

# **ZEETORK**

— the Automation & Controls Expert —



## **ZRD Series**

Pneumatic Actuator

## Key Features

ZRD series pneumatic actuator is one of the main series in the actuator's family.

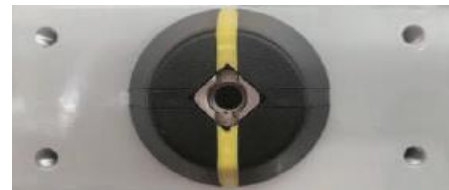
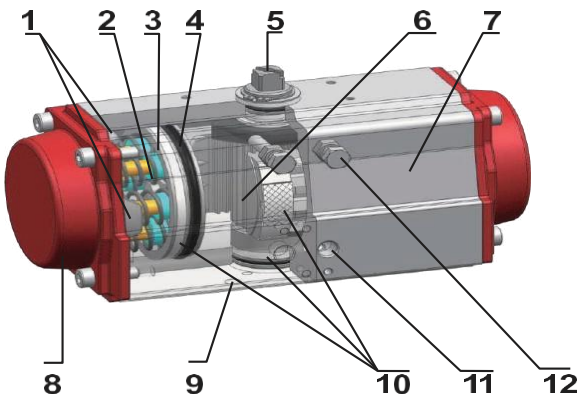
Based on advanced air flow control technology, high-precision machinery equipment's, high quality materials and our awe and veneration toward the products, ZRD series actuator has achieved high scores from our customers. The ZRD series actuators remain the world's leading because of the following features

- Racks & pinion structure with  $\pm 5^\circ$  double adjustable stops
- Meet the ISO5211, DIN3337 and Namur standards
- Available for double acting and spring return
- Available for use in  $-60^\circ\text{C}$
- Cycle life reaches more than 2 million times with safety limiter

## Design & Features

### 1.Safety limiter

The safety limiter of the ZRD series actuator is achieved by four lips on the end cap which can ensure that the meshing motion of piston and pinion is always in a safe state.



Namur Standardized Top Mounting

### 2.Cartridge springs

Preloaded and cartridge structure springs are made from piano spring material to ensure long term trouble-free operation. It can be demounted safely and conveniently to drive a variety of valves by changing quantity of springs.

### 3.Pistons

The twin rack pistons are made from die cast aluminium with hard anodization. Symmetric mounting design ensures trouble-free fast operation, long life and has a very simple design for rotating and inverting the pistons in field for reverse operation.

### 4. O-rings and seals

NBR rubber O-rings provide excellent sealing effect for long-term trouble-free operation within standard temperature ranges. For high( $150^\circ\text{C}$ ) or low temperature( $-40^\circ\text{C}$ ) ,viton or LNBR rubber is used.

## Design & Features

### 5. Top mounting

Namur (VDI /VDE3845) design of position indicator and connection dimensions ensures the convenient and standardized assembly installation for accessories, such as the limit switch box, position sensors and valve positioner.

### 6. Pinion

According to the latest standards of ISO5211, DIN3337, NAMUR, the pinion is designed and made of extruded low carbon alloy steel with nickel phosphorus coated for long-term operation even in a harsh environment.

### 7. Actuator body

Based on the latest standards of ISO5211, the body is designed and made of extruded aluminium ASTM6005. The hard anodized coated is standard for body surface and the polyester, nickel phosphorus PTFE coated are optional in any colour.

### 8. End caps

The end-caps made from die-casting aluminium with anodized and polyester coated. The nickel phosphorus or PTFE coated are optional for use in a harsh environment.

### 9. Valve mounting (Flange dimensions)

The flange dimensions on D series actuator fully comply with the international standard of ISO5211:2001(E). The British system mounting pattern is available for choice. This actuator is able to offer double square (FS), Double D (FD) or keyed (FK) female drive form for a number of different new or existing valve stem configurations



### 10. Bearings & guides

Which made from low friction, long-life compound material (POM and Nylon and 30% glass Fiber) to avoid the direct contact between metals and ensure the long-term operation even in a harsh environment. The maintenance and replacement are easy and convenient.

### 11. Interface to solenoid valve

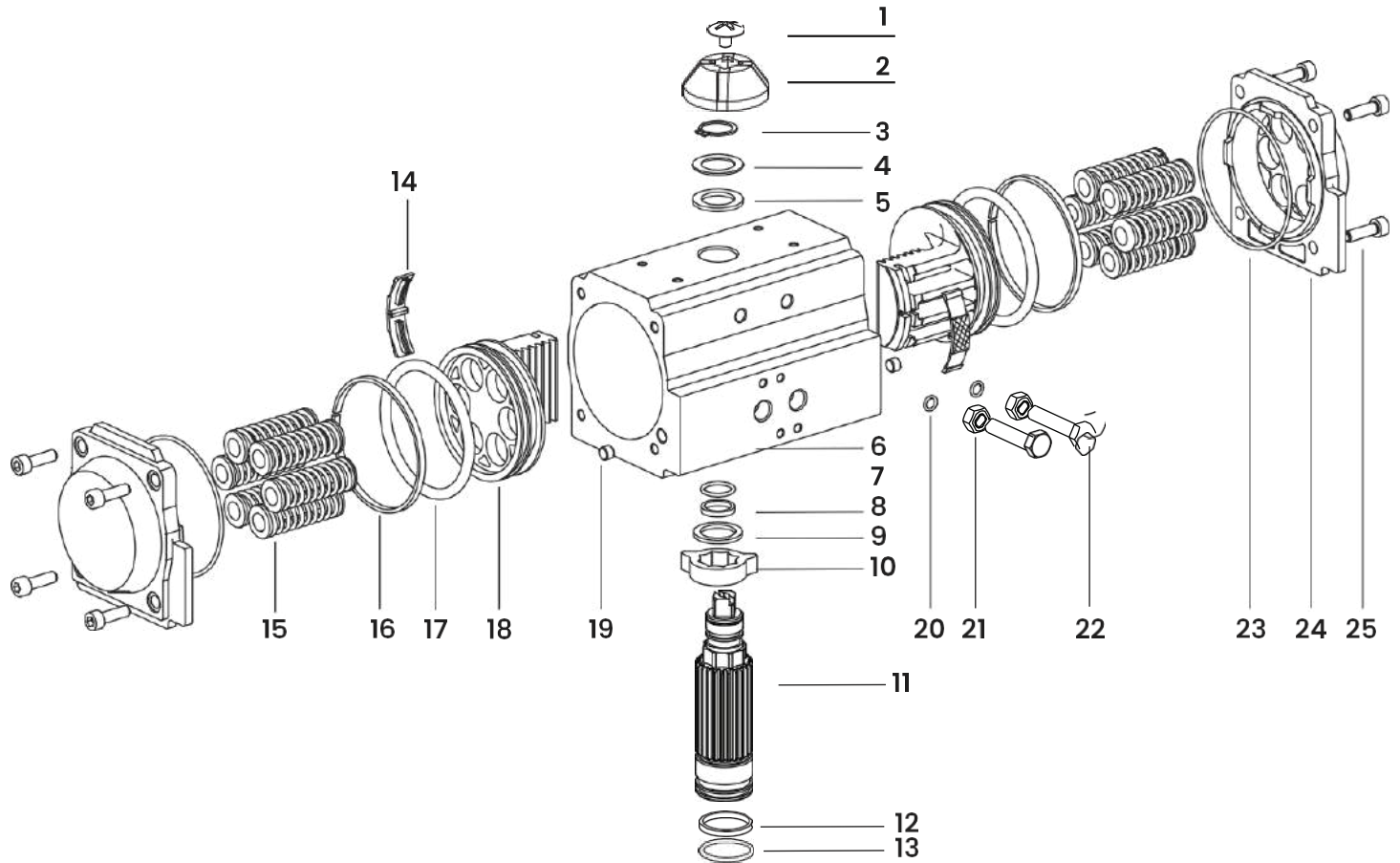
The design of this interface is fully comply with the international standard of Namur (VDI /VDE3845) and BSEN157143:2009(E) which are available for pressure connection directly with NAMUR Solenoid valve or inline solenoid valve.

### 12. Travel stops

Equipped with double adjustable travel stops that allow the actuators to drive the valve to the fully open or fully closed position with a range of  $\pm 5^\circ$ .



## Assemble, parts and material

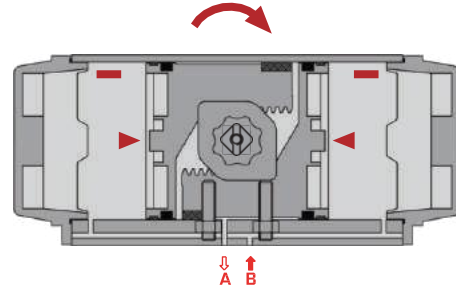
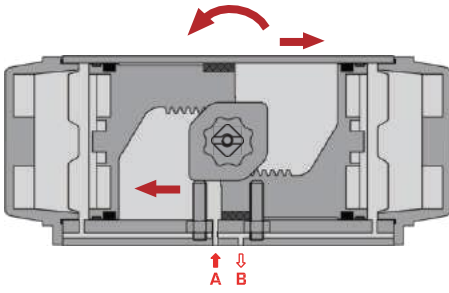


No	Description	Qty	Standards Material	No	Description	Qty	Standards Material
1	Indicator Screw	1	Stainless Steel(304)	14	Guide(Piston)	2	Nylon66+30% Glass Fiber
2	Indicator	1	Plastic(ABS)	15	Spring	0-12	Piano Spring Steel
3	Circlip	1	Stainless Steel(304)	16	Bearing(Piston)	2	Polyoxymethylene
4	Thrust Washer	1	Stainless Steel(304)	17	O-ring (Piston)	2	NBR
5	Outside Washer	1	Polyoxymethylene	18	Piston	2	Cast Aluminium/casting (A380)
6	Body	1	Extruded Aluminium alloy(6005-T 5)	19	Plug	2	NBR
7	O-ring (Pinion top)	1	NBR	20	O-ring (Adjust screw)	2	NBR
8	Bearing (Pinion top)	1	Polyoxymethylene	21	Nut (Adjust screw)	2	Stainless Steel(304)
9	Inside Washer	1	Polyoxymethylene	22	Adjust screw	2	Stainless Steel(304)
10	Cam	1	Extruded Low Carbon Alloy Steel 2	23	O-ring (End cap)	2	NBR
11	Pinion	1	Extruded Low Carbon Alloy Steel	24	End cap	2	Cast Aluminium (A380)
12	Bearing (Pinion bottom)	1	Polyoxymethylene	25	Cap screw	8	Stainless Steel(304)
13	O-ring (Pinion bottom)	1	NBR				

## Operating Principle

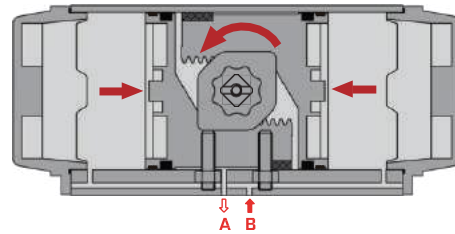
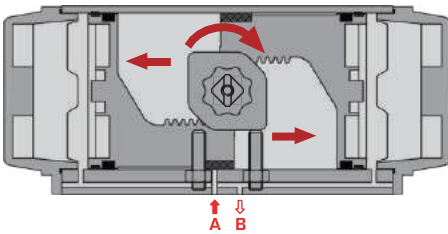
### Double Acting

#### Standard Assembly



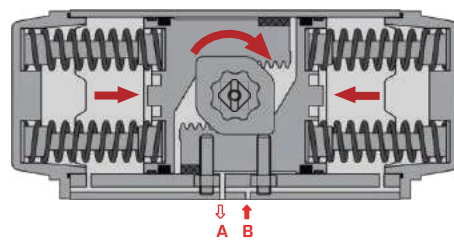
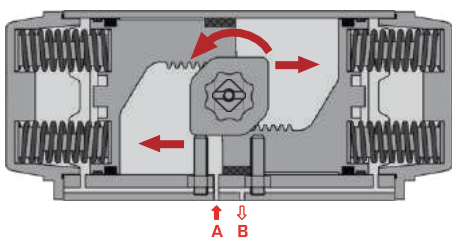
Air to port A forces the pistons outwards, causing the pinion to turn counter clockwise while the air is being exhausted from port B. Air to port B forces the pistons inwards, causing the pinion to turn clockwise while the air is being exhausted from port A.

#### Reverse Assembly



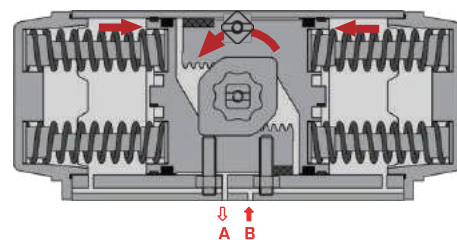
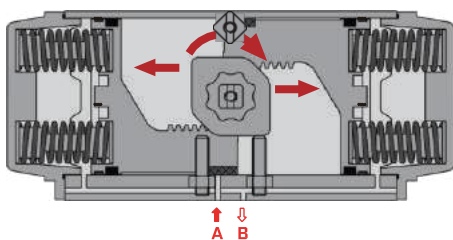
### Single Acting

#### Standard Assembly (fail to close)



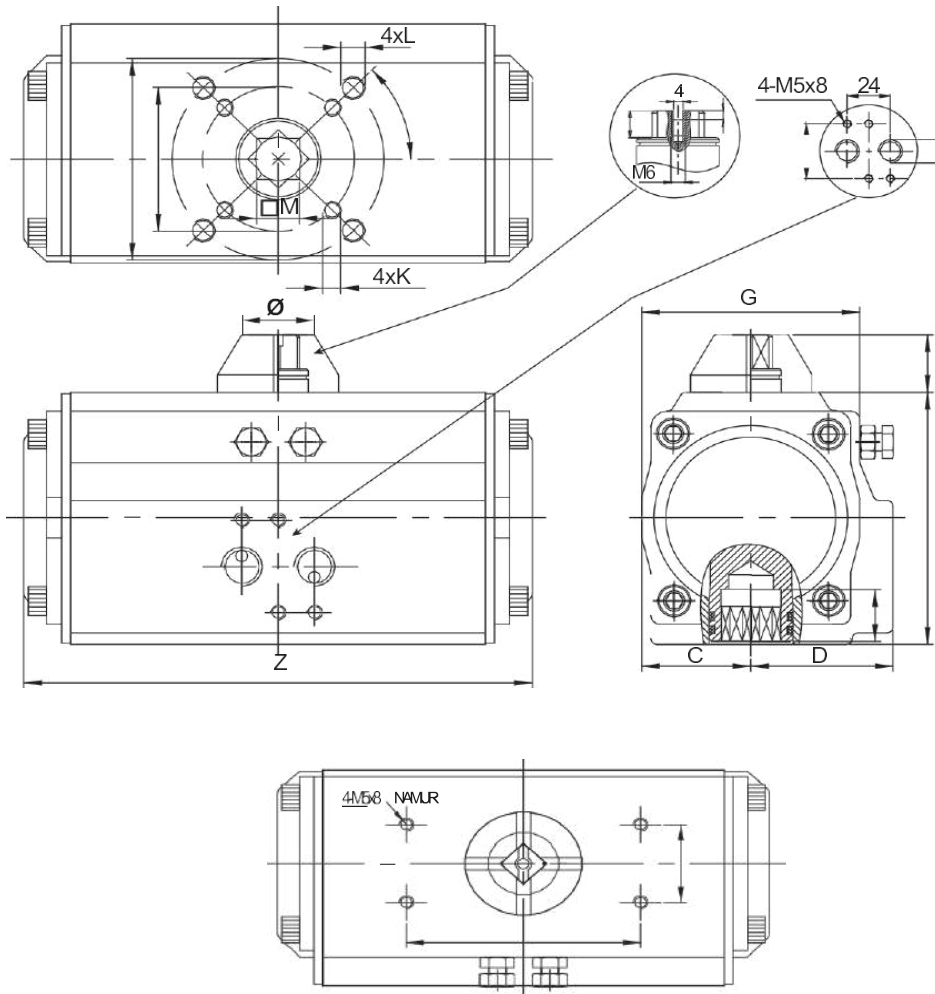
Air to port A forces the pistons outwards, causing the springs to compress, the pinion turns counter clockwise while air is being exhausted from port B. Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A.

#### Reverse Assembly (fail to open)



# Dimensional Drawing

## ZRD2 – ZRD36

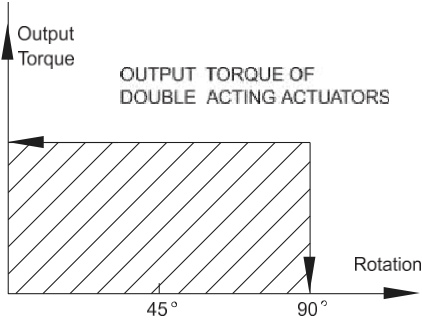


Dimensions are in mm

Model	A	B	C	D	E	G	H	I	J	K	L	M	N	Z	Φ	Air Connection
ZRD2	30	80	28.5	36.5	60	52	20	Φ36	Φ50	M5x8	M6x10	11	14	122	40	G1/4"(1/4"NPT)
ZRD4	30	80	30	41.5	72	65	20	Φ36	Φ50	M5x8	M6x10	11	14	147	40	G1/4"(1/4"NPT)
ZRD6	30	80	36	47	87.5	72	20	Φ50	Φ70	M6x10	M8x13	14	18	168	40	G1/4"(1/4"NPT)
ZRD8	30	80	42	53	99.5	81	20	Φ50	Φ70	M6x10	M8x13	14	18	185	40	G1/4"(1/4"NPT)
ZRD10	30	80	46	57	108.8	88	20	Φ50	Φ70	M6x10	M8x13	17	21	211	40	G1/4"(1/4"NPT)
ZRD12	30	80	50	61	116.5	98	20	Φ50	Φ70	M6x10	M8x13	17	21	262	40	G1/4"(1/4"NPT)
ZRD14	30	80	57.5	64	133	109.5	20	Φ70	Φ102	M8x13	M10x16	22	26	269	40	G1/4"(1/4"NPT)
ZRD16	30	80	67.5	74.5	155	127.5	20	Φ70	Φ102	M8x13	M10x16	22	26	303	55	G1/4"(1/4"NPT)
ZRD20	30	80	75	77	172	137.5	20	Φ102	Φ125	M10x16	M12x20	27	31	394	55	G1/4"(1/4"NPT)
ZRD22	30	80	87	77	197	158	20	Φ102	Φ125	M10x16	M12x20	27	31	452	55	G1/4"(1/4"NPT)
ZRD24	30	130	103	103	230	189	30	-	Φ140	-	M16x25	36	40	528	80	G1/4"(1/4"NPT)
ZRD26	30	130	114	114	255	211	30	-	Φ140	-	M16x25	36	40	532	80	G1/4"(1/4"NPT)
ZRD28	30	130	130	130	289	245	30	-	Φ165	-	M20x25	46	50	602	80	G1/4"(1/4"NPT)
ZRD30	30	130	147	147	326	273	30	-	Φ165	-	M20x25	46	50	722	80	G1/2"(1/4"NPT)
ZRD32	30	130	203	203	348	290	30	Φ165	Φ215	M20x25	M20x25	46	60	758	80	G1/2"(1/4"NPT)
ZRD34	30	130	230	230	408	336	30	Φ165	Φ254	M20x25	M20x25	46	60	888	80	G1/2"(1/4"NPT)
ZRD36	30	130	258	258	480	360	30	Φ165	Φ254	M20x25	M20x25	55	60	930	80	G1/2"(1/4"NPT)

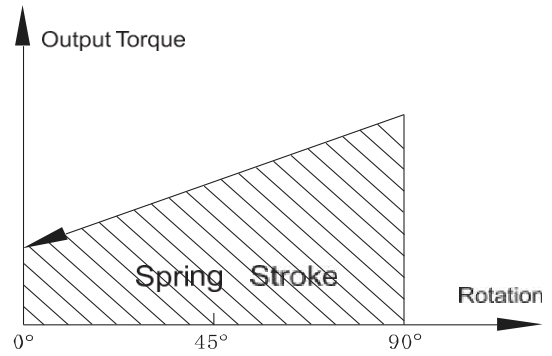
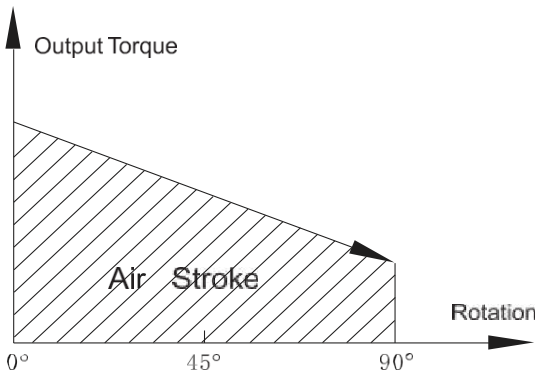
# Output Torque

## Torques of Double Acting



OUTPUT TORQUE OF ZRD SERIES PNEUMATIC ACTUATOR WITH DOUBLE ACTING(Torque Nm)											
MODEL	Air Pressure(Bar)										
	2	2.5	3	3.5	4	4.5	5	5.5	6	7	8
ZRD2DA	4.8	6.0	7.2	8.4	9.5	10.7	11.9	13.1	14.3	16.7	19.1
ZRD4DA	8.0	10.0	12.0	14	16.0	18.0	20.0	21.9	23.9	27.9	31.9
ZRD6DA	14.6	18.2	21.9	25.6	29.2	32.8	36.5	5.5	43.8	51.1	58.4
ZRD8DA	20.1	25.1	30.1	35.1	40.1	45.1	50.2	55.2	60.2	70.2	80.3
ZRD10DA	31.4	39.2	47	54.8	62.7	70.5	80.2	86.2	94.1	109.7	125.4
ZRD12DA	45.1	56.4	67.7	79	90.3	101.6	112.9	124.1	135.4	158	180.6
ZRD14DA	66.1	82.7	99.2	115.7	132.2	148.8	165.3	181.8	198.4	231.4	264.5
ZRD16DA	100.3	125.4	150.5	175.6	200.6	225.7	250.8	275.9	301	351.1	401.3
ZRD20DA	171.0	213.8	256.5	299.3	342.0	384.8	427.5	470.3	513	598.5	684
ZRD22DA	266.0	332.5	399.0	465.5	532.0	598.5	665.0	731.5	798	931	1064
ZRD24DA	425.6	532.0	638.4	744.8	851.2	957.6	1064	1170	1276.8	1489.6	1702.4
ZRD26DA	532.0	665.0	798.0	931.0	1064.0	1197.0	1330	1463	1596	1862	2128
ZRD28DA	769.5	961.9	1154.3	1346.7	1539.0	1731.4	1923.8	2116	2308.5	2693.3	3128
ZRD30DA	1169.6	1462.1	1754.5	2046.9	2339.3	2631.7	2924.1	3217	3508.9	4093.7	4678.6
ZRD32DA	1526	1908	2289	2671	3052	3434	3815	4197	4578	5341	6104
ZRD34DA	2285	2856	3427	3998	4570	5141	5712	6283	6854	7997	9139
ZRD36DA	3256	4070	4884	5698	6512	7326	8140	8954	9768	11396	13024

## Torques of Single Acting



OUTPUT TORQUE OF ZRD SERIES PNEUMATIC ACTUATOR WITH DOUBLE ACTING(Torque Nm)																	
MODEL	Spring Qty	Air Pressure(Bar)														Spring Output	
		2.5		3		4		5		6		7		8		90°	0°
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°		
ZRD4SA	5	5.7	3.8	7.6	5.7											6.2	4.3
	6	4.9	2.5	6.9	4.5	10.9	8.5									7.4	5.0
	7	4	1.3	6	3.3	9.8	7.3	14	10.4							8.6	5.9
	8			5.2	2	9.2	7.3	13.2	9.1	17.2	14.1					9.9	6.7
	9			4.3	0.8	8.3	4.8	12.3	7.9	16.3	12.8	20.3	16.8			11.1	7.6
	10					7.4	3.6	11.5	6.7	15.5	11.6	19.5	15.6			12.4	8.5
	11					6.6	2.3	10.6	5.4	14.6	10.41	18.6	14.3	22.6	18.3	13.6	9.3
ZRD6SA	5	11.4	7.7	15	11.4	22.3	14.9									10.4	6.8
	6	10.1	5.7	13.6	9.3	20.9	16.6	28.3	23.9							12.5	8.2
	7	8.6	3.6	12.5	7.2	19.5	14.5	26.8	21.9							14.6	9.6
	8			10.9	5.1	18.2	12.4	25.5	19.8	32.8	27	40.1	34.3			16.7	10.9
	9					16.8	10.4	24.1	17.7	31.4	24.9	38.7	32.2			18.8	12.3
	10					15.5	8.2	22.8	15.6	30	22.8	37.3	30.1	44.7	37.4	20.9	13.7
	11							21.5	13.5	28.7	20.7	36.0	28	43.3	35.3	22.9	15.0
	12							20	11.4	27.3	18.6	34.6	25.9	41.9	33.3	25.0	16.4

# Output Torque

OUTPUT TORQUE OF ZRD SERIES PNEUMATIC ACTUATOR WITH DOUBLE ACTING(Torque Nm)																	Spring Output	
MODEL	Spring Qty	Air Pressure(Bar)																
		2.5		3		4		5		6		7		8				
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°			
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	
ZRD8SA	5	14.5	10.6	19.4	15.5	29.5	25.7									14.5	10.5	
	6	12.4	7.6	17.3	12.6	27.4	22.7	37.5	32.8							17.4	12.7	
	7	10.4	4.8	15.2	9.7	25.3	19.9	35.4	29.9							20.3	14.8	
	8			13.1	6.8	23.1	16.9	33.3	27.0	43.2	37	53.3	47.0			23.2	16.9	
	9					21.0	14.1	31.2	24.1	41.1	34.1	51.2	44.2			26.1	19.0	
	10					19.0	11.1	28.8	21.2	39.0	31.2	49.1	41.2	59.1	51.2	29.0	21.1	
	11							27	18.3	37.0	28.3	47	38.4	57	48.4	31.9	23.2	
	12							24.9	15.4	34.9	25.4	44.9	35.4	54.9	45.4	34.7	25.3	
ZRD10SA	5	23.7	16.1	31.1	24.0	46.8	37.9									23.0	15.8	
	6	20.1	11.5	28.0	19.3	43.7	35.1	37.5	50.7							27.6	19.0	
	7	17.0	6.9	24.8	14.8	40.5	30.5	56.2	46.2							32.2	22.1	
	8			21.7	10.1	37.4	25.8	53.1	41.5	68.8	57.2	84.5	72.9			36.8	25.3	
	9					34.2	21.3	49.9	37.0	65.6	52.6	81.2	68.3			41.4	28.5	
	10					31.0	16.6	46.7	32.3	62.4	48	78.1	63.7	93.8	79.3	46.0	31.6	
	11							43.6	27.7	59.3	43.4	75	59.1	90.6	74.8	50.6	34.8	
	12							40.4	23.2	56.1	38.9	71.7	54.5	87.4	70.2	55.2	38.0	
ZRD12SA	5	33.1	22.0	44.2	33.2	66.8	55.9									34.4	23.3	
	6	28.4	15.2	39.6	26.4	62.2	49.0	84.8	71.6							41.2	28.0	
	7	23.8	8.2	34.9	19.4	57.5	42.1	80.2	64.7							48.1	32.7	
	8			31.3	12.6	52.9	35.2	75.5	57.9	98.1	80.5	120.7	103			55	37.3	
	9					48.2	28.4	70.9	51.0	93.5	73.6	116	96.1			61.9	42	
	10					43.6	21.5	66.2	44.1	88.8	66.7	111.3	89.2	134	111.8	68.7	46.7	
	11							61.5	37.2	84.1	59.9	106.6	82.4	129.2	105	75.6	51.4	
	12							56.8	30.4	79.4	53	101.9	75.5	124.5	98.1	82.5	56	
ZRD14SA	5	51.0	33.4	67.5	49.9	100.6	83.0									49.2	31.6	
	6	44.7	23.5	61.1	40.0	94.2	73.2	127.3	106.2							59.1	38.0	
	7	38.4	13.7	54.9	30.3	87.9	63.4	121.0	96.4							68.9	44.3	
	8			48.5	20.4	81.6	53.5	114.7	86.5	147.7	119.6	108.8	152.7			78.7	50.6	
	9					75.3	43.7	108.4	76.8	141.5	109.8	174.5	142.9			88.6	56.9	
	10					68.9	33.4	102	66.5	135.1	99.6	168.2	132.6	201.2	165.7	98.4	63.3	
	11							97.7	57	128.7	90.1	161.8	123.1	194.8	156.2	108.3	69.6	
	12							89.4	47.5	122.5	80.6	155.5	113.6	188.6	146.7	118.1	75.9	
ZRD16SA	5	73	47	98	72	148	122									79	52	
	6	63	31	88	56	138	107	188	157							94	63	
	7	52	15	77	40	127	90	178	141							110	73	
	8			67	25	117	75	167	125	217	176	268	226			125	84	
	9					107	59	157	109	207	159	257	210			141	94	
	10					96	44	146	94	196	144	247	194	297	245	157	105	
	11							136	78	186	128	236	178	286	228	173	115	
	12							125	63	176	113	226	163	276	213	188	125	

# Output Torque

OUTPUT TORQUE OF ZRD SERIES PNEUMATIC ACTUATOR WITH DOUBLE ACTING(Torque Nm)																	Spring Output	
MODEL	Spring Qty	Air Pressure(Bar)																
		2.5		3		4		5		6		7		8				
		0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	90° Start	0° End	
ZRD20SA	5	128	85	171	127	256	213									129	86	
	6	111	59	154	102	239	187	325	273							155	103	
	7	94	33	137	76	222	162	308	247							181	120	
	8			120	50	205	136	291	221	376	307	462	392			206	137	
	9					187	110	273	196	358	281	444	367			232	155	
	10					170	84	256	169	341	255	427	340	512	426	258	172	
	11							238	143	324	229	409	314	495	400	284	189	
	12							221	118	307	203	392	289	478	374	310	206	
	ZRD22SA	5	193	124	259	191	392	324									208	140
		6	165	83	232	149	365	282	498	415							250	168
		7	137	41	203	107	336	240	469	373							292	196
		8			176	66	309	199	442	332	575	465	708	598			333	223
9						280	157	413	290	546	423	679	556			375	251	
10						253	115	386	248	519	381	652	514	785	647	417	279	
11								358	207	491	340	624	473	757	606	458	307	
12								330	165	463	298	596	431	729	564	500	335	
ZRD24SA		5	332	222	438	329	651	542									309	200
		6	292	161	398	267	611	480	824	693							371	240
		7	252	99	358	205	571	418	784	631							433	280
		8			318	143	531	356	744	569	957	782	1169	995			495	320
	9					491	295	704	507	917	720	1130	933			557	360	
	10					451	233	664	446	877	658	1090	871	1302	1084	618	400	
	11							624	384	837	597	1050	809	1263	1022	680	440	
	12							584	322	797	535	1010	748	1223	960	742	480	
	ZRD26SA	5	390	285	523	418	789	684									380	275
		6	335	209	468	342	734	608	1000	874							456	330
		7	280	133	413	266	679	532	945	798							532	385
		8			358	190	624	456	890	722	1156	988	1422	1254			608	440
9						569	380	835	646	1101	912	1367	1178			684	495	
10						514	304	780	570	1046	836	1312	1102	1578	1368	760	550	
11								725	494	991	760	1257	1026	1523	1292	836	605	
12								670	418	936	684	1202	950	1468	1216	912	660	
ZRD28SA		5	552	409	744	600	1129	985									554	410
		6	470	297	662	489	1047	874	1432	1259							665	490
		7	388	187	580	379	964	764	1349	1149							775	575
		8			498	268	883	653	1267	1037	1652	1422	2037	1807			886	656
	9					800	542	1185	926	1569	1311	1954	1696			998	739	
	10					718	431	1103	816	1488	1201	1872	1586	2257	1970	1108	821	
	11							1021	705	1406	1090	1791	1471	2176	1859	1219	903	
	12							939	594	1323	979	1708	1363	2093	1748	1330	985	
	ZRD30SA	5	903	675	1195	968	1779	1552									787	560
		6	790	519	1083	811	1667	1396	2252	1981							943	672
		7	679	361	972	654	1556	1238	2141	1823							1101	783
		8			860	497	1444	1081	2029	1666	2614	2252	3199	2836			1258	895
9						1332	923	1917	1509	2502	2094	3087	2678			1416	1007	
10						1220	767	1805	1352	2390	1937	2974	2521	3560	3107	1572	1119	
11								1693	1197	2278	1779	2862	2364	3448	2949	1730	1231	
12								1582	1037	2167	1623	2751	2207	3336	2792	1887	1342	
ZRD32SA		5	1097	729													1061	730
		6	935	494	1316	875											1273	876
		7	772	258	1153	639	1916	1402									1485	1022
		8			991	403	1754	1166	2517	1929							1697	1168
	9					1592	930	2335	1693	3118	2456					1909	1314	
	10					1430	695	2193	1458	2956	2221	3719	2984	4482	3747	2122	1460	
	11							2030	1222	2793	1985	3556	2748	4319	3511	2334	1606	
	12							1868	986	2631	1749	3394	2512	4157	3275	2546	1752	
	ZRD34SA	5	1553	964													1702	1173
		6	1292	586	1863	1157											2043	1408
		7	1031	208	1602	779	2745	1922									2383	1640
		8			1341	401	2484	1544	3626	2686							2724	1877
9						2224	1165	3366	2307	4508	3449					3064	2112	
10						1963	787	3105	1929	4247	3071	5390	4214	6532	5356	3405	2346	
11								2844	1551	3986	2693	5129	3836	6271	4978	3745	2581	
12								2584	1172	3726	2314	4869	3457	6011	4599	4086	2816	
ZRD36SA		7	2028	869													2880	1873
		8	1736	411	2550	1225											3292	2100
		9			2259	768	3887	2396									3703	2362
		10			1967	311	3595	1939	5223	3567							4115	2624
	11					3303	1482	4931	3110	6559	4738					4526	2887	
	12					3012	1025	4640	2653	6268	4281	7895	5908	9523	7536	4938	3149	
	13							4348	2195	5976	3823	7603	5450	9231	7078	5349	3412	
	14							4057	1738	5685	3366	7312	4993	8940	6621	5761	3674	
	15							3765	1281	5393	2909	7020	4536	8648	6164	6172	3937	
	16									5101	2452	6728	4079	8356	5707	6584	4199	

## Sizing Information & Technical Data

### Sizing and torque safety factor

#### Sizing: Double Acting Actuators

The suggested safety factor for double acting actuators under normal working conditions is 20%-30%.

##### Example:

The torque needed by valve = 100Nm  
The torque considered safety factor (I+30%) = 130Nm  
Air Supply = 5Bar  
According to the above table, we can choose the minimum model is ZRD14DA (output torque is 165.3Nm at 5bar)

##### Attention:

During the restoration, the spring return actuators Output torque will not be affected by the inputting air from the port B. On the contrary, it will help the restoration of springs.

#### Operating Conditions

##### Operating media

Dry or lubricated air, or the non-corrosive gas.  
The maximum particle diameter must less than 30pm.

##### Air supply pressure

The minimum supply pressure is 2 Bar  
The maximum supply pressure is 8 Bar

##### Operating temperature

Standard(NBR O-ring):-20°C~+80°C  
High temperature (Viton O-ring):-15°C~+150°C  
Low temperature (LNBR O-ring):-40°C~+80°C  
Cold temperature (LNBR+ Silica O-ring):-60°C~+80°C

##### Travel and adjustment

Standard travel : 0°~90°  
Adjustment : 0°±5° and 90°±5°

#### Sizing: Single Acting Actuators

The suggested safety factor for spring return actuator under normal working conditions is 30%-50%

##### Example:

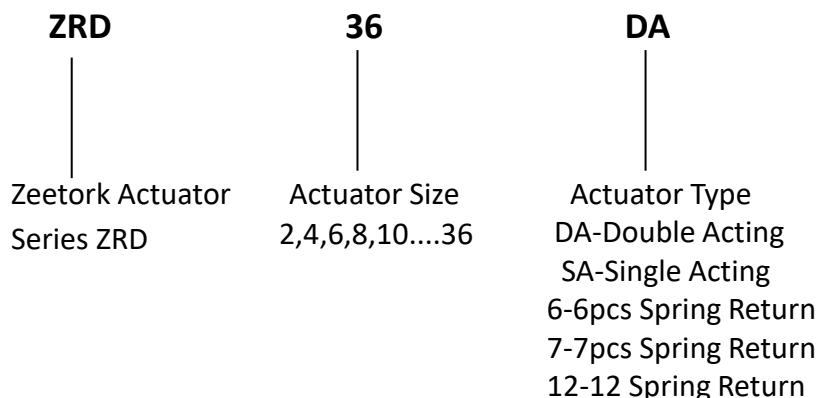
The torque needed by valve = 80Nm  
The torque considered safety factor (I+30%) = 104Nm  
Air Supply = 5Bar  
According to the single acting actuators output, we find output torque of ZRD20SAS7 is :  
Air stroke 0°= 308Nm  
Air stroke 90°=247Nm  
Spring stroke 90°=181Nm  
Spring stroke 0°=120Nm  
All the output torque is larger than we need.

##### Application

Suitable both for indoor and outdoor. For harsh and corrosive environment, the nickel phosphorus or PTFE Coated are available for option.

Actuator with integrated manual override Large Rotary Stroke  
1800 for 240° Three Positions Stroke  
0°-45°-90° 0°-90°-180°; 0°-12°-240°

### Ordering Guide



## Sizing Information & Technical Data

### Air Consumption

#### Air Volume Opening & Closing

Volume in cubic centimetre

Model	Air volume opening	Air volume closing	Model	Air volume opening	Air volume closing
ZRD2	0.06	0.07	ZRD20	2.47	3.1
ZRD4	0.12	0.15	ZRD22	3.78	4.83
ZRD6	0.21	0.23	ZRD24	6.06	7.49
ZRD8	0.3	0.36	ZRD26	7.57	9.37
ZRD10	0.43	0.53	ZRD28	11	9
ZRD12	0.65	0.89	ZRD30	17	14
ZRD14	0.97	1.16	ZRD32	23.8	29.7
ZRD16	1.53	1.75	ZRD34	35.1	46.3
ZRD18	1.99	2.41	ZRD36	52.6	56

Air Consumption depends on Air Supply, Air Volume and Action cycle times, the calculation as follows

$$L/Min = \text{Air Volume}(\text{Air Volume Opening} + \text{Air Volume Closing}) \times \left[ \frac{\text{Air Supply (Kpa)} + 101.3}{101.3} \right] \times \text{Action cycle times}(/min)$$

### Weight

in kg

Model	ZRD2	ZRD4	ZRD6	ZRD8	ZRD10	ZRD12	ZRD14	ZRD16	ZRD18	ZRD20	ZRD22	ZRD24	ZRD26	ZRD28	ZRD30	ZRD32	ZRD34	ZRD36
DA	1	1.4	2	2.7	3.1	4.6	6.8	8.9	12.1	133	20	31	47	55	83.8	128.5	210.2	280
SA	-	1.5	2.1	2.9	3.6	5.2	6.9	10.1	13.6	15	24	35	55	69.3	106.6	156.1	259.4	360

### Stroke Time

in secs

Double Acting			Single Acting																
Size	0°- 90°	90°-0°	Size	Spring Qty															
				3+3		3+4		4+4		4+5		5+5		5+6		6+6			
				0°- 90°	90°-0°	0°- 90°	90°-0°	0°- 90°	90°-0°	0°- 90°	90°-0°	0°- 90°	90°-0°	0°- 90°	90°-0°	0°- 90°	90°-0°		
ZRD2DA	0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
ZRD4DA	0.2	0.2	ZRD4SA	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.4	0.2	0.5	0.2	
ZRD6DA	0.2	0.2	ZRD6SA	0.3	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.5	0.3	0.6	0.3	
ZRD8DA	0.3	0.3	ZRD8SA	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.5	0.3	0.6	0.3		
ZRD10DA	0.4	0.4	ZRD10SA	0.6	0.7	0.7	0.6	0.7	0.6	0.7	0.5	0.7	0.5	0.8	0.5	0.9	0.4		
ZRD12DA	0.6	0.6	ZRD12SA	0.6	0.8	0.7	0.7	0.8	0.7	0.8	0.6	0.8	0.6	0.9	0.6	1	1		
ZRD14DA	0.8	0.8	ZRD14SA	1	1.4	1.2	1.3	1.4	1.2	1.6	1.1	1.8	1	2	0.9	2.2	0.9		
ZRD16DA	1.2	1.2	ZRD16SA	1.4	1.6	1.6	1.5	1.8	1.4	2	1.3	2.2	1.2	2.3	1.1	2.6	1.1		
ZRD18DA	1.4	1.4	ZRD18SA	1.8	2.1	2.1	2	2.4	1.8	2.7	1.6	3	1.5	3.2	1.4	3.6	1.3		
ZRD20DA	1.6	1.6	ZRD20SA	2.1	2.7	2.5	2.4	2.9	2.1	3.3	1.9	3.7	1.7	4.1	1.6	4.5	1.5		
ZRD22DA	2.9	2.9	ZRD22SA	3.3	3.8	3.7	3.5	4.3	3.2	4.6	3	5.1	2.8	5.3	2.7	6	2.5		
ZRD24DA	5	5.2	ZRD24SA	5.3	7	6	7	6.5	7	7.3	6.6	8.2	6.3	8.7	6	9.2	5.6		
ZRD26DA	6	5.5	ZRD26SA	8	10	8.5	9.7	9	9.4	9.5	9.1	10	8.9	10.5	8.6	11	8.2		
ZRD28DA	8.5	8.5	ZRD28SA	15	13	15.5	12.6	16	12.2	16.5	11.8	17	11.4	17.5	11	19	10.6		
ZRD30DA	11	11	ZRD30SA	20	17	21	16	22	15	23	14	24	13	25	12	26	11		
ZRD32DA	14	14	ZRD32SA	27	25	26	24	25	23	23.5	22	22	21	20.5	20	27	19		
ZRD34DA	25	25	ZRD34SA	31	29	32.5	28	34	27	35.5	26	37	25	38.5	24	40	23		
ZRD36DA	31	29	ZRD36SA	44	32.4	45	31	47	30.6	49	29.2	50	27.8	52	26.4	54	25		

Testing condition: Without load at 5Bar; Namur S.V.ZLV510F3C0(Cv=1.1)for size of 2 to 28 and Namur S.V.ZLV410F1/F2C0(Cv=2.78)for size of 30 to 36

# **ZEETORK**

— the Automation & Controls Expert —

## **Zeetork Automation and Control Pte. Ltd.**



**Singapore : 22 Sin Ming Lane, #06-06, Midview City, Singapore -573969**



**India : S.F.No 617/2H2, Vadakku Thottam, Malumichampatti P.O, L&T road,  
Coimbatore - 641021**



**[www.zeetork.com](http://www.zeetork.com)**



**[sales@zeetork.com](mailto:sales@zeetork.com)**