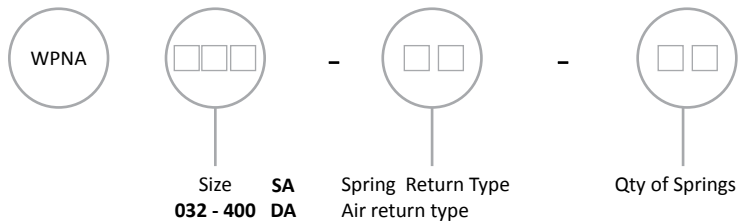


WPNA Pneumatic Actuator



WPNA Series Pneumatic was designed and developed based on the advanced technology and new material.

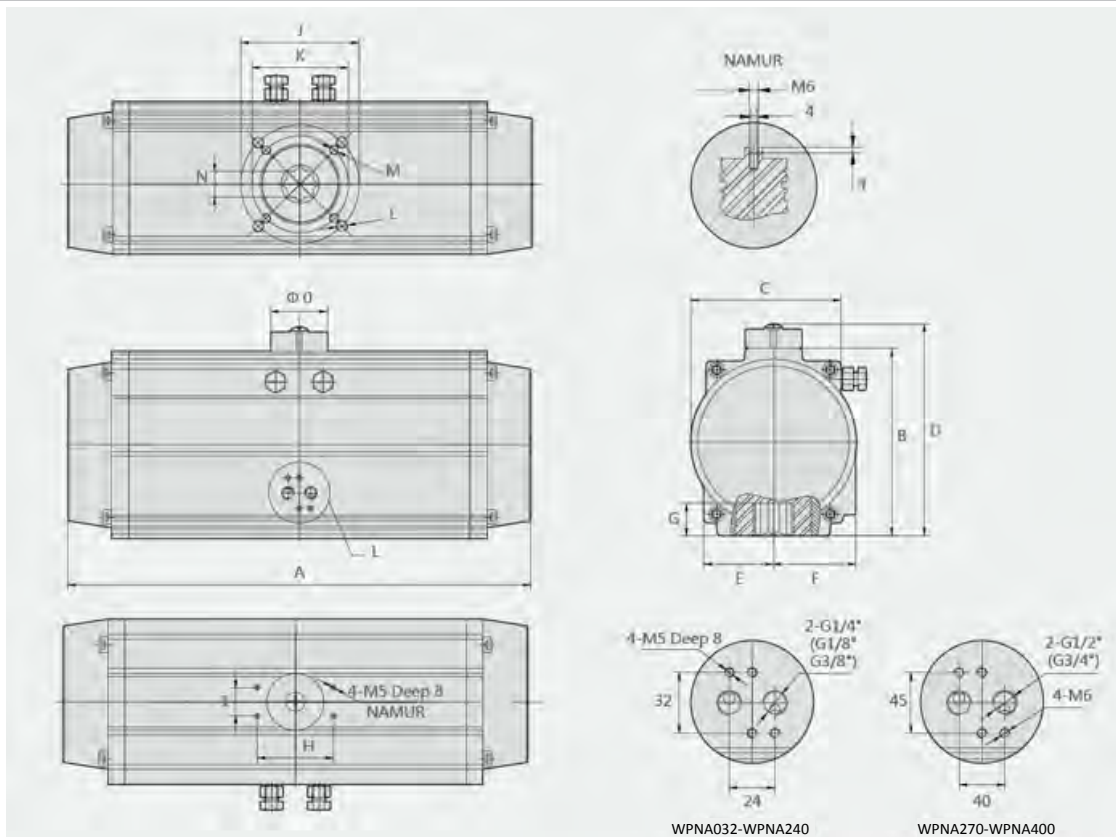
Order Code



Features

- Conform to the latest international standard : ISO5211, DIN3337, VD/VDE3845 and NAMUR.
- Excellent, compact and modernized design as well as complete specifications is good for your selection.
- All acting surfaces adopt high quality bearings, resulting in low friction, long cycle life and no noise.
- The two independent stroke adjusting devices can easily and precisely adjust at $\pm 5^\circ$ open or close.
- Double acting type and single acting type (spring return) are with the same external structure, which is easy to install the accessories.
- NAMUR standard multifunction position indicator indicates visually.
- Pre-compressed load spring is convenient for safe mounting and teardown procedures.
- Pistons and end caps are made from die-casting aluminum which has high intensity and light weight.
- Different seal materials are available for high or low temperature
- We can offer Multi-travel rotations (e.g. 120° 135° 180°) and three position actuators.
- Solenoid valves can be easily mounted without connecting plank.

The dimensions



WPNA Pneumatic Actuator

The dimensions

MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Airconnection
WPNA032-DA	112	45	51	71	22.5	28.5	12	50	25		F03/Ø36		M5x8	9	Ø40	G1/8"
WPNA032-SA	142	45	51	71	22.5	28.5	12	50	25		F03/Ø36		M5x8	9	Ø40	G1/8"
WPNA040-DA	124	59,5	83	86	36.4	24	14	80	30	F05/Ø50	F03/Ø36	M6x9	M5x8	11	Ø40	G1/4"
WPNA040-SA	149	59,5	83	86	36.4	24	14	80	30	F05/Ø50	F03/Ø36	M6x9	M5x8	11	Ø40	G1/4"
WPNA052	163,5	72	65	98	26	42	14	80	30	F05/Ø50	F03/Ø36	M6x9	M5x8	11	Ø40	G1/4"
WPNA063	181	87,6	71	113	33	47	18	80	30	F07/Ø70	F05/Ø50	M8x10	M6x9	14	Ø40	G1/4"
WPNA075	207	99,4	80.2	125	38.7	52.5	20	80	30	F07/Ø70	F05/Ø50	M8x12	M6x9	14	Ø40	G1/4"
WPNA083	213	108,9	91.6	134.5	40	56.5	21	80	30	F07/Ø70	F05/Ø50	M8x12	M6x9	17	Ø40	G1/4"
WPNA092	258	117	98.3	143	44	59	21	80	30	F07/Ø70	F05/Ø50	M8x12	M6x10	17	Ø40	G1/4"
WPNA105	287	133	109.5	158.5	52	64	24.5	80	30	F10/Ø102	F07/Ø70	M10x15	M8x12	22	Ø40	G1/4"
WPNA125	342.5	154.4	127.2	180.5	59.7	74	29	80	30	F10/Ø102	F07/Ø70	M10x15	M8x12	22	Ø50	G1/4"
WPNA140	411	173.7	138	200	65	77	32	80	30	F12/Ø125	F10/Ø102	M12x20	M10x15	27	Ø60	G1/4"
WPNA160	488	198	158.3	224	73.8	86.7	34.5	80	30	F12/Ø125	F10/Ø102	M12x20	M10x15	27	Ø60	G1/4"
WPNA190	544	232.3	188.7	258	85.3	102.8	40	130	30	F14/Ø140		M16x22		36	Ø80	G1/4"
WPNA210	580	257.6	210.5	284	96.5	113.2	41	130	30	F14/Ø140		M16x24		36	Ø80	G1/4"
WPNA240	622	291	245	317	115	130	50	130	30	F16/Ø165		M20x26		46	Ø80	G3/8"
WPNA270	766	330	273	356	126	147	50	130	30	F16/Ø165		M20x26		46	Ø80	G1/2"
WPNA300	794	354	312	380	140	173	57	130	30	F16/Ø165		M20x26		46	Ø80	G1/2"
WPNA350	880	410	362	436	164	195	60	130	30	F16/Ø165		M20x26		46	Ø80	G1/2"
WPNA400	1067	466	450	493	145	145	60	130	30	F25/Ø254		M20x26		55	Ø80	G3/4"

Note: A120 and a180 means the acting length of 120° and 180° of rotary respectively.

WPNA Pneumatic Actuator

Output torque of WPNA spring return actuator

Output torque of Air supply													
Air pressure (bar)		3		4		5		6		7		Spring stroke	
Model	Spring gty	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End
WPNA032SA	2					4.76	0.92	6.26	2.42	7.26	3.42	2.74	6.58
WPNA040-SA	2					7.59	1.18	9.93	3.52	11.5	5.09	4.13	10.54
WPNA052SA	5	8.48	6.28	12.64	10.44							4	6.2
	6	7.68	4.98	11.84	9.14							4.8	7.5
	7	6.98	3.78	11.14	7.94							5.5	8.7
	8			10.34	6.74	14.5	10.9					6.3	9.9
	9			9.54	5.44	13.7	9.6					7.1	11.2
	10			8.74	4.24	12.9	8.4	17.06	12.56			7.9	12.4
	11					12.1	7.1	16.26	11.26	20.42	15.42	8.7	13.7
WPNA063SA	12					11.3	5.9	15.46	10.06	19.62	14.22	9.5	14.9
	5	15	11.2	22.3	18.5	29.6	25.8					7	10.8
	6	13.5	9	20.8	16.3	28.1	23.7					8.5	12.95
	7	12	6.9	19.4	14.2	26.7	21.5					9.9	15.1
	8			18	12	25.3	19.3	32.6	26.6			11.3	17.3
	9			16.5	9.9	23.9	17.2	31.2	24.52			12.7	19.4
	10			15.3	7.7	22.6	15	29.9	22.3	37.2	29.6	14	21.6
WPNA075SA	11			13.8	5.6	21.1	12.9	28.4	20.2	35.7	27.5	15.5	23.7
	12					19.7	10.7	27	18	34.3	25.3	16.9	25.9
	5	23.4	17.8	35.1	29.5							11.9	17.5
	6	-21.1	14.3	32.8	26							14.2	21
	7	-18.7	10.8	30.4	22.5							16.6	24.5
	8			28	19	39.8	30.8					19	28
	9			25.7	15.5	37.5	27.3					21.3	31.5
WPNA083SA	10			23.3	12	35.1	23.8	46.8	35.5	58.6	47.3	23.7	35
	11					32.7	20.3	44.4	32	56.2	43.8	26.1	38.5
	12					30.4	16.8	42.1	28.5	53.9	40.3	28.4	42
	5	30.9	23.8	46.1	38.9							14.5	21.7
	6	28.1	19.5	43.3	34.6							17.39	26
	7	25.2	15.1	40.3	30.2							20.3	30.4
	8			37.4	25.9	52.6	41.1					23.2	34.7
WPNA092SA	9			34.5	21.5	49.7	36.7					26.1	39.1
	10			31.6	17.2	46.8	32.4	62	47.6	77.1	62.7	29	43.4
	11					43.9	28.1	59.1	43.3	74.2	58.4	31.9	47.7
	12					41	23.7	56.2	38.8	71.3	54	34.78	52.08
	5	45.7	34.7	68.6	57.6							22.5	33.5
	6	41.2	28	64.1	50.6							27	40.2
	7	36.7	21.4	59.6	44.3							31.5	46.8
WPNA105SA	8			55.1	37.6	77.7	60.2					36	53.5
	9			50.6	30.8	73.2	53.4					40.5	60.3
	10			47.1	26.1	69.7	48.7	92.4	71.4	115.2	94.2	44	65
	11					64.2	40	86.9	62.7	109.7	85.5	49.5	73.7
	12					59.7	33.5	82.4	56.2	105.2	79	54	80.2
	5	68.6	52	103.6	87							33.2	49.8
	6	61.9	42	96.9	77							39.9	59.8
WPNA125SA	7	55.3	32.1	90.3	67.1							46.5	69.7
	8			83.7	57.1	116.6	90					53.1	79.7
	9			77	47.4	109.9	80.3					59.8	89.4
	10			70.4	37.2	103.3	70.1	137.3	104	171.2	138	66.4	99.6
	11					96.7	60.1	130.6	94	164.6	128	73	109.6
	12					90	50.2	123.9	64.1	157.9	118.1	79.7	119.5
	5	115.5	88	173.8	146.3							59.4	86.9
WPNA125SA	6	103.6	70.6	161.9	128.9							71.3	104.3
	7	91.8	53.5	150.1	111.6							83.1	121.6
	8			138.2	94.2	196.5	152.5					95	139
	9			126.3	76.8	184.6	135.1					106.9	156.4
	10			114.4	59.4	172.7	117.7	231	176			118.8	173.8
	11					160.9	100.4	219	158.7	277.5	217	130.6	191.1
	12					149	83	207.3	141.3	265.6	199.6	142.5	208.5

WPNA Pneumatic Actuator

Output torque of WPNA spring return actuator

Output torque of Air supply													
Air pressure (bar)		3		4		5		6		7		Spring stroke	
Model	Spring gty	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End
WPNA40SA	5	174.7	131.2	262.5	219							88.5	132
	6	157	104.8	244.8	192.6							106.2	158.4
	7	133.9	78.4	227.1	166.2							123.9	184.8
	8			209.4	139.8	297.1	227.5					141.6	211.2
	9			191.7	113.4	279.4	201.1					159.3	237.6
	10			174	87	261.7	174.7	349.4	262.4	437.8	350.1	177	264
	11					244	148.3	331.7	236	419.5	323.8	194.7	290.4
	12					226.3	121.9	314	209.6	401.8	297.4	212.4	316.8
WPNA160SA	5	264.6	197.1	398.3	330.8							136.5	204
	6	237.3	156.2	371	289.9							163.8	244.9
	7	210	115.4	343.7	249.1							191.1	285.7
	8	182.7	74.6	316.4	208.3	450.1	341.9					218.4	326.5
	9			289.1	167.5	422.8	301.9					245.7	367.3
	10			261.8	126.7	395.5	260.4	529	394.1			273	408.1
	11					368.2	219.6	501.9	353.3	635.6	487	300.3	448.9
	12					340.9	178.8	474.6	312.5	608.3	446.2	327.6	489.7
WPNA190SA	5	429	320.4	644.5	535.9							217.4	326
	6	385.5	255.5	601	470.7							260.9	391.2
	7	342	190	557.5	405.5							304.4	456.4
	8			514	340.3	729.5	555.8					347.9	521.6
	9			470.6	275.1	686.1	490.6					391.3	586.8
	10			427.1	209.9	642.6	425.4	858.1	640.9	1073.6	856.4	434.8	652
	11					599.1	360.2	814.6	575.7	1030.1	791.2	478.3	717.2
	12					555.6	295	771.1	510.5	986.6	726	521.8	782.4
WPNA210SA	5	589.6	440.6	885.7	736.7							298.8	447.8
	6	529.8	351.1	825.9	647.2							358.6	537.3
	7	470.1	261.5	766.2	557.6							418.3	626.9
	8			706.4	468.1	1002.5	764.2					478.1	716.4
	9			646.7	375.5	942.8	671.6					537.8	809
	10			586.9	289	883	585.1	1179.1	881.2	1475.2	1177.3	597.6	895.5
	11					823.2	495.5	1119.3	791.6	1415.4	1087.7	657.4	958.1
	12					763.5	406	1059.6	702.1	1355.7	998.2	717	1074.6
WPNA240SA	5	924	690.5	1488.1	1154.6							468.5	702
	6	829.9	550.1	1294	1014.2							562.6	842.4
	7	736.7	409.7	1200.8	873.8							655.8	982.8
	8			1107.1	733.4	1571.3	1197.6					749.5	1123.2
	9			1013.4	593	1477.6	1057.2					843.2	163.6
	10			919.7	452.6	1383.9	916.8	1848.1	1381	2312.2	1845.1	936.9	1404
	11					1290.2	776.4	1754.4	1240.6	2218.5	1704.7	1030.6	1544.4
	12					1196.5	636	1660.7	1100.2	2124.8	1564.3	1124.3	1684.8
WPNA270SA	5	1299.7	971.2	1952.4	1623.9							658.5	987
	6	1168	773.8	1820.7	1426.5							790.2	1184.4
	7	1036.3	576.4	1689	1229.1							921.9	1381.8
	8			1557.3	1031.7	2210	1684.4					1053.6	1579.2
	9			1425.6	834.3	2078.3	1487					1185.3	1776.6
	10			1293.9	636.9	1946.6	1289.6	2599.3	1942.3	3252	2595	1317	1974
	11					1814.9	1092.2	2467.6	1744.9	3120.3	2397.6	1448.7	2171.4
	12					1683.2	894.8	2335.9	1547.5	2988.6	2200.2	1580.4	2368.8

WPNA Pneumatic Actuator

Output torque of WPNA spring return actuator

Output torque of Air supply													
Air pressure (bar)		3		4		5		6		7		Spring stroke	
Model	Spring gty	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End
WPNA300SA	5	1603	1183									800	1220
	6	1483	1066									920	1337
	7	1330	844	2132	1646							1073	1559
	8	1177	621	1979	1423	2780	2224					1226	1782
	9			1825	1201	2626	2002	3427	2803			1380	2004
	10			1652	977	2473	1778	3274	2579	4075	3380	1533	2228
	11					2320	1556	3121	2357	3922	3158	1686	2450
	12					2014	1077	2815	1878	3686	2679	1922	2929
WPNA350SA	5	2399	1739									1199	1859
	6	2120	1453									1478	2145
	7	1874	1096	3074	2296							1724	2502
	8	1627	738	2827	1938	4027	3138					1971	2860
	9			2580	1581	3780	2781	4979	3980			2218	3217
	10			2335	1223	3535	2423	4734	3622	5934	4822	2463	3575
	11					3288	2066	4487	3265	5687	4465	2710	3932
	12					3120	1537	4319	2736	5519	3936	2878	4461
WPNA400SA	5	3418	2479									1709	2648
	6	2922	1670									2205	3457
	7	2647	1239	4357	2949							2480	3888
	8	2372	806	4082	2516	5191	4225					2755	4321
	9			3806	2085	5515	3794	7224	5503			3031	4752
	10			3531	1652	5240	3361	6949	5070	8658	6779	3306	5185
	11					4963	2930	6672	4639	8381	6348	3583	5616
	12					4445	2190	6154	3899	8106	5608	4101	6356

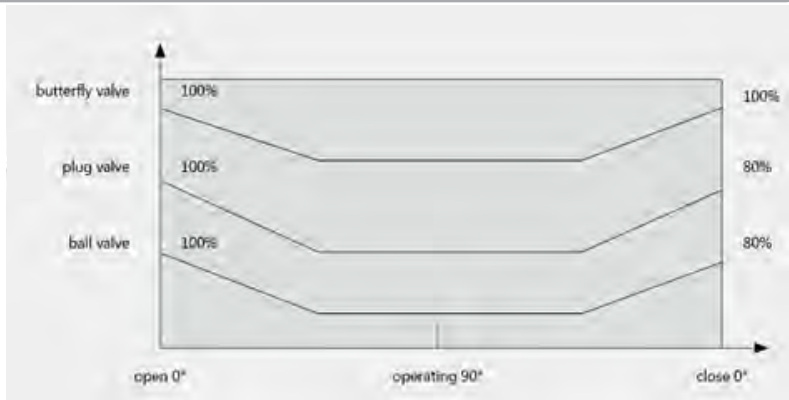
Output torque of WPNA air force return actuator

Model	Air pressure (bar)						
	2	3	4	5	6	7	8
WPNA 032DA	3	5	6	8	9	11	12
WPNA 040DA	5	7	10	12	14	17	19
WPNA 052DA	8	12	16	20	24	28	32
WPNA 063DA	15	22	29	36	44	51	58
WPNA 075DA	20	30	40	50	60	70	80
WPNA 083DA	31	47	63	78	94	110	125
WPNA 092DA	45	68	90	113	135	158	181
WPNA 105DA	66	99	132	165	198	231	264
WPNA 125DA	100	150	200	251	301	351	401
WPNA140DA	171	256	342	427	513	598	684
WPNA 160DA	266	399	532	665	798	931	1064
WPNA 190DA	426	638	851	1064	1277	1490	1702
WPNA 210DA	532	798	1064	1330	1596	1862	2128
WPNA 240DA	769	1154	1539	1924	2308	2693	3078
WPNA 270DA	1170	1754	2339	2924	3509	4094	4679
WPNA 300DA	1526	2289	3052	3815	4578	5341	6104
WPNA 350DA	2285	3427	4570	5712	6854	7997	9139
WPNA 400DA	3256	4884	6512	8140	9768	11396	13024

WPNA Pneumatic Actuator

Sample of choosing single action actuators

During the selecting of spring return actuators, we can choose a more reasonable and economical actuator if we know the different torque on opening, operation and closing.



Example:

A butterfly valve need torque=80N.m

The max torque needed by the butterfly valve $80(1+30\%) = 104 \text{ N.m}$

Air supply = 4bar

We can select WPNA125 SA K10

- Air stroke $0^\circ = 114.4 \text{ N.m} > 104 \text{ N.m}$
- Air stroke $90^\circ = 59.4 \text{ N.m} > 32 \text{ N.m}$
- Spring stroke $90^\circ = 173.8 \text{ N.m} > 32 \text{ N.m}$
- Spring stroke $0^\circ = 118.8 \text{ N.m} > 104 \text{ N.m}$
- The above data shows the actuator's torque can satisfy the requirement of the butterfly valve.

Attention: During the restoration, the spring return actuator's torque will not be affected by inputting air from port B. On the contrary, it will help restoration of springs.

Air consumption

Air volume opening & closing					
Model	Air volume opening	Air volume closing	Model	Air volume opening	Air volume closing
WPNA 032	0.035 L	0.045 L	WPNA140	1.7 L	2.4 L
WPNA 040	0.062 L	0.082 L	WPNA160	2.6 L	3.7 L
WPNA 052	0.09 L	0.12 L	WPNA190	4.2 L	5.9 L
WPNA 063	0.14 L	0.2 L	WPNA210	5.7 L	8.2 L
WPNA 075	0.21 L	0.3 L	WPNA240	9 L	12.8 L
WPNA 083	0.29 L	0.41 L	WPNA270	12.6 L	17.9 L
WPNA 092	0.49 L	0.71 L	WPNA300	21.4 L	30 L
WPNA 105	0.7 L	0.99 L	WPNA350	31.2 L	43.7 L
WPNA 125	1.4 L	1.6 L	WPNA400	47.9 L	67.1 L

Air consumption of double action actuator (L/min) = air volume (air volume opening + air volume closing) $\times$ (air supply (kpa) + 101.3) $\div$ 101.3 $\times$ action cycle time (/min).

Air consumption of single action actuator (L/min) = air volume (air volume opening + air supply (kpa) + 101.3) $\div$ 101.3 $\times$ action cycle time (/min).

WPNA Pneumatic Actuator

The weight of actuator

Model	Weight(kgs)	Spring weight(kgs)	Model	Weight(kgs)	Springs weigh(kgs)
WPNA 032DA	0.65	0.016	WPNA140DA	14.88	0.24
WPNA 040DA	1	0.0252	WPNA160DA	22.98	0.37
WPNA 052DA	1.52	0.104	WPNA190DA	40.5	0.5
WPNA 063DA	2.28	0.198	WPNA210DA	43.5	0.5
WPNA 075DA	3.12	0.02	WPNA240DA	65.5	1.3
WPNA 083DA	3.48	0.434	WPNA270DA	91	1.6
WPNA 092DA	5	0.06	WPNA300DA	114.5	2.25
WPNA 105DA	6.52	0.08	WPNA350DA	160.5	4
WPNA 125DA	10.12	0.15	WPNA400DA	283	5.12

Operating conditions

Working medium:

- Dry or lubricated air or inert gas, as long as the medium is compatible with the inside parts and lubricant of the actuator.
- The dew-point temperature of the operating media is -20 °C.The dimension of the impurity particle cannot be larger than 30μ.
- If the positioner is needed,the dimension of impurity particle cannot be larger than 5μ.

Air pressure:

- 3bar to 8bar.

Working temperature:

- Standard: -5°C~ +80°C
- Low temperature type: - 40°C ~ +80°C
- High temperature type: -10°C ~ +150°C

Lubrication:

- Usually the standard types no need to lubricant.In the low temperature of high temperature occasion,it will need special lubricant.