

**AUTOMATE YOUR VALVES WITH THE TRUSTED
VISPA PNEUMATIC ACTUATORS**

VISPA™

Rack & Pinion Pneumatic Actuators

Reliable and Cost Effective



AN ISO 9001 : 2015 COMPANY



VISPA ACTUATORS 'VA' SERIES RACK AND PINION PNEUMATIC ACTUATORS

Reliable and cost effective

Reliability is always the first requirement in any facility. Most of the time, you will have to go through difficult selection on wide offerings of pneumatic and electric products in the market to ensure your choice will match your precise requirements of each installation. At the same time, cost is always part of the criteria during the selection process. To maintain productivity and profitability, you need to ensure your equipments are able to function with years of trouble-free operation and easy installation throughout the lifecycle.

The **VISPA™** Actuators Peerless 'VA' series double-opposed piston rack and pinion actuators combine the benefits of high cycle life, a rugged construction, and an extremely compact and symmetrical design with a unique range of features and options. They are specifically designed for fast efficient operation of ball, butterfly, and other rotary type valves.



VISPA™



Features

- ⦿ Modular designs with same body and end caps for double-acting and spring-return. Springs can be added in the field to convert double-acting to spring-return or for changes in supply pressure
- ⦿ Failure direction can be easily reversed from spring-to-open or spring-to-close orientation simply by inverting the pistons
- ⦿ Optimum corrosion resistance is achieved with anodized housing, zinc plated/chromated pinion, powder coated end caps, chromated pistons and stainless steel fasteners
- ⦿ Equipped with O-ring seals, low-friction piston and pinion bearing materials and grease for a low maintenance and trouble-free cycle life
- ⦿ Dual piston rack-and-pinion mechanism for simple construction, high cycle life, and constant torque
- ⦿ Mechanically multi-guided aluminum pistons for precise movement, low friction, and high cycle life
- ⦿ Machined teeth on piston racks and pinions for excellent rack and pinion engagement and maximum efficiency
- ⦿ Dual travel stops allow for fine adjustment of the open and closed positions
- ⦿ The nominal rotation (90 degrees) has an adjustable range of +5 and -5 degrees at each end of travel
- ⦿ Springs are specially designed for a long cycle life
- ⦿ Spring cartridges allow safe and quick conversion of spring sets to match your torque and pressure requirements
- ⦿ Bearings are designed for lower bearing forces and a longer cycle life
- ⦿ Flexible and cost effective valve mounting is achieved by fitting the valve flange with ISO drilling patterns and fits the pinion with a Star or Square Drive for ISO 5211 installations
- ⦿ Actuator to valve attachments comply with ISO 5211
- ⦿ Standard NAMUR (VDI/VDE 3845) equipment can be mounted to the solenoid and top accessory flanges

Specifications

Power Source	Pneumatic
Product Type	Pneumatic Rack and Pinion Actuator
Actuation	Quarter Turn Spring Return or Double Acting
Supply Media	Air, Nitrogen
Operating Pressure	up to 8 bar-g
Design Pressure	10 bar-g (pressure retaining parts)
Control Type	On/Off, Positioning, Modulating, ESD
Valve Type	Ball, Butterfly, Plug and any other quarter turn application
Operating Temperature	Standard -20°C to +80°C (-4°F to +176°F).
Torque	

⊙ Spring Return Model

Spring Nominal	:	5.0 Nm – 1752.0 Nm
Air Break @ 4.0 bar-g	:	12.0 Nm – 1754.0 Nm

⊙ Double Acting Model

Air Break @ 4.0 bar-g	:	16.0 Nm – 3220.0 Nm
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Complies with the latest European directives like
ATEX (2014/34/EU) and **PED (2014/68/EU)**



VISPA - The VA Series

Over 10 years of valve automation experience provides true wealth per torque value



VA Series rack and pinion actuators are designed to automate the most popular quarter turn valves like ball, butterfly and plug valves and are easily adaptable for almost any other quarter turn (90° rotation) application.

The VA-Series are constructed from high quality extruded aluminium and with end caps from cast aluminium. The internal and external surface of actuator body is hard anodized for longer life with advanced anti corrosion technology.

The VA series actuators can be operated with dry or lubricated air or non-corrosive gas and will operate continuously at pressures up to 8 bar / 120 psi. Capable of withstanding a wide range of temperatures between -20°C to +80°C/-4°F to 176°F. These actuators will provide years of service for indoor and outdoor applications.

Dual travel stops mounted near the top of the pinion allow for fine adjustment to the opening and closing strokes ensuring that valve operations are confirmed as fully open or closed. This feature also allows for re-configuration at site or in the workshop.

Quality materials of construction and manufactured with state-of-the-art techniques makes the VISPA™ a superior, long-lasting product.



Dual travel stops for accurate valve position adjustments

- ⦿ Dual travel stops allow for fine adjustment of the open and closed positions.
- ⦿ The nominal stroke (90°) has an adjustable range of $\pm 5^\circ$ at each end of travel.

Reliability

- ⦿ Springs are specially designed for a long cycle life.
- ⦿ Equipped with individual spring cartridges allowing safe and quick conversion of spring sets to match your torque and pressure requirements.
- ⦿ Double rack and pinion design nullifies side loads on the pinion shaft, minimizing bearing wear and extending life.
- ⦿ Bearings are designed for lower bearing forces and a longer cycle life.

Designed for trouble-free cycle life

- ⦿ Equipped with O-ring seals, low-friction piston and pinion bearing materials and grease for a low maintenance and trouble-free cycle life.
- ⦿ Optimum corrosion resistance is achieved with anodized housing, zinc plated/chromated pinion, powder coated end caps, chromated pistons and stainless steel fasteners.

Global product safety requirements

- ⦿ Flexible and cost effective valve mounting is achieved by fitting the valve flange with 2x ISO drilling patterns and fits the pinion with a Star or Square Drive for both ISO5211 and DIN3337 installations.
- ⦿ Standard NAMUR (VDI/VDE3845) equipment can be mounted to the solenoid and top accessory flanges.
- ⦿ ATEX and CE compliance.

VISPA™

ACTUATOR SELECTION

To select an actuator for a particular valve and service, first determine the maximum operating torque that will be required from the applicable valve. Then refer to the appropriate torque output table and select an actuator that will, at the available supply pressure, provide a torque output no less than the required operating torque for the

valve. For spring-return units, both the spring torque and the air torque must exceed the required operating torque for the valve. If you have any question that the actuator selected meets your intended service requirement, contact VB Valves. Contact information is located on last page of this technical bulletin.

Actuator		Cylinder Volume (litres)		Stroke/Cycling Time (sec.)	Weight (kg)
Model	Type	Open	Close	Open / Close	kg
VB 040	DA	0.10	0.20	0.3 / 0.3	1.2
	SA		–	0.3 / 0.3	1.3
VB 050	DA	0.20	0.30	0.3 / 0.3	1.9
	SA		–	0.3 / 0.4	2.1
VB 060	DA	0.30	0.50	0.3 / 0.4	2.8
	SA		–	0.4 / 0.5	3.1
VB 080	DA	0.50	0.80	0.4 / 0.5	3.2
	SA		–	0.5 / 0.6	3.7
VB 090	DA	0.70	1.10	0.5 / 0.6	4.6
	SA		–	0.7 / 0.9	5.2
VB 100	DA	1.20	1.80	0.7 / 0.8	6.1
	SA		–	0.9 / 1.1	7.1
VB 110	DA	1.50	2.30	0.9 / 1.1	9.5
	SA		–	1.2 / 1.4	10.9
VB 135	DA	2.40	3.80	1.2 / 1.4	13.7
	SA		–	1.5 / 1.8	15.7
VB 160	DA	3.10	4.90	1.5 / 1.7	20.5
	SA		–	1.8 / 2.1	23.6
VB 175	DA	4.30	6.90	2.0 / 2.2	31.1
	SA		–	2.4 / 2.8	35.3
VB 200	DA	5.80	9.50	2.7 / 3.2	41.8
	SA		–	3.5 / 4.0	46.6
VB 250	DA	10.00	15.20	3.5 / 4.0	62.4
	SA		–	4.1 / 4.6	72.4
VB 300	DA	14.50	21.40	4.0 / 4.5	86.3
	SA		–	4.5 / 5.0	98.3
VB 350	DA	23.80	29.70	8.0 / 10.0	103.0
	SA		–	7.0 / 8.0	143.0

Mounting Type :



Air Supply Connection is designed in accordance with NAMUR standard to install solenoid valves.



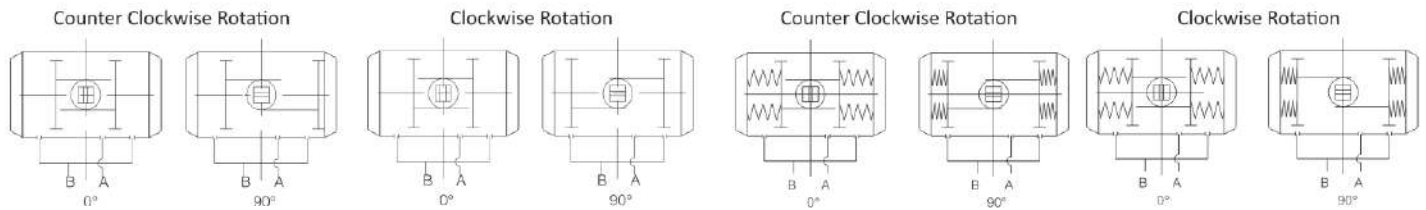
The Namur drive pinion and the Namur top mounting connection permit direct installation of accessories such as limit switch box and positioner.



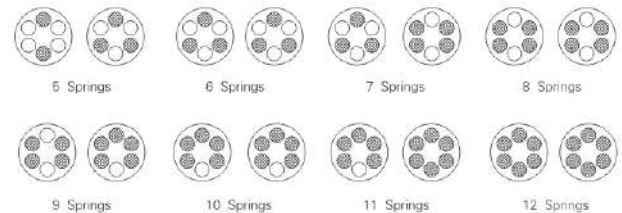
Bottom mounting connection is designed in accordance with ISO5211 standard for direct mounting with valve gear boxes or mounting brackets.

DOUBLE ACTING

SINGLE ACTING



Spring Positions of Spring Return Actuators



DOUBLE ACTING TORQUE (Nm)							
Model	Type	3 Bar	4 Bar	5 Bar	6 Bar	7 Bar	8 Bar
VA 040	DA	12	16	20	24	28	32
VA 050	DA	21	28	35	42	49	56
VA 060	DA	30	40	50	60	70	80
VA 080	DA	47	63	80	97	113	127
VA 090	DA	73	97	122	147	171	193
VA 100	DA	108	144	181	217	255	273
VA 110	DA	153	205	256	307	359	410
VA 135	DA	263	351	438	526	614	702
VA 160	DA	401	535	668	801	935	1069
VA 175	DA	646	861	1078	1293	1507	1723
VA 200	DA	789	1052	1315	1578	1842	1205
VA 250	DA	1160	1546	1933	2319	2706	3093
VA 300	DA	1761	2348	2935	3522	4109	4696
VA 350	DA	2416	3221	4027	4823	5637	6443

SINGLE ACTING TORQUE (Nm)

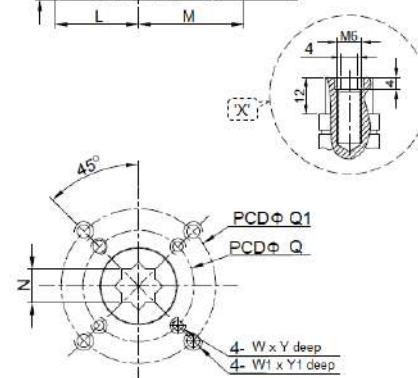
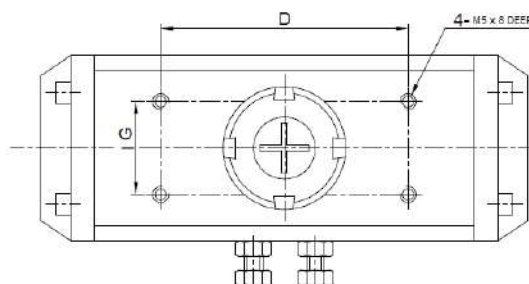
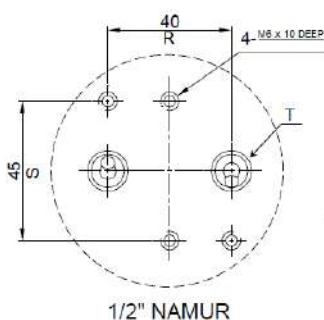
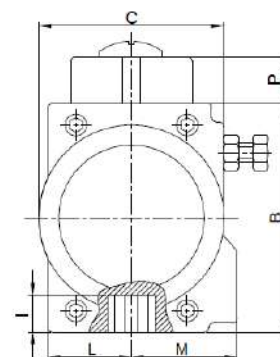
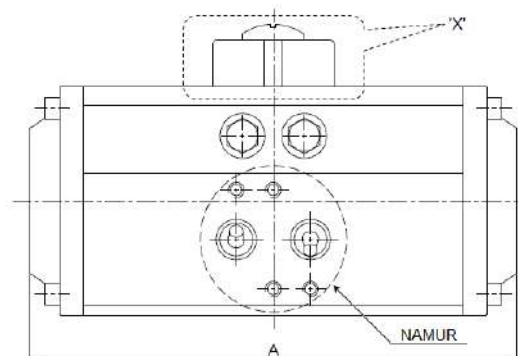
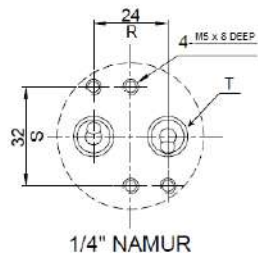
Actu'r Model	Actu'r Type	Spring Set	SPRING		3 bar		4 bar		5 bar		6 bar		7 bar		8 bar	
					Air		Air		Air		Air		Air		Air	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
			End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start
VA 040	SA	5	4	6	7	9	12	13								
		6	5	7	6	8	10	12	15	17						
		7	6	8	5	7	9	11	14	16	18	20				
		8	7	9	4	6	8	10	13	15	17	19	21	23		
		9	8	10			7	9	12	14	16	18	20	23	24	27
		10	8	11			6	8	13	10	15	18	19	22	23	26
		11	9	12					12	9	14	17	18	21	22	25
		12	10	13					12	8	13	16	17	20	21	25
VA 050	SA	5	7	10	13	16	20	23								
		6	9	12	11	14	18	22	26	29						
		7	10	14	9	13	16	20	24	28	31	35				
		8	11	16	7	12	14	19	22	27	29	34	37	42		
		9	13	18			12	18	20	25	27	33	35	40	42	48
		10	14	20			10	16	18	24	25	31	33	39	40	46
		11	15	22					16	23	23	30	31	38	38	45
		12	17	24					14	21	21	29	29	36	36	44
VA 060	SA	5	11	16	22	27	34	39								
		6	13	19	19	25	31	37	43	50						
		7	15	22	16	23	28	35	40	48	53	60				
		8	17	25	13	21	25	33	37	46	50	58	62	70		
		9	19	28			22	31	34	44	46	56	59	68	71	81
		10	21	31			19	29	31	42	43	54	56	66	68	79
		11	23	34					28	40	40	52	53	64	65	77
		12	25	38					25	38	37	50	50	62	62	75
VA 080	SA	5	15	22	27	34	43	50								
		6	18	26	23	31	39	47	55	63						
		7	21	31	19	28	35	44	51	60	67	77				
		8	24	35	14	25	31	41	47	57	63	74	79	90		
		9	27	39			26	38	42	54	59	71	75	87	91	103
		10	30	43			22	35	38	52	54	68	71	84	87	100
		11	33	48					34	49	50	65	66	81	83	97
		12	36	52					30	46	46	62	62	78	78	94

SINGLE ACTING TORQUE (Nm)

Actu'r Model	Actu'r Type	Spring Set	SPRING		3 bar		4 bar		5 bar		6 bar		7 bar		8 bar	
			Air		Air		Air		Air		Air		Air		Air	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
			End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start
VA 090	SA	5	22	31	40	48	63	74								
		6	28	41	34	44	58	71	84	96						
		7	33	45	29	42	54	66	78	91	103	115				
		8	35	49	21	35	45	61	71	86	96	110	114	128		
		9	40	58			42	59	67	83	91	107	108	125	132	147
		10	44	61			33	50	56	73	79	96	102	119	126	143
		11	48	67					50	68	73	92	96	115	120	138
		12	55	77					44	64	67	87	90	111	114	134
VA 100	SA	5	40	47	58	65	92	99								
		6	48	59	49	60	83	96	118	133						
		7	55	65	39	49	74	84	109	118	143	153				
		8	63	74	30	41	65	80	99	110	134	145	169	180		
		9	71	84			55	68	90	102	125	137	159	172	194	206
		10	79	93			46	60	81	95	116	129	150	164	185	199
		11	87	102					72	87	106	121	141	156	176	191
		12	95	117					62	82	97	114	132	148	166	183
VA 110	SA	5	53	80	104	131	166	192								
		6	64	96	88	120	150	182	211	243						
		7	74	112	72	110	134	171	195	232	257	294				
		8	85	128	56	99	118	161	179	222	241	283	302	345		
		9	96	144			102	150	163	211	225	273	286	334	347	395
		10	106	160			86	139	147	201	209	262	270	323	331	385
		11	117	175					131	190	193	251	254	313	315	374
		12	127	191					115	179	177	241	238	302	299	363
VA 135	SA	5	89	133	144	188	236	280								
		6	107	160	117	170	209	263	302	355						
		7	125	187	90	152	183	245	275	337	368	430				
		8	142	213	64	135	156	227	249	319	341	412	433	504		
		9	160	240			129	209	222	302	314	394	407	486	499	579
		10	178	267			103	191	195	284	288	376	380	469	472	561
		11	196	293					169	266	261	358	353	451	446	543
		12	214	320					142	248	234	341	327	433	419	525
VA 160	SA	5	136	201	222	286	362	427								
		6	163	241	182	259	322	400	463	541						
		7	190	281	141	232	282	373	423	513	564	654				
		8	218	321	101	205	242	345	383	486	524	627	664	768		
		9	245	361			202	318	343	459	483	600	624	741	765	881
		10	272	401			162	291	303	432	443	573	584	713	725	854
		11	299	441					263	405	403	545	544	686	685	827
		12	326	481					222	377	363	518	504	659	645	800

SINGLE ACTING TORQUE (Nm)

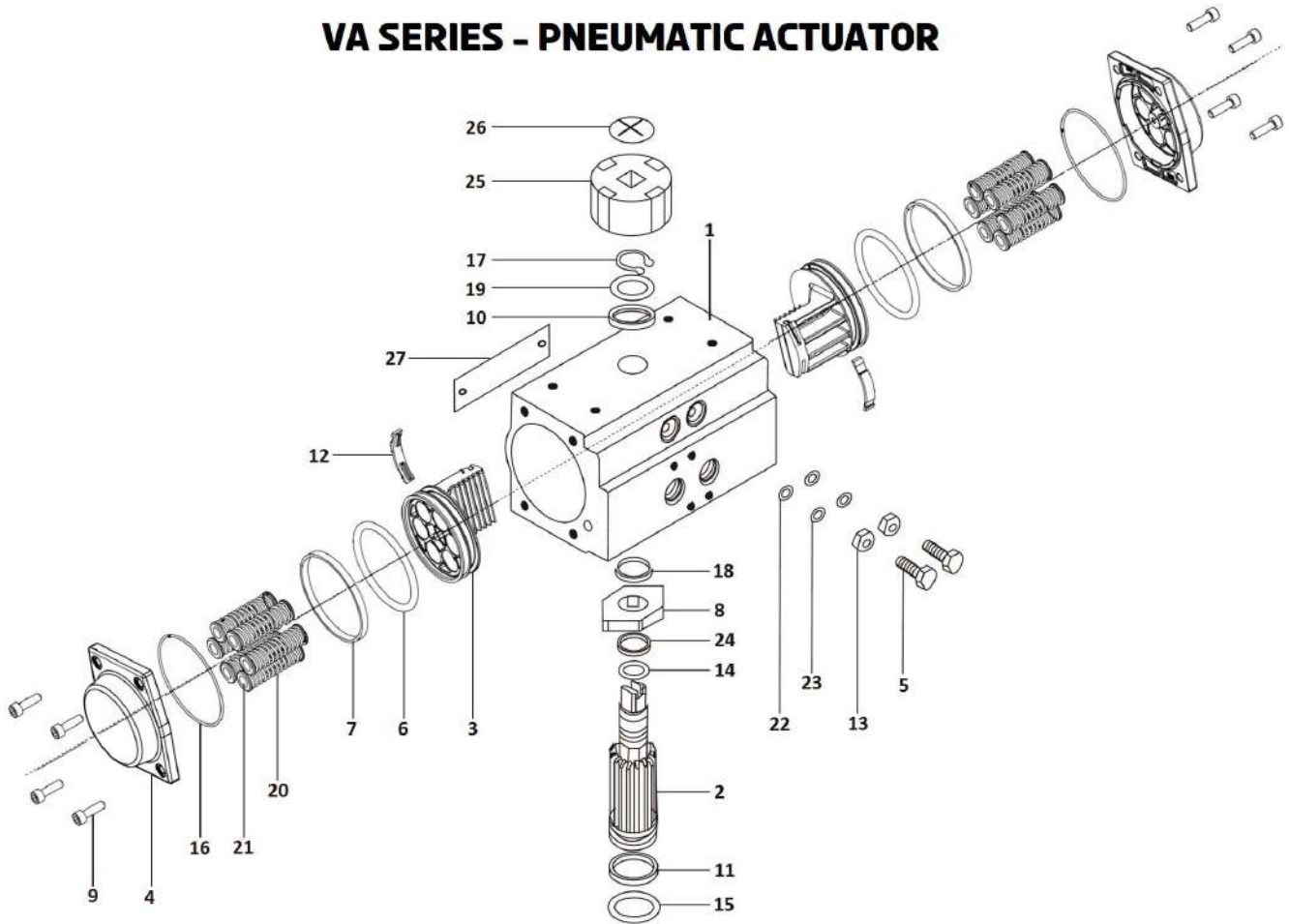
Actu'r Model	Actu'r Type	Spring Set	SPRING		3 bar		4 bar		5 bar		6 bar		7 bar		8 bar	
			Min	Max	Air		Air		Air		Air		Air		Air	
					Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
					End	Start	End	Start	End	Start	End	Start	End	Start	End	Start
VA 175	SA	5	232	349	332	448	559	675								
		6	278	418	262	402	489	629	716	856						
		7	325	488	192	356	419	582	646	809	873	1036				
		8	371	558	123	309	350	536	576	763	803	990	1030	1217		
		9	418	627			280	490	507	717	733	943	960	1170	1187	1397
		10	464	697			210	443	437	670	664	897	891	1124	1117	1351
		11	510	767					367	624	594	851	821	1077	1048	1304
		12	557	837					297	577	524	804	751	1031	978	1258
VA 200	SA	5	297	467	468	638	780	950								
		6	356	560	375	579	687	890	998	1202						
		7	416	654	282	519	593	831	905	1143	1217	1455				
		8	475	747	188	460	500	772	812	1083	1123	1395	1435	1707		
		9	535	840			407	712	718	1024	1030	1336	1342	1647	1653	1959
		10	594	934			313	653	625	965	937	1276	1248	1588	1560	1900
		11	653	1027					531	905	843	1217	1155	1529	1467	1840
		12	713	1121					438	846	750	1158	1062	1469	1373	1781
VA 250	SA	5	503	799	666	963	1155	1452								
		6	603	959	506	862	995	1351	1484	1840						
		7	704	1119	346	762	835	1250	1324	1739	1812	2228				
		8	804	1279	187	661	675	1150	1164	1639	1652	2127	2141	2616		
		9	905	1439			515	1049	1004	1538	1462	2027	1981	2515	2470	3004
		10	1005	1599			355	949	844	1437	1333	1926	1821	2415	2310	2903
		11	1106	1759					684	1337	1173	1825	1661	2315	2150	2803
		12	1207	1919					524	1236	1013	1725	1501	2213	1990	2702
VA 300	SA	5	630	1033	1028	1431	1715	2118								
		6	765	1240	821	1305	1508	1992	2195	2679						
		7	882	1446	615	1179	1302	1866	1989	2553	2676	3240				
		8	1008	1653	408	1053	1095	1740	1782	2427	2469	3114	3156	3801		
		9	1134	1860			889	1614	1576	2301	2263	2988	2950	3675	3637	4363
		10	1260	2036			682	1488	1369	2175	2056	2862	2743	3549	3430	4237
		11	1386	2273					1162	2049	1849	2736	2536	3423	3223	4111
		12	1512	2480					956	1923	1643	2610	2330	3297	3017	3985
VA 350	SA	5	730	1061												
		6	876	1273	875	1316										
		7	1022	1485	639	1153	1402	1916								
		8	1168	1697	403	991	1166	1754	1929	2517						
		9	1314	1909			930	1592	1693	2355	2456	3118				
		10	1460	2122			685	1430	1458	2193	2221	2956	2984	3719	3747	4482
		11	1606	2334					1222	2030	1985	2793	2748	3556	3511	4319
		12	1752	2546					986	1868	1749	2631	2512	3394	3275	4157



Actuator Model and Dimension

Model	VA 040	VA 050	VA 060	VA 080	VA 090	VA 0100	VA 110	VA 135	VA 160	VA 175	VA 200	VA 250	VA 300	VA 350
A	153	174	189	216	270	279	308	405	465	537	542	605	722	825
B	72	89	100	109	117	134	157	174	199	232	257	293	333	354
C	71	82	94	101	108.5	119	137.5	153	175	206	226	258	292	335
D	80	80	80	80	80	80	80	130	130	130	130	130	130	130
G	30	30	30	30	30	30	30	30	30	30	30	30	30	30
I	15	15	15	15	20	25	25	30	30	40	40	52	52	52
L	30	36	42	46	51	55	67.5	76	87.5	103	113	129	146	162
M	41	46	52	55	57.5	64	70	77	87.5	103	113	129	146	173
P	20	20	20	20	20	20	30	30	30	30	30	30	30	30
Q	36	50	50	50	50	70	70	102	102	-	-	-	-	-
Q1	50	70	70	70	70	102	102	125	125	125	125	160	160	160
FLANGE	F03	F05	F05	F05	F05	F07	F07	F10	F10	-	-	-	-	-
FLANGE	F05	F07	F07	F07	F07	F10	F10	F12	F12	F12	F12	F16	F16	F16
R	24	24	24	24	24	24	24	24	24	24	24	24	24	40
S	32	32	32	32	32	32	32	32	32	32	32	32	32	45
T	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/2"
CH-90°	11	14	14	17	17	22	22	27	27	36	36	46	46	46
W	M5	M6	M6	M6	M6	M8	M8	M10	M10	-	-	-	-	-
Y	8	10	10	10	10	12	12	16	16	-	-	-	-	-
W1	M6	M8	M8	M8	M8	M10	M10	M12	M12	M12	M12	M20	M20	M20
Y1	10	12	12	12	12	16	16	20	20	20	20	24	24	24

VA SERIES - PNEUMATIC ACTUATOR



BILL OF MATERIALS AND PART LIST

ITEM NO.	UNIT QTY.	PART DESCRIPTION	MATERIAL
1	1	BODY	ALUMINIUM
2	1	PINION	STEEL
3	2	PISTON WITH RACK	ALUMINIUM
4	2	END COVER (END CAP)	ALUMINIUM
5	2	STOPPER BOLT	STAINLESS STEEL
6	2	O-RING (PISTON)	NITRILE RUBBER
7	2	PISTON STRIP	ENGINEERING PLASTIC
8	1	CAM	STEEL
9	8	COVER BOLT	STAINLESS STEEL
10	1	WASHER (PINION)	ENGINEERING PLASTIC
11	1	O-RING (BOTTOM PINION)	NITRILE RUBBER
12	2	RACK BEARING	ENGINEERING PLASTIC
13	2	NUT (STOPPER BOLT)	STAINLESS STEEL
14	1	O-RING (TOP PINION)	NITRILE RUBBER

ITEM NO.	UNIT QTY.	PART DESCRIPTION	MATERIAL
15	1	PINION STRIP	ENGINEERING PLASTIC
16	2	COVER SEAL	NITRILE RUBBER
17	1	CIRCLIP (PINION)	SPRING STEEL
18	1	BEARING BUSH (CAM)	ENGINEERING PLASTIC
19	1	WASHER (PINION)	STAINLESS STEEL
20	7 - 10	SPRING	STAINLESS STEEL
21	7 - 10	SPRING CARTRIDGE	NYLON
22	2	O-RING (STOPPER BOLT)	NITRILE RUBBER
23	2	WASHER (STOP. BOLT)	STAINLESS STEEL
24	1	PINION BEARING	ENGINEERING PLASTIC
25	1	INDICATOR	PLASTIC
26	4	INDICATOR SCREW	STAINLESS STEEL
27	1	NAME PLATE	ALUMINIUM

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PED (2014/GB/EU)



ATEX(2014/34/EU)

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