

PNEUMATIC ACTUATORS



**NEW Silver
Hard Anodized finish**



Double Acting

Article no.	TYPE
80000007	AP00
80000010	AP1
80000012	AP2
80000075	AP3
80000014	AP3.5
80000018	AP4
80000070	AP4.5
80000019	AP5
80000020	AP5.5
80000079	AP6
80000021	AP8
80007277	AP10
AP12DA	AP12

Materials

Actuator Body	Extruded aluminium alloy
End cap	Pressure die casting aluminium alloy
Pinion	E.N.P. Carbon steel or 303 S.S.
Piston	Pressure die casting aluminium alloy
Guide	Acetyl resin
Springs	Epoxy coated spring steel
O-ring	NBR, FKM or Silicone
Screws and nuts	Stainless steel

Specifications

- **Pressure range**
2 bar (29psi) to 8 bar (116 psi) double acting
3 bar (44 psi) to 8 bar (116 psi) spring return max. working pressure 10 bar (145 psi).
- **Supply**
Filtered dry or lubricated air
For non corrosive gas, water or light hydraulic oil
- **Temperature range**
STD -20°C (-4°F)a +80°C (175°F)
on request +20°C (+68°F)a +150°C (302°F)
on request -50°C (-58°F)a +100°C (302°F)
- **Rotation**
counter-clockwise when Port 'A' is pressurized;
clockwise when Port 'B' is pressurized and spring return actuators (see principle operation).
- **Stroke** – 90° with standard adjustment $\pm 3^\circ$ (AP Series) or bi-directional travel adjustment $\pm 5^\circ$ (APM Series)
- **Lubrication** – all moving parts are factory lubricated for cycle life of the actuator
- **Construction** – in accordance to "Equipment or Protective system intended for use in potentially atmosphere directive 94/9/CE". Suitable for indoor and outdoor installation.
- **Connections** – bottom drilling to match valve in accordance with ISO 5211/DIN 3337. Interface for solenoid valve, shaft top end and top drilling to assemble accessories are in accordance with VDI / VDE 3845, NAMUR.
- **Inspection** – each unit is hydraulically tested and certified and guaranteed for a minimum of 500,000 cycles.

Additional cost for actuators supplied fitted with:



Limit Switch Box page 28

Article no.	
SWBOX	IP67 Standard
SWBOXP	Proximity Switches
SWBOXIS	Intrinsically Safe Box
SWBOXEX	Explosion Proof

Namur Pilot Solenoid Valve page 29



Article no.	
55100229*	Suffix * with A - 220V AC B - 110V AC D - 24V DC

Intrinsically Safe & Explosion Proof also available

PD100 Smart Valve Positioner page 30

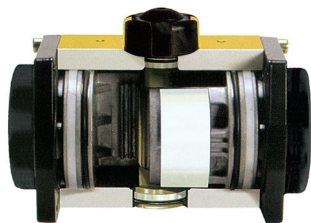


Article no.	
420100	- 4-20mA input signal & Auto calibration - Local user interface & LCD display - Optional features available

IP67 Inductive Proximity Switch page 31



Article no.	
IPSFIT	- inductive sensor included (555602) - target puck included (555422)
Optional 2mtr cable with M12 connector	
ECV001	

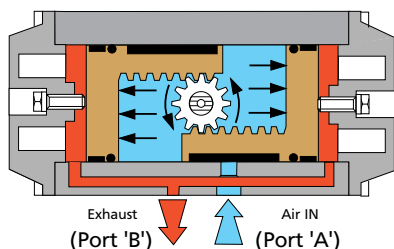


ACTUATORS DOUBLE ACTING (DA)

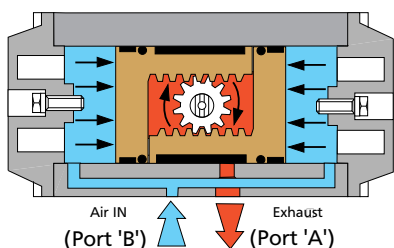
Principle of Operation

Counter clockwise output operation is achieved by inserting pressure into Port 'A', to force the pistons apart thus rotating the actuator pinion counter clockwise. During the operation, air from the outer chambers is exhausted through Port 'B'. Clockwise output operation is achieved by reverse of the above and inserting pressure into Port 'B'.

COUNTER CLOCKWISE OUTPUT ROTATION



CLOCKWISE OUTPUT ROTATION



Data Required for Actuator Sizing

- 1 Valve torque (min. 25% safety recommended).
- 2 Double acting or spring return operation.
- 3 Minimum available operating pressure.

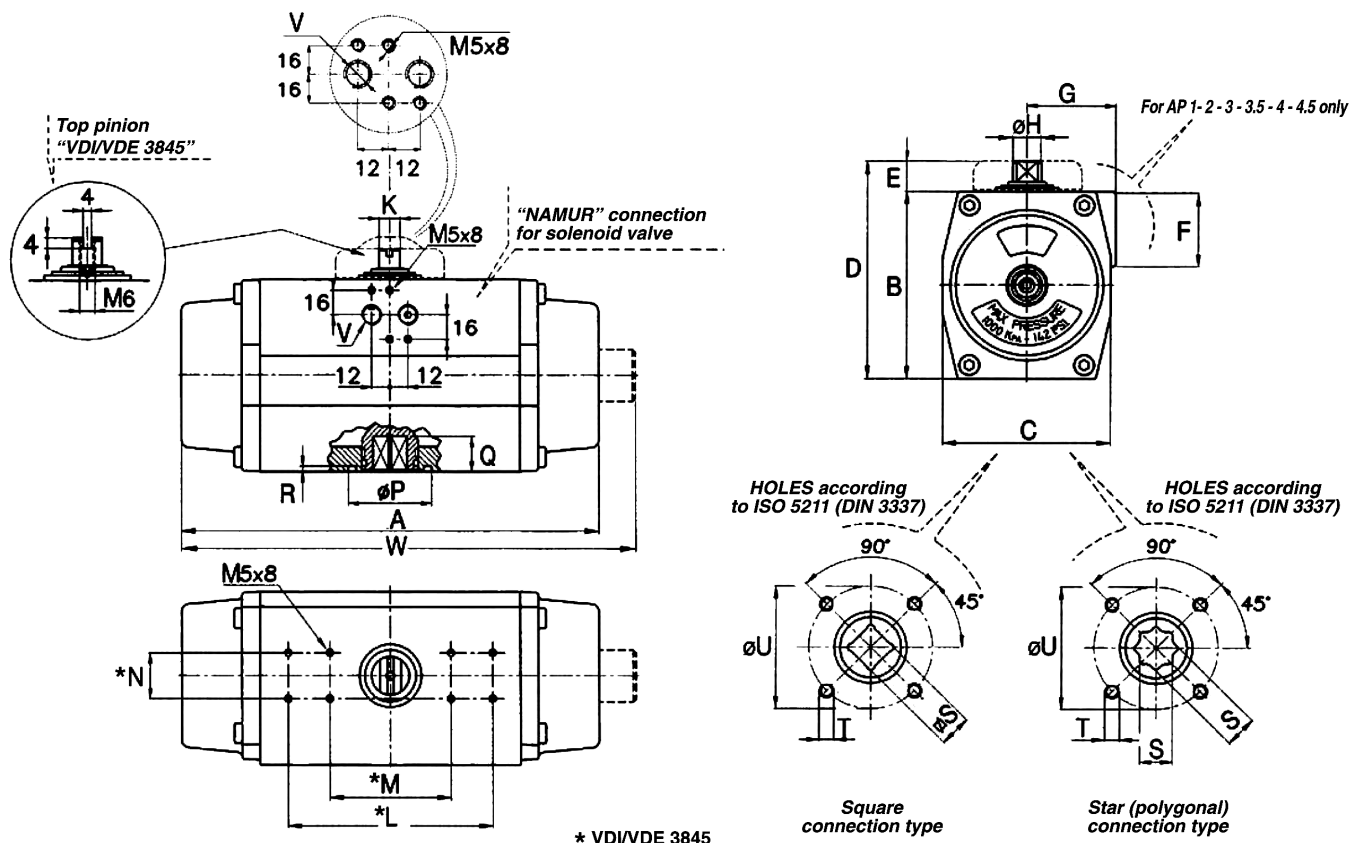
Selection of Double Acting Actuators (DA)

Determine the required valve torque, this should include 25% safety margin, and the minimum operating pressure available. Refer to the pressure/torque table and select the minimum pressure column applicable. Follow this column down until a value not less than that required is found. Next read across to the left hand column and read the model number to be ordered. EXAMPLE: Valve torque 80Nm plus 25% = 100 Nm. Minimum operating pressure 5 bar.

TORQUE OUTPUT DOUBLE ACTING ACTUATORS (DA) – OPERATING PRESSURE

Model	bar	2	3	4	5	6	7	8
	PSI	30	44	58	73	87	102	116
AP0 DA	Nm	2.4	3.5	4.8	6	7.3	8.5	9.7
	lbf.in	21.4	32.1	42.8	53.5	65.1	75.8	86.5
AP1 DA	Nm	5.9	8.9	11.8	14.8	17.7	21.7	24.8
	lbf.in	52.6	79.3	105.2	132	157.8	193.5	221.1
AP2 DA	Nm	9.4	14.1	18.8	23.5	28.2	32.9	37.6
	lbf.in	83.8	125.7	167.7	209.6	251.5	293.5	335.4
AP3 DA	Nm	20	30	40	50	60	70	80
	lbf.in	178.4	267.6	356.8	446	535.2	624.4	713.6
AP3.5 DA	Nm	34	51	68	85	102	119	136
	lbf.in	303.3	454.9	606.5	758.2	909	1061.5	1213.2
AP4 DA	Nm	48	71	95	119	142	168	192
	lbf.in	428.2	633.3	847.4	1061	1266.6	1498.5	1712.6
AP4.5 DA	Nm	87.2	130.8	174.4	218	261.6	305.2	348.8
	lbf.in	777.8	1166.7	1555.6	1944.5	2333.4	2722.3	3111.2
AP5 DA	Nm	111	167	222	278	333	388.5	444
	lbf.in	990.1	1489.6	1980.2	2479.7	2970.4	3465.4	3960.5
AP5.5 DA	Nm	157.6	236.4	315.3	394.1	473	551.8	630.6
	lbf.in	1405.7	2108.6	2812.4	3515.3	4219.1	4922	5624.9
AP6 DA	Nm	227	340	454	567	680	794.5	908
	lbf.in	2024.8	3032.8	4049.6	5057.6	6065.6	7087	8099.4
AP8 DA	Nm	426	638	851	1064	1276	1491	1704
	lbf.in	3800	5691	7591	9491	11382	13299	15200
AP10 DA	Nm	1078	1617	2156	2695	3234	3773	4312
	lbf.in	9651.8	14423.6	19231.5	24039.4	28847.3	33655.2	38463
AP12 DA	Nm	1880	2820	3760	4701	5641	6581	7522

DIMENSIONS - SR & DA



Air Consumption for Stroke (Free Air)

MODEL		AP1 DA/SR	AP2 DA/SR	AP3 DA/SR	AP3.5 DA/SR	AP4 DA/SR	AP4.5 DA/SR	AP5 DA/SR	AP5.5 DA/SR	AP6 DA/SR	AP8 DA/SR	AP10 DA/SR
Counter clockwise	Litres	0.08	0.12	0.24	0.48	0.68	1	1.4	1.6	3.2	5.3	14.2
	Cu.ft.	0.003	0.004	0.008	0.017	0.024	0.035	0.049	0.057	0.11	0.19	0.5
Clockwise (DA only)	Litres	0.10	0.16	0.44	0.56	0.96	1.6	2.16	2.56	4	8.6	16.5
	Cu.ft.	0.0035	0.006	0.016	0.020	0.034	0.057	0.076	0.09	0.14	0.30	0.58

Weights

MOD. DA	AP1	AP2	APM2	AP3	APM3	AP3.5	APM3.5	AP4	APM4	AP4.5	APM4.5	AP5	APM5	AP5.5	APM5.5	AP6	APM6	AP8	APM8	AP10	APM10
Kg.	1.00	1.42	1.44	2.54	2.62	3.68	3.78	5.10	5.15	8.24	8.33	10.10	10.38	13.94	14.86	19.66	20.40	36.60	37.70	77.00	78.30
lbs	2.20	3.12	3.17	5.59	5.76	8.10	8.32	11.22	11.33	18.13	18.33	22.22	22.84	30.67	32.69	43.25	44.88	80.52	82.94	169.40	172.26

Dimensions

MODELLO MODEL	U.M.	A	W*	B	C	D	E	F	G	H	K	L	M	N	P	Q	R	∅ S-S	T	U	V	ISO 5211 STD	ISO 5211 SPECIAL
AP1 DA/SR	mm	142	162	67	60	87	20	42	41	12	8	-	80	30	25	10	2	9/11**	M5/M6	36/50	1/8"	F03/F05	F04
	ins.	5.59	6.38	2.64	2.36	3.43	0.79	1.65	1.61	0.47	0.31	-	3.15	1.18	0.98	0.39	0.08	0.35/0.43**		1.42/1.97			
AP2 DA/SR	mm	155	171	83	73	103	20	42	44.5	12	8	-	80	30	30/35	12	2	11/14**	M5/M6	42/50	1/4"	F04/F05	—
	ins.	6.10	6.73	3.27	2.87	4.06	0.79	1.65	1.75	0.47	0.31	-	3.15	1.18	1.18/1.38	0.47	0.08	0.43/0.55**		1.65/1.97			
AP3 DA/SR	mm	213	240	100	85	120	20	50	49.5	14	10	-	80	30	35	16	3	14/17**	M6/M8	50/70	1/4"	F05/F07	—
	ins.	8.33	9.45	3.94	3.35	4.72	0.79	1.97	1.95	0.55	0.39	-	3.15	1.18	1.38	0.63	0.12	0.43/0.67**		1.97/2.76			
AP3.5 DA/SR	mm	236	268	110	98	130	20	50	53	19	14	-	80	30	55	20	3.5	17/22**	M8	70	1/4"	F07	F05/F07
	ins.	9.29	10.55	4.33	3.86	5.12	0.79	1.97	2.09	0.75	0.55	-	3.15	1.18	2.17	0.79	0.14	0.67/0.87**		2.76			
AP4 DA/SR	mm	276	304	125	110	145	20	50	58	19	14	-	80	30	55	20	3.5	17/22**	M8/M10	70/102	1/4"	F07/F10	—
	ins.	10.87	11.97	4.92	4.33	5.71	0.79	1.97	2.28	0.75	0.55	-	3.15	1.18	2.17	0.79	0.14	0.67/0.87**		2.76/4.02			
AP4.5 DA/SR	mm	310	350	142	128	172	30	58	69	28	20	130	80	30	70	24	3.5	17**/22	M10	102	1/4"	F10	F07
	ins.	12.20	13.78	5.59	5.04	6.77	1.18	2.28	2.72	1.10	0.79	5.12	3.15	1.18	2.76	0.94	0.14	0.67**/0.87		4.02			
AP5 DA/SR	mm	366	405	155	140	185	30	-	-	28	20	130	80	30	70	24	3.5	17**/22	M10	102	1/4"	F10	F07/F12
	ins.	14.41	15.94	6.10	5.51	7.28	1.18	-	-	1.10	0.79	5.12	3.15	1.18	2.76	0.94	0.14	0.67**/0.87		4.02			
AP5.5 DA/SR	mm	388	442	176	160	206	30	-	-	36	28	130	80	30	85	29	3.5	22**/27	M12	125	1/4"	F12	F10
	ins.	15.27	17.40	6.93	6.30	8.11	1.18	-	-	1.42	1.10	5.12	3.15	1.18	3.35	1.14	0.14	0.87**/1.06		4.92			
AP6 DA/SR	mm	468	500	200	175	230	30	-	-	36	28	130	80	30	85	29	3.5	22**/27	M12	125	1/4"	F12	F10
	ins.	18.42	19.68	7.87	6.89	9.06	1.18	-	-	1.42	1.10	5.12	3.15	1.18	3.35	1.14	0.14	0.87**/1.06		4.92			
AP8 DA/SR	mm.	563	612	250	215	300	50	-	-	48	32	130	-	30	100	38	5	27**/36	M16	140	1/4"	F14	F12
	ins.	22.16	24.09	9.84	8.46	11.81	1.97	-	-	1.89	1.26	5.12	-	1.18	3.94	1.50	0.20	1.06**/1.42		5.51			
AP10 DA/SR	mm.	750	838	335	290	385	50	-	-	48	32	130	-	30	130	50	5	36**/46	M20	165	1/4"	F16	F14
	ins.	29.53	32.99	13.19	11.42	15.16	1.97	-	-	1.89	1.26	5.12	-	1.18	5.12	1.97	0.20	1.42**/1.81		6.50			

* Dimensions only for APM Series ** Dimensions on request *** To be chosen when ordering