PNEUMATIC ROTARY ACTUATORS ALPHAIR

Pneumatic Rotary Actuators

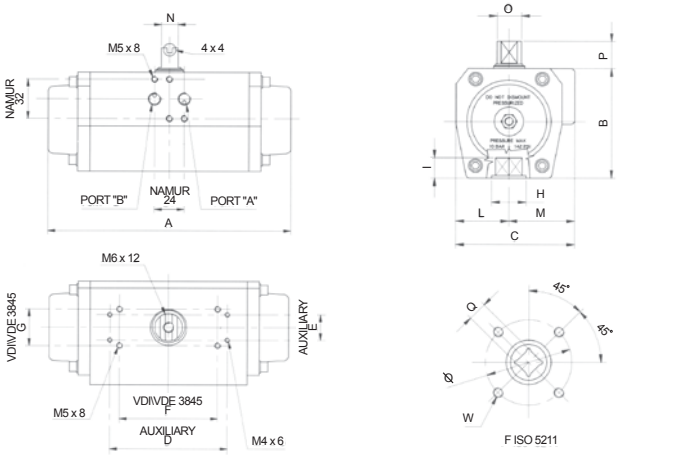
General Characteristics

ALPHAIR pneumatic rotary actuator 90° is designed for 1/4 turned rotation with single or double effect. Piston bearing made of material with low friction coefficient to avoid metal to metal contact. Inside surface finish (Ra0.4-0.6µm) to minimize friction and maximize the life of actuator. The lubrication carried out by the manufacturer is guaranteed for min. 1,000,000 operations.

External protection of the actuator resist to corrosion of 500 hrs in salty atmosphere according to ASTM B 117-73. Running test and 100% seal test carried out with electronic equipment and certification of each individual product.

Standard Of Construction

- I Drilling and centering for fastening of the valve according to ISO 5211/DIN 3337
- I Solenoid connection according to NAMUR. standard
- I Upper shaft end according to VDI/VDE 3845.



A" inlet port	1/8" for model 32 and 50	**B" inlet port**	1/4" for other model

Limit Conditions

Minimum air pressure supply	1 bar.
Maximum air pressure supply	10 bar.
Min. / Max. temperature	-20°C. / +80°C

Construction Materials

Body	Aluminium ASTM 6063
Covers	Aluminium ASTM B179
Pistons	Aluminium ASTM B179
Shaft	Nickel-plated steel
Screws	AISI 304 stainless steel
Springs	Precompressed cartridge
Seals	NBR

Dimensions (mm)

POSITION	TYPE															
	AP 032	AP 042	AP 050	AP 063	AP 075	AP 85	AP 100	AP 115	AP 125	AP 145	AP 160	AP 180	AP 200	AP 240	AP 270	AP 330
A - 90°	117	160	138	155 . 5	210	228	280 . 5	310	362	390	462	474	575	604	685	850
A - 120°	150	194	172	201	249	282	332	373	432	-	-	-	-	-	-	-
A - 180°	195	230	211	220	298	338	401	462	570	-	-	-	-	-	-	-
B	45	57	67	83	100	110	125	142	155	175	196	220	240	298	332	414
C	48	60 . 5	75	86	94	104	120	134	141	163	176	196	220	300	352	400
Auxiliary D x E	-				105 x 22			139 x 22						-		
VDI/VDE 3845 F x G	50 x 25	80 x 30						130 x 30								
L	22.5	27	33.5	38	42.5	49	55	63.5	69.5	80	88	98	110	150	166	190
M	25.5	33 , 5	41.5	48	51.5	55	65	70.5	71.5	83						210
Port A / Port B DIN 259	1/8" GAS - NPT			1/4" GAS - NPT										1/2" GAS - NPT		
N x O	8 x 12				14 x 18			27 x 36				32 x 42		32 x 60	55 x 80	
P	20							30			50					
Q x I	9 x 10	9 x 10 11 x 13	9 x 10 11 x 13	9 x 10 11 x 13 14 x 16	11 x 13 14 x 16 17 x 20	14 x 16 17 x 20	17 x 20 22 x 25	17 x 20 22 x 25	17 x 20 22 x 25 27 x 30	22 x 25 27 x 30	22 x 25 27 x 30	27 x 30 36 x 39	27 x 30 36 x 39	36 x 39 46 x 50	36 x 39 46 x 50	46 x 50 55 x 60
FISO 5211	F03 F04	F04 F03/05	F03 F04 F03/05 F05	F04 F03/05 F05 F05/07	F04 F05/07	F05/07	F07/10 F05/07/10	F07/10	F07/10 F12	F10/12	F10/12	F10/12 F14	F10/12 F14	F14 F16	F14 F16	F16 F25

POSITION	F ISO 5211											
	F03	F04	F03/05	F05	F05/07	F05/07/10	F07/10	F10/12	F12	F14	F16	F25
Ø (W)	36 (M5x8)	46 (M5x8)	36 (M5x8) 50 (M6x9)	50 (M6x9)	50 (M6x9) 70 (M8x12)	50 (M6x9) 70 (M8x12) 102 (M10x15)	70 (M8x12) 102 (M10x15)	102 (M10x15) 125 (M12x18)	125 (M12x18)	140 (M16x24)	165 (M20x30)	254 (M16x24)
H	25 excluded AP 032	30	25	35	35 (AP085=40)	40	55	AP145 = 70 AP160 = 75 AP180 = 85 AP200 = 85	75	100 (AP270=104)	130	200

*last updated 03/16

Double Acting Torque Ratings In Nm.

TYPE	AIR SUPPLY IN BAR									
	1	2	3	4	5	6	7	8	9	10
AP 032	-	-	-	5.0	6.3	7.6	8.8	10.0	11.4	12.6
AP 050	3.0	6.1	9.2	12.3	15.4	18.5	21.5	24.6	27.7	30.8
AP 063	5.5	11.0	16.5	22.0	27.5	33.0	38.5	44.0	49.5	55.0
AP 075	11.7	23.4	35.1	46.8	58.5	70.2	81.9	93.6	105.3	117.0
AP 085	17.8	35.6	53.4	71.2	89.0	106.9	124.7	142.4	160.3	178.1
AP 100	27.7	55.4	89.2	110.9	138.6	166.4	194.1	221.8	249.5	277.3
AP 115	45.7	91.5	137.2	183.9	228.7	274.5	320.2	366.0	411.7	457.5
AP 125	60.1	120.3	180.5	240.7	300.9	361.1	421.2	481.4	541.6	601.8
AP 145	86.7	173.4	260.1	346.8	433.5	520.2	606.9	693.6	780.3	867.0
AP 160	118.3	236.7	355.0	473.4	591.7	710.1	828.4	946.8	1065.1	1183.5
AP 200	221.8	443.7	665.6	887.5	1109.4	1333.3	1553.1	1775.0	1996.9	2218.8
AP 270	539.2	1078.4	1617.6	2156.8	2696.0	3235.2	3774.4	4313.6	4852.8	5392.0

Single Acting Torque Ratings In Nm.

AP TYPE	number of springs per side of piston	AIR SUPPLY IN BAR													
		3		4		5		6		7		8		Spring stroke	
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°
AP 042	3	-	-	-	-	7.1	4.1	9.3	6.3	11,5	8.5	13.7	10.7	**6.8**	**3.8**
	4							8.1	4.1	10,2	6.2	12.4	8.4	**9.0**	**5.0**
AP 050	3	5.7	3.5	8.9	6.6	12.0	9.6	15.1	12.7	18.1	15.7	21.2	18.8	**5.7**	**3.5**
	4			7.7	4.7	10.8	7.7	13.9	10.8	16.9	13.8	20.0	16.9	**7.7**	**4.7**
	5					9.6	5.8	12.7	8.9	15.7	11.9	18.8	15.0	**9.6**	**5.8**
	6					8.4	3.9	11.5	7.0	14.5	10.0	17.6	13.1	**11.5**	**7.0**
AP 063	3	9.4	6.3	14.9	11.7	20.4	17.2	25.9	22.7	31.4	28.2	36.9	33.7	**10.2**	**7.2**
	4			12.3	8.3	17.8	13.8	23.3	19.3	28.8	24.8	34.3	30.3	**13.7**	**9.7**
	5					15.4	10.4	20.9	15.9	26.4	21.4	31.9	26.9	**17.1**	**12.1**
	6					13.0	7.0	18.5	12.5	24.0	18.0	29.5	23.5	**20.5**	**14.5**
AP 075	3	22.5	12.6	34.2	24.4	46.0	36.1	57.7	47.8	69.4	59.5	81.1	71.2	**22.5**	**12.6**
	4			30.0	16.9	41.8	28.6	53.5	40.3	65.2	52.0	76.9	63.7	**30.0**	**16.9**
	5					37.6	21.1	49.3	32.8	61.0	44.5	72.7	56.2	**37.6**	**21.1**
	6					33.4	13.6	45.1	25.3	56.8	37.0	68.5	48.7	**45.1**	**25.3**
AP 085	3	34.5	18.9	52.4	36.7	70.2	54.5	88.0	72.3	105.8	90.1	123.6	107.9	**34.5**	**18.9**
	4			46.1	25.2	63.9	43.0	81.7	60.8	99.5	78.6	117.3	96.4	**46.1**	**25.2**
	5					57.6	31.5	75.4	49.3	93.2	67.1	111.0	84.9	**57.6**	**31.5**
	6					51.5	20.0	69.1	37.8	86.9	55.6	104.7	73.4	**69.1**	**37.8**
AP 100	3	53.2	30.0	80.9	57.5	108.7	85.4	136.4	113.1	164.1	140.8	191.8	168.5	**53.2**	**30.0**
	4			70.9	40.0	98.7	67.7	126.4	95.4	154.1	123.1	181.8	150.8	**70.9**	**40.0**
	5					88.7	50.0	116.4	77.7	144.1	105.4	171.8	133.1	**88.7**	**50.0**
	6					78.7	32.2	106.4	60.6	134.1	87.7	161.8	115.4	**106.4**	**60.0**
AP 115	3	84.3	53.0	130.0	98.8	175.8	144.5	221.6	190.3	267.3	236.0	313.0	281.7	**84.3**	**53.0**
	4			112.3	70.7	158.1	116.4	203.9	162.2	249.6	207.9	295.3	253.6	**112.3**	**70.7**
	5					140.4	88.3	186.2	134.1	231.9	179.8	277.6	225.5	**140.4**	**88.3**
	6					122.7	60.2	168.5	106.0	214.2	151.7	259.9	197.4	**168.5**	**106.0**
AP 125	3	116.8	63.7	177.0	123.9	237.3	184.1	297.5	244.2	357.6	304.3	417.7	364.4	**116.8**	**63.7**
	4			155.7	85.0	216.0	154.2	276.2	205.3	336.3	265.4	396.4	325.5	**155.7**	**85.0**
	5					194.7	106.3	254.9	166.4	315.0	226.5	375.1	286.6	**194.7**	**106.3**
	6					173.4	67.4	233.6	127.5	293.7	187.6	353.8	247.7	**233.6**	**127.5**
AP 145	3	158.0	92.0	245.0	179.0	332.0	265,0	418.0	352.0	505.0	439.0	592.0	526.0	**168.0**	**102.0**
	4			211.0	123.0	298.0	210,0	384.0	269.0	471.0	383.9	558.0	470.0	**224.0**	**136.0**
	5					264.0	154,0	350.0	240.0	437.0	327.0	524.0	414.0	**280.0**	**170.0**
	6					230.0	98.0	316.0	184.0	403.0	271.0	490.0	358.0	**336.0**	**204.0**
AP 160	3	222.4	132.6	340.7	251.0	459.1	369.3	577.4	487.6	695.7	605.9	814.0	742.2	**222.4**	**132.6**
	4			296.5	176.9	414.9	295.2	533.2	413.5	651.5	532.8	769.8	650.1	**296.5**	**176.9**
	5					370.7	211.1	489.0	339.4	607.3	457.7	725.6	576.0	**370.7**	**211.1**
	6					326.5	147.0	444.8	265.3	563.1	383.6	681.4	501.9	**444.8**	**265.3**
AP 180	3	287.9	191.0	447.6	350.7	607.3	510.4	766.9	670.3	926.6	829.7	1068.0	989.1	**287.9**	**191.0**
	4			383.9	254.7	543.6	414.4	703.3	574.0	862.9	733.7	1022.3	893.1	**383.9**	**254.7**
	5					479.9	318.4	639.6	478.1	792.2	637.7	958.6	797.1	**479.9**	**318.4**
	6					416.2	222.4	575.9	382.1	735.6	541.8	894.9	701.1	**575.9**	**382.1**
AP 200	3	423.6	242.0	644.7	463.8	867.4	685.8	1089.0	907.7	1311.0	1130.0	1533.0	1351.0	**423.6**	**242.0**
	4			564.8	322.6	786.7	544.6	1008.0	766.5	1230.0	988.4	1452.0	1209.0	**564.8**	**322.6**
	5					706.0	403.4	927.9	625.3	1150.0	847.2	1372.0	1068.0	**706.0**	**403.4**
	6					625.3	262.2	847.2	484.1	1069.0	541.8	1291.0	927.0	**847.2**	**484.1**
AP 240	3	664.0	453.6	1036.6	826.2	1409.1	1198.7	1781.7	1571.2	2154.2	1943.8	2526.8	2316.3	**664.0**	**453.6**
	4			885.4	604.8	1257.9	977.4	1630.5	1349.9	2003.0	1722.5	2375.6	2095.0	**885.4**	**604.8**
	5					1106.7	756.0	1479.3	1128.6	1851.8	1501.1	2224.4	1873.7	**1106.7**	**756.0**
	6					955.5	543.7	1328.1	907.2	1700.6	1279.8	2073.2	1652.3	**1328.1**	**907.2**
AP 270	3	912.5	705.1	1451.7	1244.3	1990.9	1783.5	2530.1	2322.7	3069.3	2861.9	3608.5	3401.1	**912.5**	**705.1**
	4			1216.7	940.2	1755.9	1479.4	2295.1	2018.6	2834.3	2557.8	3373.5	3097.0	**1216.6**	**940.1**
	5					1520.9	1175.5	2060.1	1714.4	2599.3	2144.4	3138.5	2792.8	**1520.8**	**1175.1**
	6					1285.8	871.0	1825.0	1410.2	2364.2	1953.6	2903.4	2488.6	**1825.0**	**1410.2**
AP 330	3	1739.5	1193.5	2717.2	2171.1	3694.8	3148.8	4672.5	4126.4	5650.1	5104.1	6627.8	6081.8	**1739.5**	**1193.5**
	4			2319.3	1591.3	3297.0	2569.0	4274.6	3546.6	5252.3	4524.3	6230.0	5501.9	**2319.3**	**1591.3**
	5					2899.2	1989.1	3876.8	2966.8	4854.5	3944.4	5832.1	4922.1	**2899.2**	**1989.1**
	6					2501.3	1409.3	3479.0	2386.9	4456.7	3364.6	5434.3	4342.3	**3479.0**	**2386.9**

The above values are the end torque output that remains available to operate the valve when the air supply is put in port "a" after compressing the spring 0° = Extended spring 90° = Compressed spring

Torque output available from compressed springs when air supply falls

*last updated 03/16