	1.26	13.5	UT11S2	1.44	8.0
1	UT11DA	1.26	13.5	UT11S2	1.44	8.0
1-1/4	UT14DA	2.62	22.0	UT14S4	3.06	10.8
1-1/2	UT14DA	2.62	22.0	UT19S5	5.16	17.5
2	UT14DA	2.62	22.0	UT19S5	5.16	17.5
2-1/2	UT19DA	4.34	40.6	MT31S4	10.7	40.6
3	UT19DA	4.34	40.6	MT31S4	10.7	40.6
4	MT26DA	7.15	68.7	MT36S4	17.8	75.0

# VKD Series Automated Ball Valves

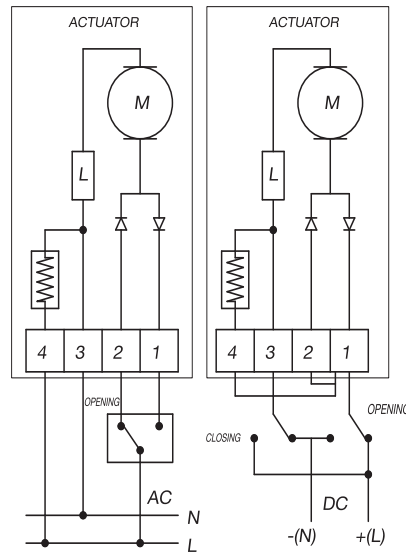
## Technical Data

### Electrical Actuator

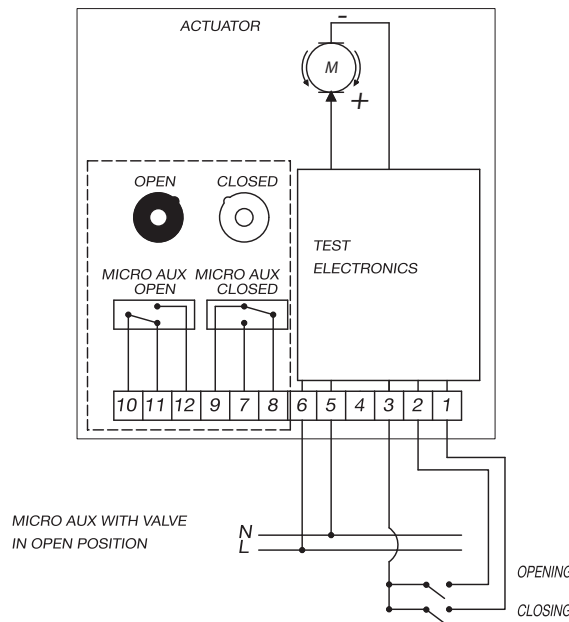
#### Model VB015 24V AC/DC



MICRO AUX WITH VALVE  
IN OPEN POSITION

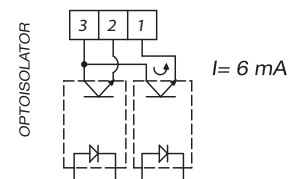


#### Model VB015 100V – 240V AC



MICRO AUX WITH VALVE  
IN OPEN POSITION

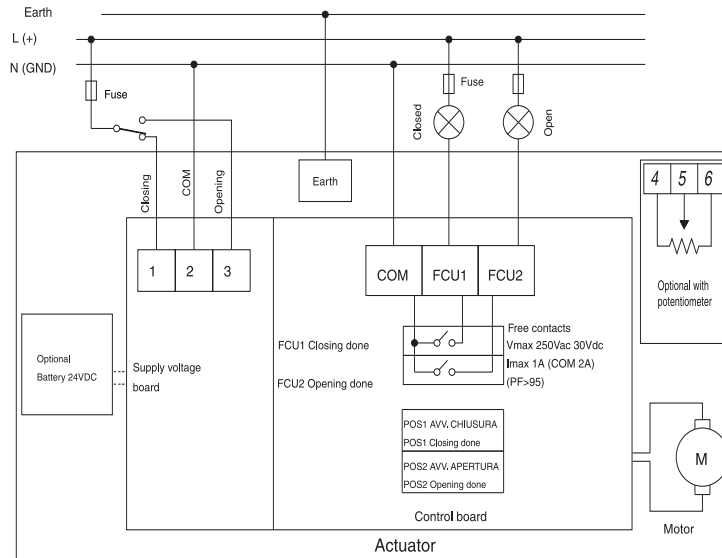
STATIC IMPULSE DRIVE OPTOISOLATED BY PLC



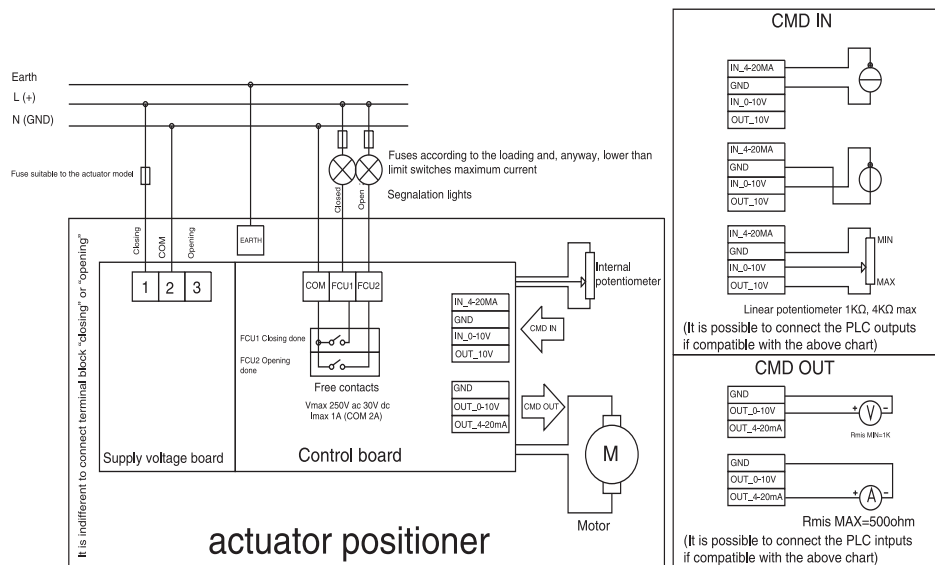
# VKD Series Automated Ball Valves

## Technical Data

Model VB030 to VB350 24V AC/DC, 110 – 240V AC



VB030 to VB350 24V AC/DC, 110 – 240V AC with Positioner



# VKD Series Automated Ball Valves

## Technical Data

Model	VB015	VB030	VB060	VB110		
Max Working Torque (in-Lbs)	133	266	530	975		
Voltage (V)	Low Voltage		12V AC/DC	12V DC	12V DC	12V DC
			24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC
	High Voltage Multitension		100-240V AC	100-240V AC	100-240V AC	100-240V AC
Working Time (sec)	10	8	9	27		
Torque Limiter	STD	STD	STD	STD		
Duty Rating	50%	75%	75%	75%		
Protection	IP65 ** NEMA 4X*	IP65-67 NEMA 4X*	IP65-67 NEMA 4X*	IP65-67 NEMA 4X*		
Rotation	90°	90°	90°	90°		
Upon Request	180°	180° or 70°	80° or 70°	80° or 70°		
Manual Intervention	STD	STD	STD	STD		
Position Indicator	STD	STD	STD	STD		
Working Temperature	-4F +131F	-4F +131F	-4F +131F	-4F +131F		
Heater	STD	STD	STD	STD		
Additional Free Limit Switches	2 STD	2 STD	2 STD	2 STD		
Drilling ISO 5211 PAD	F03 – F05	F03 – F05	F05 – F07	F07 – F10		
Square Drive	0.43	0.43	0.55	0.67		
Square Upon Request	0.35	0.35 – 0.55	0.43 – 0.67	0.55 – 0.87		
Positioner (4~20mA or 0~10 VDC)	Not Available	Upon Request	Upon Request	Upon Request		
Electrical Connections	PG11	PG11	PG11	PG11		
Weight (LBS)	3.09	5.07	7.28	10.80		

\* Type 4X Indoor Use Only Enclosure  
\*\* UL pending

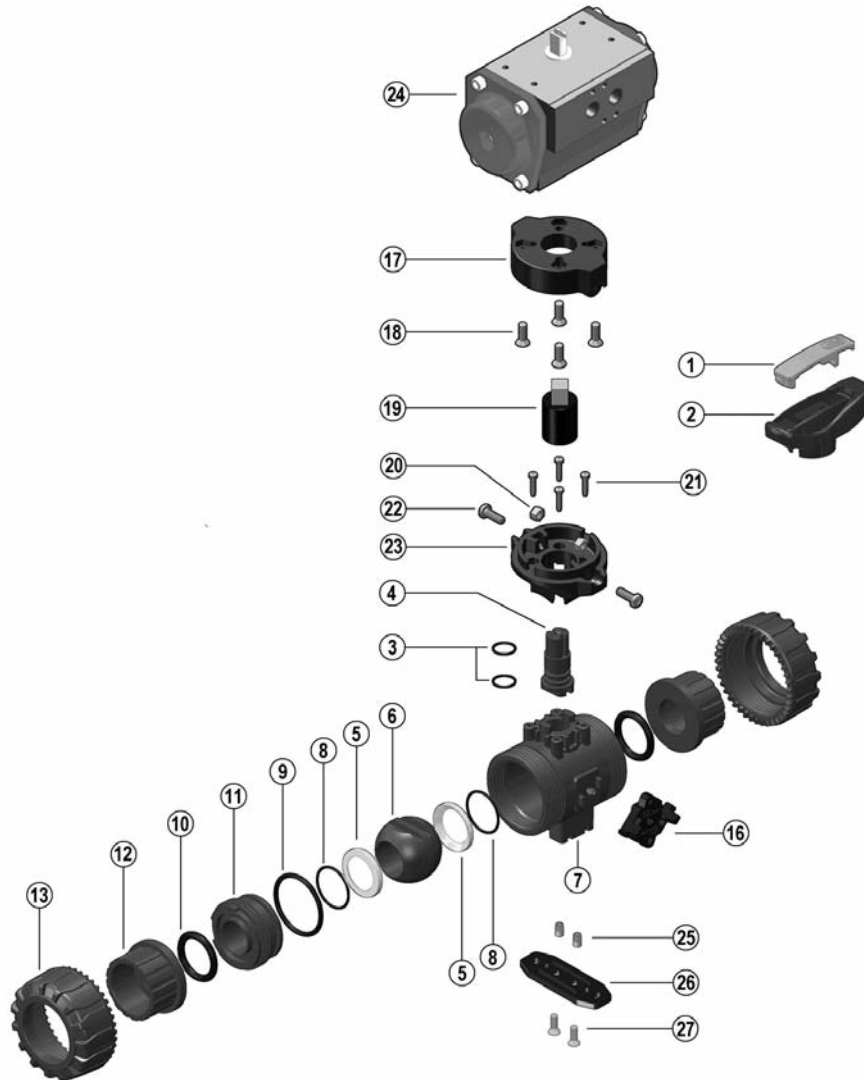
### Electric Actuator Power Consumption

MODEL		VB015		VB030		VB060		VB110	
VERSION H	Nominal Voltage	100V AC	240V AC	100 – 240V AC					
	Absorbed Current	75mA	25mA	0.3 – 0.2A		0.6 – 0.3A			
	Absorbed Power	6.6 VA	6 VA	30 – 48VA		60 – 72 VA			
VERSION L	Nominal Voltage	24V AC/DC		24V AC/DC		24V AC/DC		24V AC/DC	
	Absorbed Current	1.2A	0.6A	2.0A	1.0A	3.6A	1.8A	2.0A	1.0A
	Absorbed Power	15 VA		24 VA		44 VA		24 VA	
Frequency		50/60 HZ							

# VKD Series Automated Ball Valves

## Technical Data

### Components



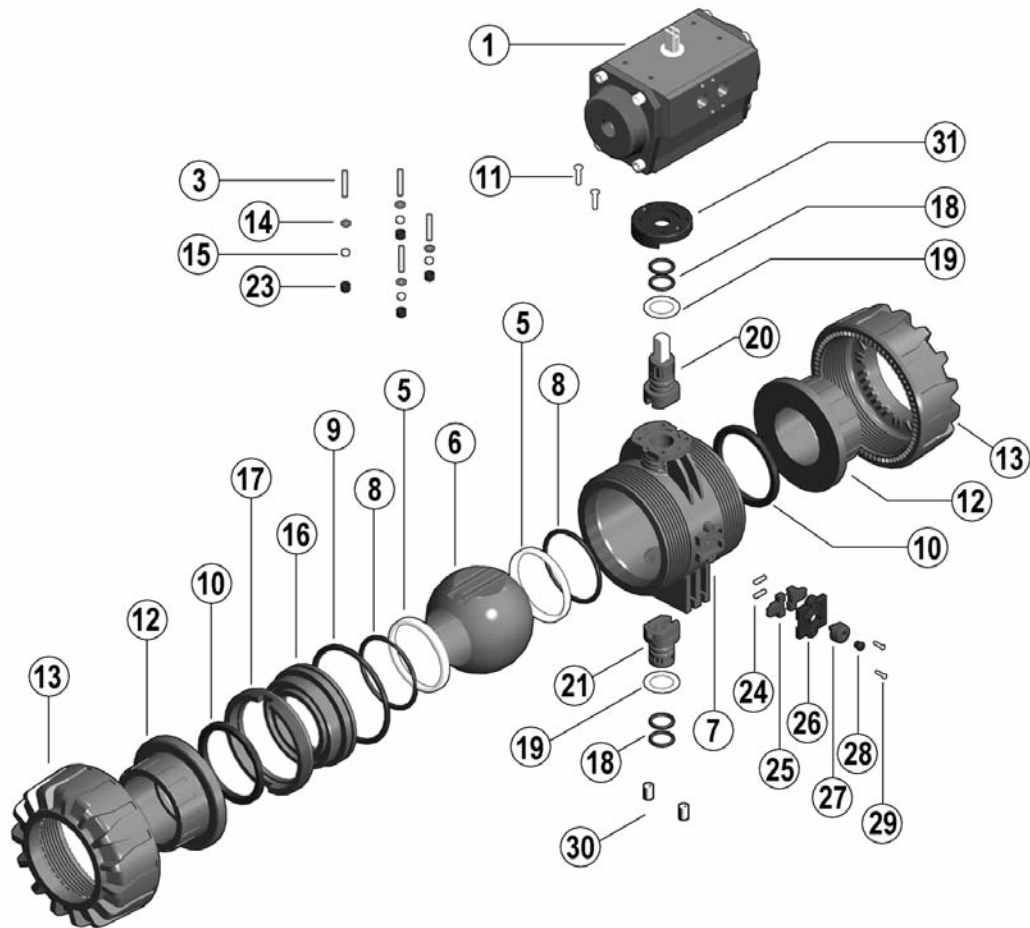
#	Component
1	Insert
2	Handle
3	Stem O-Ring
4	Stem
5	Ball Seat
6	Ball
7	Body
8	Support O-Ring for Ball Seat
9	Radial Seal O-Ring
10	Socket Seal O-Ring
11	Support for Ball Seat
12	End Connector
13	Union Nut

#	Component
16	Dual Block
17	Upper Plate
18	Screw
19	Coupling Spindle
20	Nut
21	Screw
22	Screw
23	Lower Plate
24	Pneumatic Actuator
25	Bracketing Bush
26	Distance Plate
27	Screw
28	Electric Actuator (not shown)

# VKD Series Automated Ball Valves

## Technical Data

### Components



#	Component
1	Pneumatic Actuator
3	Screw
5	Ball Seat
6	Ball
7	Body
8	Support O-ring for Ball Seat
9	Radial Seal O-ring
10	Special Socket Seal
11	Screw
12	End Connector
13	Union Nut
14	Washer
15	Nut
16	Support for Ball Seat
17	Stop Ring

#	Component
18	Stem O-Ring
19	Friction Reducing Bush
20	Upper Stem
21	Lower Stem
22	Pad
23	Protection Cap
24	Spring
25	Nut Block
26	Cover
27	Nut Block Button
28	Protection Cap
29	Screw
30	Bracketing Bush
31	Actuation Adapter
32	Electric Actuator (not shown)

# VKD Series Automated Ball Valves

## Technical Data

### Installation Procedures

1. Remove the union nuts (part #13 on previous page) and slide them onto the pipe.
2. Please refer to the appropriate connection style sub-section:
  - a. For socket style, solvent cement or fuse the end connectors (12) onto the pipe ends. For correct solvent cementing procedure, please refer to the section entitled, "Joining Methods – Solvent Cementing" in the IPEX Industrial Technical Manual Series, "Volume I: Vinyl Process Piping Systems". Be sure to allow sufficient cure time before continuing with the valve installation.
  - b. For threaded style, thread the end connectors (12) onto the pipe ends. For correct joining procedure, please refer to the section entitled, "Joining Methods – Threading" in the IPEX Industrial Technical Manual Series, "Volume I: Vinyl Process Piping Systems".
3. All quarter turn automated valves are tested for proper operation before leaving the factory. Adjustment of the seat stop carrier should not be necessary. However, if adjustment is required, ensure that the valve is in the closed position then remove the insert tool (1) from the handle (2), supplied loose. For sizes 2-1/2" to 4", use the tool that accompanies the valve. Line up the moldings on the tool with the slots in the carrier. Tighten or loosen to the desired position then replace the tool on the handle.
4. Ensure that the valve is in the closed position, and that the socket o-rings (10) are properly fitted in their grooves. If anchoring is required, insert the bracket bushings (25) into the bottom of the valve (sizes 1/2" to 2" only). Carefully place the valve in the system between the two end connections and fix if necessary.
5. Tighten the union nut on the side opposite to that which is marked "ADJUST". Hand tightening is typically sufficient to maintain a seal for the maximum working pressure. Over-tightening may damage the threads on the valve body and/or the union nut, and may even cause the union nut to crack.
6. Tighten the union nut on the side marked "ADJUST". Tightening the union nuts in this order results in the best possible valve performance due to optimum positioning and sealing of the ball and seat support system.
7. Connect pneumatic or electric connections according to provided diagrams.
8. Cycle the valve open and close to ensure that the cycling performance is adequate. If adjustment is required, place the valve in the closed position, loosen the union nuts, remove the valve from the system, and then continue from Step 3.
9. Engage the Dual Block® system by affixing the molded piece (16, sizes 1/2" to 2") to the side of the valve body or by turning the red knob (27, sizes 2-1/2" to 4") to the locked position. This feature will prevent back-off of the union nuts during operation.



2-1/2" - 4" Dual Block® Mechanism



1/2" - 2" Dual Block® Mechanism



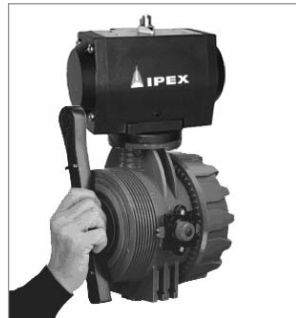
# VKD Series Automated Ball Valves

## Technical Data

### Valves Maintenance

#### Disassembly

1. If removing the valve from an operating system, isolate the valve from the rest of the line. Be sure to depressurize and drain the valve and isolated branch. It is recommended that all actuators be de-activated before servicing the valve to avoid injury.
2. If necessary, remove actuator connections and detach the valve from the support structure by disassembling the connections to the bracket on the optional bottom of the valve body (7).
3. Unlock the Dual Block® system by compressing the two ends of the molded piece (16, sizes 1/2" to 2") or by turning the red knob (27, sizes 2-1/2" to 4") to the unlocked position. Loosen both union nuts (13) and drop the valve out of the line. If retaining the socket o-rings (10), take care that they are not lost when removing the valve from the line.
4. Remove the actuator, if necessary, from the valve by removing the screws (22) located horizontally across from each other (sizes 1/2" to 2"). On sizes 2-1/2" to 4", remove the actuator by loosening and removing the bolts (3), washers (14), nuts (15), and caps (23).
5. Ensure the valve is in the closed position. If it is not, rotate the ball using the exposed stem or stem extension, making sure not to damage. Line up the moldings on the wrench tool (1, sizes 1/2" to 2") with the slots in the carrier (found on the side marked "ADJUST"). Loosen and remove the carrier (11 or 16).
6. Carefully press the ball (6) out of the valve body, taking care not to score or damage the outer surface.
7. Press the stem (4 or 20) into the valve body from above. On sizes 2-1/2" to 4", remove the lower stem (21) by pushing it into the valve body from below.
8. The stem o-rings (3 or 18), body o-ring (9), ball seats (5), ball seat o-rings (8), and bushings (19, sizes 2-1/2" to 4") can now be removed and/or replaced.



#### Assembly

**Note:** Before assembling the valve components, it is advisable to lubricate the o-rings with a water soluble lubricant. Be sure to consult the "IPEX Chemical Resistance Guide" and/or other trusted resources to determine specific lubricant-rubber compatibilities.

1. Replace the stem o-rings (3 or 18), body o-ring (9), ball seat o-rings (8), ball seats (5), and bushings (19, sizes 2-1/2" to 4") in their proper positions.
2. Insert the stem (4 or 20) into position from inside the valve body (7). On sizes 2-1/2" to 4", insert the lower stem (21) as well.
3. On sizes 2-1/2" to 4", replace the actuation adapter plate and affix in position using the bolts (11), washers (14), and nuts (15). Replace the caps (23) over the nuts.
4. Replace the stem extension, if applicable.
5. Carefully insert the ball (6) into the valve body, taking care not to score or damage the outer surface. Ensure that the actuator and ball position correspond to the same operating position.
6. Insert the threaded carrier (11 or 16) and tighten into the valve body. Use the wrench tool to sufficiently tighten.
7. Replace the actuator, if removed, and affix in position using screws (22) installed horizontally (1/2" to 2") or bolts (3), washers (14), nuts (15), and caps (23) (2-1/2" to 4").
7. Place the end connectors (12) into the union nuts (13), then thread onto the valve body taking care that the socket o-rings remain properly fitted in their grooves.
8. Engage the Dual Block® system by affixing the molded piece (16, sizes 1/2" to 2") to the side of the valve body or by turning the red knob (27, sizes 2-1/2" to 4") to the locked position.



**Note:** It is not typically necessary to disassemble the Dual Block® components (sizes 2-1/2" to 4"). It is not necessary to remove the actuator from the valve unless the stem requires servicing or replacement. If possible, leave actuator attached to valve during servicing.

# VKD Series Automated Ball Valves

*About IPEX*

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