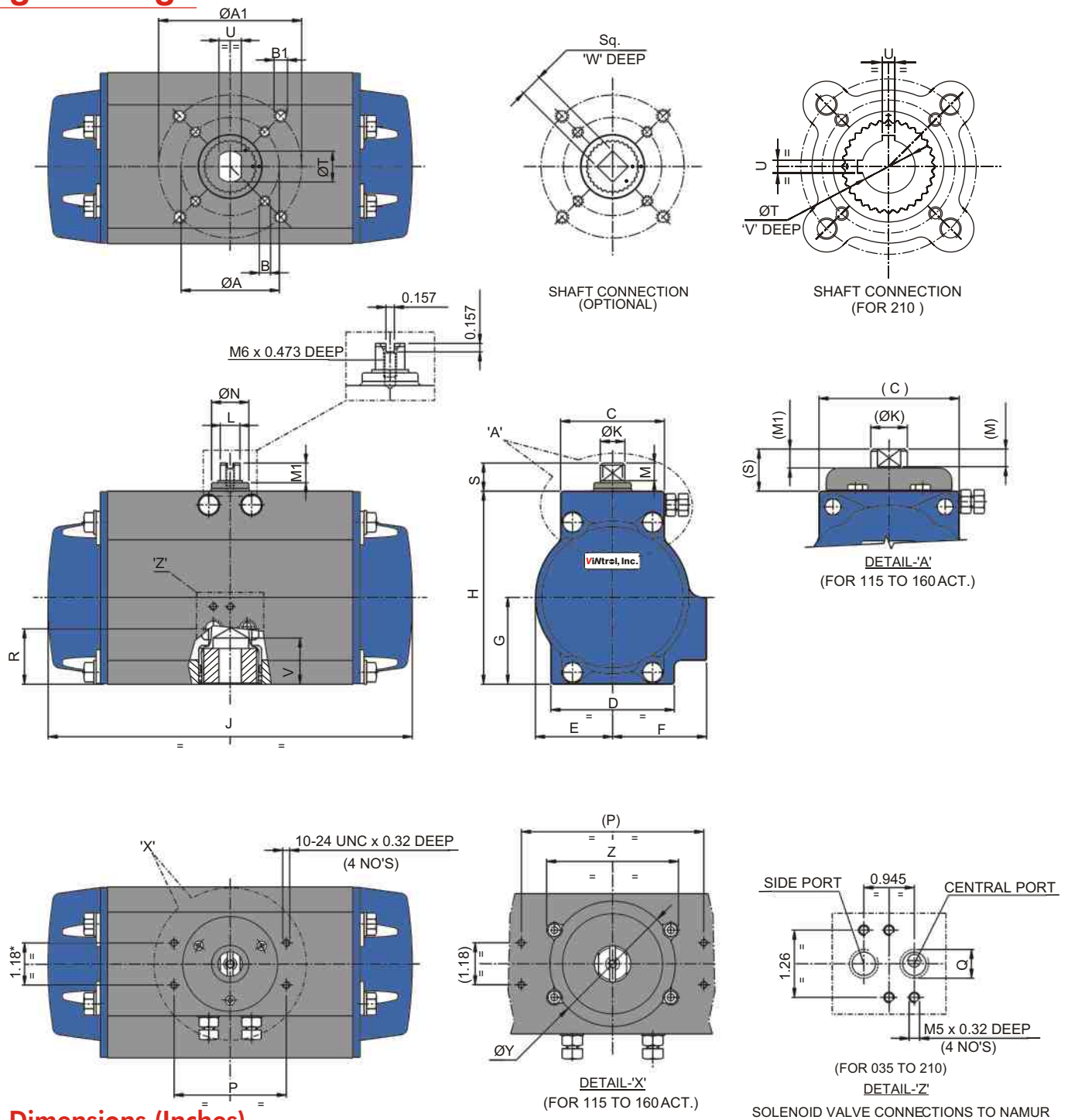


Series 20

ViNtrol, Inc.

- ◆ Pneumatic Rack & Pinion Actuators
- ◆ Double Acting and Spring Return





Dimensions (Inches)

SIZE	ØA	ØA1	B	B1	C	D	E	F	G	H	J	ØK	L	M	M1	ØN	P	Q (NPT)	R	S	ØT	U	V	Sq.	W (Min)	ØY	Z
035	1.65	--	1/4"-20 UNC x 0.31	--	2.09	2.09	0.89	1.20	1.14	2.09	4.21	0.43	0.31	0.31	0.67	0.79	1.97	1/8	0.79	0.79	--	--	0.47	0.43	0.47	--	--
052	1.65	2.76	1/4"-20 UNC x 0.31	5/16"-18 UNC x 0.31	1.87	2.48	1.24	1.57	1.44	3.11	5.90	0.39	0.31	0.49	0.55	0.67	3.15	1/8	0.98	0.79	0.55	0.39	1.28	0.43	0.47	--	--
065	1.65	2.76	1/4"-20 UNC x 0.31	5/16"-18 UNC x 0.39	2.28	2.48	1.44	1.89	1.76	3.80	7.24	0.55	0.39	0.49	0.55	1.04	3.15	1/4	1.13	0.79	0.55	0.39	1.28	0.55	0.63	--	--
075	1.97	2.76	1/4"-20 UNC x 0.31	5/16"-18 UNC x 0.39	2.32	2.48	1.63	2.05	2.03	4.37	8.07	0.55	0.39	0.49	0.55	1.04	3.15	1/4	1.24	0.79	0.75	0.51	1.28	0.67	0.75	--	--
085	1.97	2.76	1/4"-20 UNC x 0.31	5/16"-18 UNC x 0.39	2.64	2.95	1.87	2.28	2.13	4.69	9.96	0.69	0.55	0.49	0.55	1.04	3.15	1/4	1.35	0.79	0.75	0.51	1.28	0.67	0.75	--	--
100	2.76	4.01	5/16"-18 UNC x 0.39	3/8"-16 UNC x 0.47	2.95	3.46	2.17	2.64	2.47	5.55	10.24	0.69	0.55	0.49	0.55	1.04	3.15	1/4	1.58	0.79	0.87	0.63	1.28	0.87	0.94	--	--
115	2.76	4.92	5/16"-18 UNC x 0.39	1/2"-13 UNC x 0.47	3.94	4.33	2.48	3.05	2.80	5.66	12.20	1.02	0.79	0.49	0.53	--	5.12	1/4	1.92	1.18	0.87	0.63	1.28	0.87	0.94	3.52	3.78
125	2.76	4.92	5/16"-18 UNC x 0.39	1/2"-13 UNC x 0.47	3.94	4.33	2.68	3.25	3.00	6.07	14.49	1.02	0.79	0.49	0.53	--	5.12	1/4	2.12	1.18	1.18	0.87	2.13	0.87	0.94	3.52	3.78
160	--	4.92	--	1/2"-13 UNC x 0.47	4.58	4.58	3.44	4.25	3.90	7.80	18.56	1.26	1.06	0.79	1.26	--	5.12	1/4	3.01	1.97	1.18	0.87	2.13	1.06	1.14	4.17	4.34
210	4.92	6.50	1/2"-13 UNC x 0.78	3/4"-10 UNC x 0.98	8.07	--	4.67	5.83	5.31	10.55	26.3	1.65	1.26	1.18	1.97	6.42	5.12	1/4	4.43	3.05	1.38	0.39	2.52	1.42	1.53	--	--

* For 035 actuator dimension changes to 0.984"

Torques (Lb.-Inches)

Actuator Speeds (sec.)										
Size	035	052	065	075	085	100	115	125	160	210
Open Stroke/ Close Stroke	0.2	0.3	0.35	0.45	0.6	0.8	1.0	1.3	2.0	3.8

Actuator Weights (Lbs)										
Size	035	052	065	075	085	100	115	125	160	210
Double Acting	1.28	2.9	4.8	5.9	8.4	12.1	17.8	22.4	42.7	99.8
Spring Return	--	3.1	5.5	7.0	9.7	14.3	20.9	27.1	53.0	127.8

Actuator Volumes (In ³)										
Size	035	052	065	075	085	100	115	125	160	210
Counter Clockwise	4.6	6.1	11.0	19.2	28.1	45.8	72.9	92.8	203.8	413.1
Clockwise	7.3	9.8	21.4	32.1	51.3	71.0	107.4	147.7	319.8	751.8

Actuator Speeds are at 80 PSI & Orifice dia. of approx 0.16"

Double Acting Actuator Torque Data (Lb.-Inch)						
Size	Air Supply Pressure (psi)					
	40	60	80	85	100	120
035	37	48.6	67.3	73.5	85.9	98.2
052	97	133	186	204	239	274
065	195	257	345	381	443	505
075	279	372	513	566	664	761
085	416	558	779	850	991	1142
100	673	903	1239	1354	1575	1806
115	1106	1478	2045	2230	2602	2983
125	1469	1956	2691	2930	3425	3912
160	2885	3841	5284	5762	6727	7692
210	6953	9270	12747	13906	16223	18541

Spring Return Actuator Torque Data (Lb.-Inch)															
Size	Total Springs*	Air Supply Pressure (psi)													
		40		60		80		85		100		120		Spring stroke	
		PB	PE	PB	PE	PB	PE	PB	PE	PB	PE	PB	PE	SB	SE
052	3	62	42	96	76	146	127							53	36
	4			82	56	133	107	150	124	184	158			65	48
	5					119	87	136	104	171	138	204	172	89	60
	6					106	67	123	84	158	118	191	151	107	72
065	3	124	66	187	128	282	226							100	60
	4			165	97	260	190	292	221	355	283			125	80
	5					238	155	269	186	333	248	397	310	166	100
	6					215	115	247	146	311	212	374	274	200	120
075	3	157	71	255	169	403	321							195	116
	4			209	96	357	248	406	292	505	396			266	155
	5					311	166	359	212	458	314	557	412	331	204
	6					264	96	313	142	412	239	510	338	389	239
085	3	274	150	420	300	636	517							250	135
	4			366	207	583	424	656	497	800	641			327	182
	5					521	331	594	404	747	548	891	693	418	230
	6					477	234	550	302	694	455	838	600	502	278
100	3	389	226	615	451	953	789							398	249
	4			520	301	858	638	970	751	1196	976			513	332
	5					762	489	875	601	1100	826	1326	1051	675	416
	6					667	338	780	451	1005	676	1230	901	811	505
115	3	685	434	1058	806	1616	1365							602	372
	4			913	579	1472	1137	1658	1323	2030	1696			779	496
	5					1328	910	1514	1096	1886	1468	2259	1840	1000	628
	6					1184	682	1370	868	1743	1241	2115	1613	1204	752
125	3	890	572	1379	1060	2112	1793							805	519
	4			1187	762	1920	1495	2164	1739	2654	2229			1053	691
	5					1728	1197	1972	1441	2461	1930	2950	2419	1343	865
	6					1536	898	1780	1143	2269	1632	2758	2121	1611	1018
160	3	1779	1110	2740	2071	4181	3512							1596	976
	4			2372	1480	3813	2921	4294	3401	5255	4363			2128	1307
	5					3446	2330	3925	2810	4887	3771	5848	4733	2660	1656
	6					3077	1739	3558	2220	4518	3180	5480	4141	3192	1987
210	3	4091	2753	6409	5071	9885	8547							3780	2576
	4			5455	3671	8931	7147	10090	8306	12408	10623			5218	3434
	5					7977	5747	9136	6906	11454	9223	13772	11541	6300	4293
	6					7024	4347	8182	5506	10500	7823	12818	10141	7560	5151

* For other spring combinations please consult factory

Actual torques are in the range of $\pm 5\%$ of the above values.

In between torque values to be interpolated.

SE= Spring End Torque, SB= Spring Break Torque, PE= Pneumatic End Torque, PB=Pneumatic Break Torque

Features

ViNtrol, Inc. is pleased to offer top-of-the-line products in flow control automation. The **ViNtrol Series 20** are pneumatically operated, quarter turn rotary, dual rack and pinion design actuators. These actuators are built with several of the latest features that enhance safety and performance. The actuators are manufactured in modern plants equipped with state-of-the-art machinery and under a robust quality assurance system complying to ISO 9001: 2000. Listed in this catalog are the features and benefits of **ViNtrol** actuators. Also included is the comprehensive technical data, which can be useful for selecting the correct **ViNtrol** actuator.



1 Two independent external travel stops permit easy and precise adjustment of $\pm 5^\circ$ in both directions.

2 Modular pre-loaded spring cartridges for safe, efficient use of spring actuator. Also, facilitate easy field conversion from double acting to spring return & vice versa. Spring cartridges have corrosion resistant springs.

3 Extruded Aluminium body, hard anodized and black dyeing with honed internal surface for strength and lower coefficient of friction. This ensures extended service life and low maintenance down-time. The air passages are machined internally to avoid external tubing. The external shape is contoured and rounded to avoid buildup of contaminants.

4 Compact modular design with same body and end caps for double acting and spring return actuators. Shaft with insert design offers the most efficient use of inventory.

5 Dual rack and pinion design for compact construction, symmetrical mounting position, fast and efficient operation and offers both spring-to-open and spring-to-close options. Reverse rotation can be accomplished in the field by simply inverting the pistons.

6 Wide actuator base design option can be adapted to mount to valve designs requiring wider than EN ISO 5211 drilling. This feature coupled with the unique shaft insert design can be customized to fit your specific requirements.

7 Top quality bearings and seals for low friction & high cycle life are permanently factory lubricated to ensure trouble free, long service life.

8 Internal and external stainless steel fasteners and specially coated springs provide excellent corrosion resistance in a variety of environments and applications.

9 The unique manufacturing techniques of shaft combine a high strength alloy steel-shaft with electro-less nickel-plating having precision-machined gear teeth with precision drive end.

10 The bottom of the pinion shaft is available in parallel square, diagonal square, double "D" and bore with keyway output configurations to accommodate several valve mounting options.

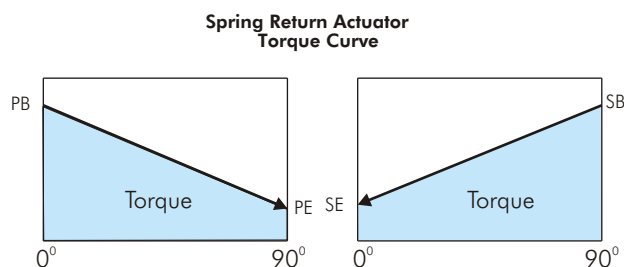
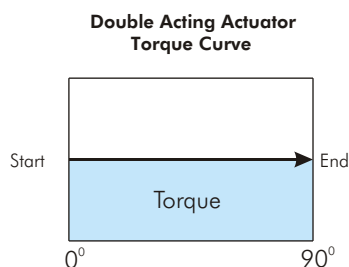
11 Unique position indicator can be indexed to show alternate position. Top of actuator shaft has a NAMUR slot to drive all popular sensors and positioners.

12 The design of the stop adjustment cam permits the actuator to be locked out in the full open or full closed position before performing mechanical maintenance work. A special lock out enclosure is also available as an option to prevent unwanted operation.

13 Standard end caps are rounded with no crevices to accumulate contamination or corrosive chemicals. Optional end caps are available to provide 100% stroke adjustment in one direction. The external and internal surface is coated with an epoxy based powder to provide resistance to atmospheric corrosion and general resistance to mild chemicals.

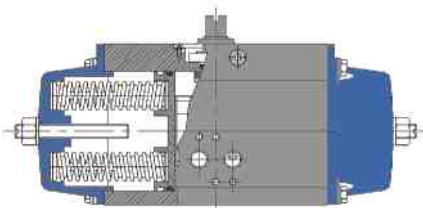
14 Manufactured in full compliance with the latest requirements of EN ISO 5211. Provisions for mounting solenoid valves and accessories comply with Namur VDI/VDE 3845.

Torque Curve



Options, Accessories & Other products

100% Travel Stops



The stops are located in the end caps and allow the valve position on the counter clockwise (CCW) to be set anywhere between the full-closed and the full-open position.

Heavy Duty Actuators



The ViNtrol series 21 Scotch-Yoke mechanism heavy-duty actuators in both SR and DA type are available upto 12,000 NM.

NAMUR Type Solenoid Valves



The ViNtrol series 82 solenoids with NAMUR interface permits its direct mount on actuator. Unique sealing plate allows for field conversion for both 3/2 way, 5/2 way design. These valves can be used with either double acting or spring return actuators. They are available in weather proof, ex-proof protection class with different body materials viz. Aluminium, Stainless Steel, Brass with various orifice sizes.

Safety Lock-out



The unique travel stop cam has a built in safety lock out feature that allows for locking the actuator in either the full-open or full-closed position prior to performing maintenance work.

Quick Exhaust Valves



The ViNtrol series 63 QEV's are used for faster fail position control as in shutdown valves. Available in various orifice sizes and in materials: Aluminium/NACE Stainless Steel.

Non-NAMUR Type Solenoid Valves



The ViNtrol series 82 non-NAMUR solenoids are mounted on actuator with bracket. They are used when pilot valves, quick exhaust valves are in circuit to achieve open/close time requirements. 3/2, 5/2, 5/3 way solenoid valves are available in weather proof, ex-proof protection class with different body materials viz. Aluminium, Stainless Steel, and Brass with various orifice sizes.

Stainless Steel Actuators



The ViNtrol series 22 compact Rack and Pinion Stainless Steel actuators are used for corrosive environment with limited torque range.

Speed Control Valves



The ViNtrol series 64 SCV's are used to control open/close time of actuator. Available in various orifice sizes and in materials: Aluminium/NACE Stainless Steel.

Pilot Valves



Pneumatic flow diversion device. The ViNtrol series 62 pilot valves are used for faster open/close response. Available in various orifice sizes and in materials: Aluminium/NACE Stainless Steel.

Options, Accessories & Other products

Breather Valves



The ViNtrol series 67 Breather valve works with remote/line mounted solenoid valves to divert exhaust air from the piston chamber into spring chamber. This prevents corrosive vapors present in atmosphere from being sucked into the spring chamber.

Valve Position Monitors



The ViNtrol series 83 valve position monitors are available in Nylon, Aluminium, Stainless Steel body material with top cover in impact resistant polycarbonate and colored indicator dome in high-grade poly-propylene. Electro-mechanical switches or proximity sensors can be mounted in the device. The devices are certified to weather proof and ex-proof to various gas groups.

De-clutchable Manual Overrides



The ViNtrol series 14 de-clutchable manual override provides the option of manually operating the actuator and valve assembly in the event of loss of air to the actuator. For heavy-duty actuators Screw jack or hydraulic type manual overrides are used.

Air Lock Relays



The ViNtrol series 61 ALR's are used to keep actuator in stay put condition in the event of loss of air to actuator. Available in various orifice sizes and in material: Aluminium.

Valve Positioners



The ViNtrol series 80/81 Electro-Pneumatic and Pneumatic-Pneumatic positioners with and without position transmitter, switches, are used for control and feedback. Electro-Pneumatic Positioners are available in weather proof and ex-proof protection class.

Fire Proof Enclosures



The ViNtrol series 69 customized fire proof enclosures are used to protect actuator and its control accessories from hydrocarbon fire for defined time.

Air Tanks



The ViNtrol series 65 air tanks are used to provide air to actuator in the event of loss of air to the actuator. They are designed for no. of required actuator strokes and are manufactured in carbon steel and stainless steel.

Air Filter Regulators



The ViNtrol series 60 AFR's are used to regulate and filter air/gas. Available in various orifice sizes and in materials: Aluminium/NACE Stainless Steel.

Switches/Sensors

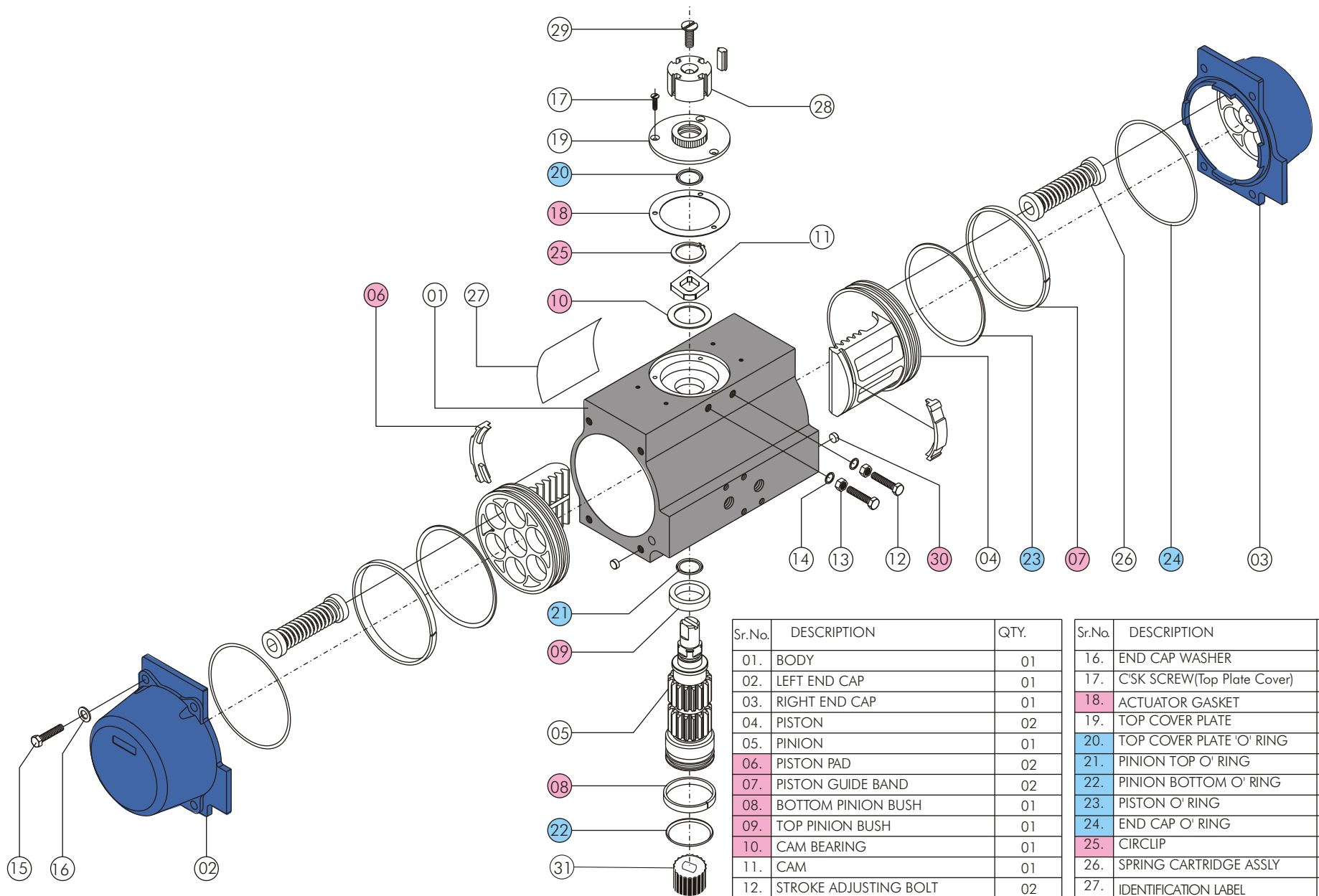


The ViNtrol series 68 Electro-mechanical SPDT/DPDT, Silver/gold plated contacts with various voltages and current ratings are available. Inductive and Magnetic proximity sensors for various voltages and for intrinsically safe areas are available. Switches/sensors can be mounted in ex proof /weather box.

Mounting Kit



The ViNtrol series 66 mounting kit for Valve/Actuator interface and Actuator /Accessories interface can be supplied in carbon steel and Stainless Steel material.



Recommended as Seal Kit
 + Recommended as Repair Kit

Sr.No.	DESCRIPTION	QTY.
01.	BODY	01
02.	LEFT END CAP	01
03.	RIGHT END CAP	01
04.	PISTON	02
05.	PINION	01
06.	PISTON PAD	02
07.	PISTON GUIDE BAND	02
08.	BOTTOM PINION BUSH	01
09.	TOP PINION BUSH	01
10.	CAM BEARING	01
11.	CAM	01
12.	STROKE ADJUSTING BOLT	02
13.	STROKE ADJUSTING NUT	02
14.	STROKE ADJUSTING WASHER	02
15.	END CAP BOLT	08

Sr.No.	DESCRIPTION	QTY.
16.	END CAP WASHER	08
17.	C'SK SCREW(Top Plate Cover)	03
18.	ACTUATOR GASKET	01
19.	TOP COVER PLATE	01
20.	TOP COVER PLATE 'O' RING	01
21.	PINION TOP O' RING	01
22.	PINION BOTTOM O' RING	01
23.	PISTON O' RING	02
24.	END CAP O' RING	02
25.	CIRCLIP	01
26.	SPRING CARTRIDGE ASSLY	12 (MAX.)
27.	IDENTIFICATION LABEL	01
28.	LOCAL POSITION INDICATOR	01
29.	C'SK SCREW (Indicator)	01
30.	PLUG TRANSFER PORT	02
31.	SHAFT INSERT	01

How to order actuators

Series	Size	Type	Trim / Other Variables/specials			
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>
	035 to 210	No.of springs	Shaft Rotation	Bolt Circle & Tapping	Shaft Connection	Sp.Options
20: Hard Anodized Aluminium Body	035	00 = Dble Acting	C: Fail Clockwise Direction (Standard)	A: 1.97"/2.76", 1/4" UNC & 5/16" UNC (075-085)	01: 0.551"x0.393" DD (052-115)	0: No Special requirements. S: Special requirements as specified by customer.
	052	12* = 6 & 6 (Max)	F: Fail Counter Clockwise Direction	B: 2.76"/4.01", 5/16" UNC & 3/8" UNC (100)	02: 0.630"x0.433" DD (075-115)	
	065		S: Stayput (for double acting models: CCW opening of Actuators)	C: 2.76"/4.92", 5/16" UNC & 1/2" UNC (115-125)	03: 0.745"x0.512" DD (075-125)	
	075		Y: Stayput (for double acting models : CW opening of Actuators)	D: 4.92"/6.5", 1/2" UNC & 3/4" UNC (210)	04: 0.866"x0.630" DD (100-160)	
	085			E: 1.65"/2.76", 1/4" UNC & 5/16" UNC (052-065)	05: 1.181"x0.866" DD (125-210)	
	100			P: 4.92", 1/2" UNC (160)	06: 0.433" SQ. (052-085)	
	115			X: Other	07: 0.551" SQ. (065-115)	
	125				08: 0.669" SQ. (075-115)	
	160				09: 0.748" SQ. (100-160)	
	210				10: 0.866" SQ. (100-160)	

* Standard

Series 22 Stainless Steel Actuators are available in sizes 045, 060, 085, 105, 125, 140, 160.

Note: For ordering actuators with standard bolt circles and shaft connection, please refer to the dimensions table in this bulletin.

For other consult ViNtrol, Inc.

All statements, technical information and recommendations in the bulletin are for general use only. ViNtrol is not responsible for suitability or compatibility of these products in relation to system requirements. Consult ViNtrol distributors or factory for the specific requirements and material selection for your intended application. ViNtrol reserves the right to change or modify product design or product without prior notice.

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