

Pneumatic Rotary Actuator

As Per ISO 5211

SERIES : A



VALVE AUTOMATION
ISO 9001 CO.



- Aluminium & Stainless Steel Body
- Namur Standard Mounting
- Single & Double Acting Scotch and Yoke Actuator
- Torque Upto 1,10,380 Nm available
- Rotation - 90° & 180° Available
- Normal Temperature -20° to 80 °C
(High Temp. Upto 150 °C available)



Pneumatic Rotary Actuator Double Acting As Per ISO 5211

Catalogue No.
APL / 1076



"aira"

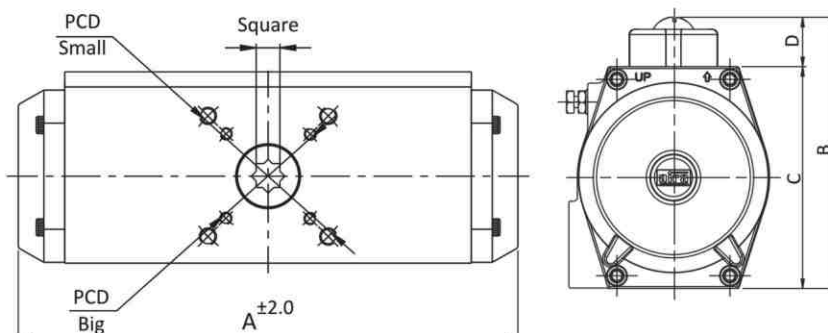
offers ISO 5211 Standard Pneumatic Actuator for all your 90° / 180° Valves & Dampers Automation Requirements



1. **Hard Anodized** Barrel / Body to Protect from Hazardous atmosphere & corrosion, which enhance life of actuator
2. **Namur Standard Pinion Top** (An International Standard) The pinion (shaft) top drilled and slotted for easy assembling of switch, positioners and other accessories.
3. **Namur pad for Solenoid Valve** (An International Standard) Air supply ports are Include On Body as per NAMUR standard to facilitate direct mounting of solenoid valve at actuator.
4. **ISO - 5211 Standard Mounting for Valve** (An International Standard) Double bottom drilling for actuator to valve Assembling & centering. Designed for strength and easy mounting or interchangeability.
5. **ISO - 5211 Standard Pinion Bottom** (An International Standard) Bottom of the pinion (Shaft) as female key, double square hole for assembling on valves with square key stem and in line or turned to 45°. Designed for strength and sure-fix with stem
6. **Sliding Skates** : The innovation for replaceable sliding skates, between Pistons (Racks) and internal bore surface of the Actuator, just to avoid metal contact, which enhances the Actuator life
7. **Compact Design** : "aira" Actuators are designed as compact double acting which offers high torque values. Internal sliding surface, lapped and anodized for minimum friction and long life of actuator. .

General Features :

1. Opr. press : 60 to 115 psi
2. Temperature range : -20 °C to 90 °C
3. Air supply : Filtered, dry or lubricated
4. Ext. protection : Corrosion strength to 500 hours in salted fog



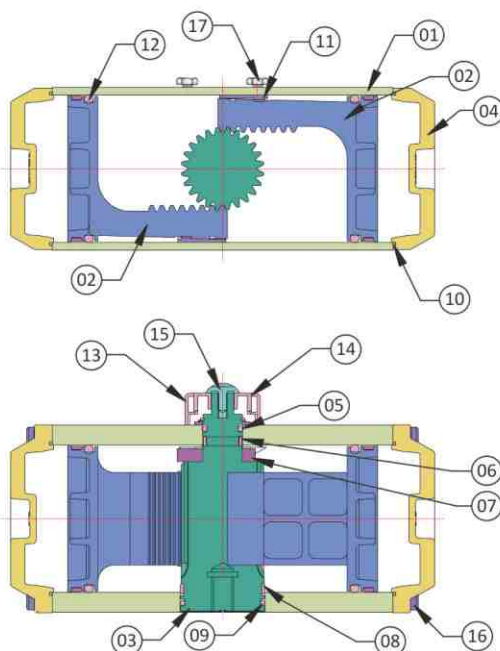
Dimensions :

(All Dimensions are in mm)

Model	A	B	C	D	PCD SMALL	PCD BIG	SQUARE	WEIGHT (Approx) Kgs.	AIR CONSUMPTION In Liters
ARA - 49 - D	130	98	69.5	28.5	36	50	11X11	1.100	0.2
ARA - 50 - D	152.8	101.5	74	27.5	36	50	14X14	1.400	0.25
ARM - 63 - D	181.9	113.6	87.8	25.8	50	70	14X14	2.650	0.43
ARA - 75 - D	188	126.5	100	26.5	50	70	17X17	2.800	0.66
ARM - 83 - D	213	135.4	109.4	26	50	70	17X17	3.300	0.75
ARA - 90 - D	265.5	145.4	117	28.4	---	70	17X17	5.050	1.37
ARA - 110 - D	267	166	140	26	70	102	22X22	7.400	2.6
ARA - 127 - D	312	179	153	26	102	125	27X27	10.100	3.8
ARA - 140 - D	364	198	172	26	102	125	27X27	14	4.1
ARA - 160 - D	417	228	196	32	102	125	36X36	20.750	7.48
ARM - 190 - D	550.6	275.2	232.2	43	---	140	36X36	32.600	10.03
ARA - 210 - D	563.6	292.3	253.1	39.2	---	140	36X36	59	10.64
ARM - 240 - D	620	320.2	292.5	27.7	---	165	46X46	65	On Request.
ARM - 270 - D	733.4	364.3	328.4	35.9	---	165	46X46	83.500	On Request.
ARM - 300 - D	825	393.7	355.7	38	---	165	46X46	109.500	On Request.
ARM - 350 - D	842.2	445.6	410.6	35	---	165	46X46	147.600	On Request.
ARM - 400 - D	926.5	503.6	463.4	40.2	---	165	55X55	310.500	On Request.

Note : Since, constant worldwide advancement in technology, we keep our rights reserved to make changes time to time in Technical specifications and Dimensions without prior notice.

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Parts List			
NO	Name	Material.	Qty
1	Body	Aluminium Alloy with Hard Anodised	01
2	Piston	Aluminium Alloy	02
3	Shaft	EN 8 with Hard Chrome Plated	01
4	End Cover	Aluminium Alloy with Powder Coated	02
5	Shaft UP 'O' Ring	NBR	01
6	Shaft UP Guide	Delrin	01
7	Adaptor	EN 8 with Hard Chrome Plated	01
8	Shaft Low Guide	Delrin	01
9	Shaft Low 'O' Ring	NBR	01
10	'O' Ring For End Cap	NBR	02
11	Piston Skates	Delrin	02
12	'O' Ring For Piston	NBR	02
13	Indicator	Nylon	01
14	Indicator Strip	Nylon	04
15	Indicator Screw	Nylon + S. S.	01
16	L. N. Bolt For End Cap	S. S.	08
17	Adjustable Bolt	S. S.	02

"aira" ACTUATOR SELECTION CHART

Selection of Double Acting Actuator

- Conclude your required torque valve.
- Increase 15% for an acceptable safety factor.
- Now look on torque chart and find near by higher torque value of your required torque.
- The found position shows the model of "aira" actuator and working pressure in bar, we need.

Example

- Suppose we need 55 Nm torque to drive a valve.
- Increase 15% - 63.25 Nm for safety factor.
- In below table the nearby higher torque value is 70 at working pressure 6 bar
- This indicators to select the "aira" actuators model ARA-75- D

DOUBLE ACTING ACTUATOR TORQUE CHART								
Torque In Nm 10Nm = 1 kgf								
Model	1 BAR	2 BAR	3 BAR	4 BAR	5 BAR	6 BAR	7 BAR	8 BAR
ARA - 49 - D	2	5	8	11	14	16	19	23
ARA - 50 - D	3	8	13	18	22	27	32	36
ARM - 63 - D	4	10	16	23	30	36	43	50
ARA - 75 - D	9	23	36	50	64	77	91	105
ARM - 83 - D	12	27	41	55	69	83	98	112
ARA - 90 - D	25	55	84	114	142	170	198	225
ARA - 110 - D	32	76	119	162	206	250	294	338
ARA - 127 - D	72	145	221	296	371	446	521	596
ARA - 140 - D	80	185	290	397	490	608	700	817
ARA - 160 - D	140	292	448	604	758	915	1070	1227
ARM - 190 - D	214	430	646	861	1077	1292	1508	1723
ARA - 210 - D	303	706	1105	1488	1880	2183	2486	2789
ARM - 240 - D	406	832	1221	1628	2031	2445	2849	3256
ARM - 270 - D	650	1305	1958	2611	3264	3916	4569	5222
ARM - 300 - D	800	1602	2403	3205	4006	4807	5608	6409
ARM - 350 - D	1200	2399	3598	4798	5998	7197	8397	9596
ARM - 400 - D	1715	3418	5127	6837	8546	10255	11964	13673

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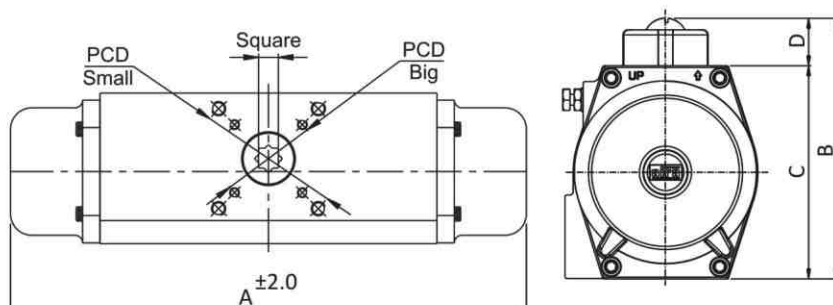
Pneumatic Rotary Actuator Single Acting

Catalogue No.
APL / 2002



General Features :

1. Opr. press : 60 to 115 psi
2. Temperature range : -20 °C to 90 °C
3. Air supply : Filtered, dry or lubricated
4. Ext. protection : Corrosion strength to 500 hours in salted fog



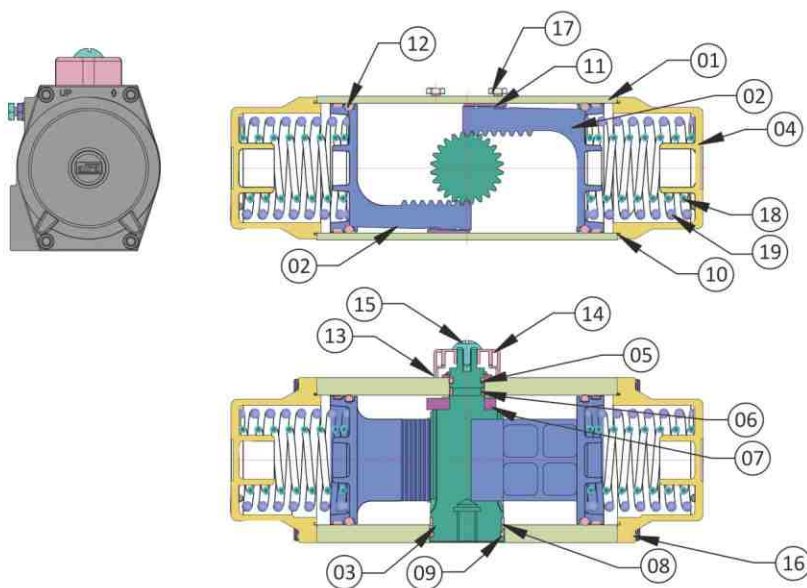
Dimensions :

(All Dimensions are in mm)

Model	A	B	C	D	PCD SMALL	PCD BIG	SQUARE	WEIGHT (Approx) Kgs.	AIR CONSUMPTION In Liters
ARA - 49 - S	140.5	98	69.5	28.5	36	50	11X11	1.250	0.1
ARA - 50 - S	181.1	101.5	74	27.5	36	50	14X14	1.500	0.16
ARM - 63 - S	206.3	113.6	87.8	25.8	50	70	14X14	2.800	0.27
ARA - 75 - S	254.5	126.5	100	26.5	50	70	17X17	3.450	0.31
ARM - 83 - S	264	135.4	109.4	26	50	70	17X17	4	0.53
ARA - 90 - S	335.4	145.4	117	28.4	----	70	17X17	7	0.55
ARA - 110 - S	335.6	166	140	26	70	102	22X22	10.500	1.13
ARA - 127 - S	435.1	179	153	26	102	125	27X27	16.150	1.5
ARA - 140 - S	489.8	198	172	26	102	125	27X27	19.650	1.75
ARA - 160 - S	626.4	228	196	32	102	125	36X36	36.650	3.2
ARM - 190 - S	550.6	275.2	232.2	43	-----	140	36X36	37.600	7.38
ARA - 210 - S	777.4	292.3	253.1	39.2	-----	140	36X36	84.100	8.46
ARM - 240 - S	620	320.2	292.5	27.7	-----	165	46X46	72.400	On Request.
ARM - 270 - S	733.4	364.3	328.4	35.9	-----	165	46X46	104.600	On Request.
ARM - 300 - S	825	393.7	355.7	38	-----	165	46X46	196.600	On Request.
ARM - 350 - S	842.2	445.6	410.6	35	-----	165	46X46	250.500	On Request.
ARM - 400 - S	926.5	503.6	463.4	40.2	-----	165	55X55	344.500	On Request.

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Parts List			
NO	Name	Material.	Qty
1	Body	Aluminium Alloy with Hard Anodised	01
2	Piston	Aluminium Alloy	02
3	Shaft	EN 8 with Hard Chrome Plated	01
4	End Cover	Aluminium Alloy	02
5	Shaft UP 'O' Ring	NBR	01
6	Shaft UP Guide	Delrin	01
7	Adaptor	EN 8 with Hard Chrome Plated	01
8	Shaft Low Guide	Delrin	01
9	Shaft Low 'O' Ring	NBR	01
10	'O' Ring For End Cap	NBR	02
11	Piston Skates	Delrin	02
12	'O' Ring For Piston	NBR	02
13	Indicator	Nylon	01
14	Indicator Strip	Nylon	04
15	Indicator Screw	Nylon	01
16	L. N. Bolt For End Cap	S. S.	08
17	Adjustable Bolt	S. S.	02
18	Spring (RH)	Spring Steel	02
19	Spring (LH)	Spring Steel	02

"aira" ACTUATOR SELECTION CHART

Selection of Single Acting Actuator

- 1. Conclude your required torque value.
- 2. Increase 25% for an acceptable safety factor.
- 3. Now look on TABLE your required torque value should be nearby higher value of "FIX TORQUE BY SPRING" & "TORQUE BY AIR / GAS PRESSURE."
- 4. The found position shows the model of "aira" actuator and working pressure in bar, we

Example

- 1. Suppose we need 120 Nm torque to drive a valve.
- 2. Increase 25% - 150 Nm for safety factor.
- 3. In table given below "aira" actuator model ARA-110-S Show 165 Nm

Actuator Spring Set

Model	ARA-49-S, ARA-50-S, ARM-63-S, ARA-75-S, ARM-83-S, ARA-90-S, ARA-110-S, ARA-127-S, ARA-140-S, ARA-160-S						ARA-210-S					
Spring Set	5	6	7	8	9	10	11	12	13	14	15	16
RH	0	1	2	1	2	2	0	1	2	2	2	2
LH	2	1	0	2	1	2	2	1	0	2	2	2
BIG LH							0	0	0	0	1	2

Model	SPRING SET	Torque In Nm 10Nm = 1 kgf															
		AT PRESSURE		2 BAR		3 BAR		4 BAR		5 BAR		6 BAR		7 BAR		8 BAR	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
ARM-49-S	5	2.3	5.7	0	1	3	4	6.5	6.5	9.2	9.8	13.4	13.1	16.7	16.1	20.1	19.1
ARM-49-S	6	2.9	7.5	0	0.7	1.5	2.8	4.8	5.8	7.9	8.9	11.5	12	14.9	14.8	18.1	18.4
ARM-49-S	7	2.6	9.4	0	0.8	0	1	3	2	6.2	4.6	9.6	7.8	13.1	10.7	16.1	14.1
ARM-49-S	8	2.8	10.7	0	1	0	1.2	1.3	2.6	4.5	5.3	8.2	8	11.5	10.7	14.5	14
ARM-49-S	9	3.1	12.8	0	1.3	0	1.5	0	3.4	2.6	5.6	5.8	8.1	9.2	11	12.8	14.4
ARM-49-S	10	7.2	15.2	0	0.6	0	0.7	0	1.1	0	4.2	2.4	7.3	5.2	10.3	8.2	13.2

ARA-50-S	5	3.1	11.5	0	6.6	2	10.5	7.1	14.5	12.1	18.8	17.2	22.8	22.5	27.4	27.6	32
ARA-50-S	6	5.2	15	0	4.4	0	7.5	3.6	10.8	8.7	14	13.9	17.3	18.5	21.4	23.7	25.7
ARA-50-S	7	7	20	0	4	0	7.3	0	10.5	1.5	14.6	6.5	19.2	11.3	24.2	16.2	29.2
ARA-50-S?	8	4.5	13.8	0	2	0	6.5	2.5	11.5	7.7	15.5	12.4	20.5	17.3	25.3	22.5	30
ARA-50-S	9	7	18.5	0	0	0	3.5	0	8.5	2	13	6.9	17.8	11.7	22.5	16.5	27
ARA-50-S	10	8.2	22.1	0	0	0	0	0	6.8	0	11.9	3.4	16.6	8.2	21.4	13.1	26.3

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Pneumatic Rotary Actuator Single Acting As Per ISO 5211



Model	SPRING SET	Torque In Nm 10Nm = 1 kgf															
		AT PRESSURE		2 BAR		3 BAR		4 BAR		5 BAR		6 BAR		7 BAR		8 BAR	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
ARM-63-S	5	4.1	5	0	2.3	4.3	6.7	10.3	12.2	17.4	18	24.6	24.7	31.7	31.7	39.1	39.1
ARM-63-S	6	6.5	8.1	0	4	3.6	6.4	10.5	13.6	17.6	20.5	24.7	27.6	31.8	34.7	38.8	42
ARM-63-S	7	11.2	17	0	2.3	0	5.3	0	8.6	3.9	12.7	10	18.8	16.7	25.6	24	32.7
ARM-63-S	8	10	16.7	0	0	1.5	7.5	9.2	14.6	16.4	21.4	24.1	28.3	30.8	36.5	37.5	43.3
ARM-63-S	9	13.6	21.5	0	0	0	4	4.5	11.6	11.5	18.7	18.6	25.5	25.7	33.5	32.1	39.5
ARM-63-S	10	15.7	24.5	0	0	0	2	0	8.6	4.6	15.3	11.5	22.2	18.3	29.4	25.4	36.1

ARA-75-S	5	8.3	18.5	33	10	17.9	24	31.8	37	44.2	51.5	54.6	65.8	62.4	79	69	93.5
ARA-75-S	6	10	25	0	0	12.9	15.6	25	29.2	32	42.8	41	57.6	50	70.9	58.7	85
ARA-75-S	7	14.5	30.3	0	1.3	6.2	15.5	13.2	29	19.8	42.7	25.9	56.5	32	70.5	37.7	84
ARA-75-S	8	20	29.7	0	0	2.5	13	17	26	30	38	43	51	54.5	63.8	65	79
ARA-75-S	9	24.8	35	0	0	0	11	12.1	24.5	24.4	37.4	35	50.2	42	63.3	48.5	76.8
ARA-75-S	10	25	46.9	0	0	0	0.7	0	12	11.3	24.8	24.2	37.5	34.5	50.7	48	63.8

ARM-83-S	5	7.5	14.7	16.1	22.3	32.3	36.6	46.9	50.8	61.5	64.8	76.6	79.2	91.1	93.5	105.4	107.8
ARM-83-S	6	19.4	30	0	8.3	9	23.2	24.2	37.2	39.1	51.8	53.6	66.8	67.9	81.3	82.4	95.5
ARM-83-S	7	24.6	38.3	0	2.5	3.2	17.2	18.3	31.9	32.7	45.8	47.1	60.3	61.6	74.9	76.5	89.7
ARM-83-S	8	20.3	37.8	0	0	0	13.2	12.5	27.3	26.6	40.9	41.6	55.6	55.6	69.3	69.5	83.5
ARM-83-S	9	34.8	53.8	0	0	0	4.5	0	18.6	14.5	32.6	28.7	46.7	42.4	60.3	56.4	74.8
ARM-83-S	10	51	78.5	0	4.5	0	8	0	12.4	0	17.6	0	23.8	12.2	34.4	27.2	48

ARA-90-S	5	9	38.7	14.4	43.5	44.7	74.9	67.8	106.1	82.3	137.1	88.8	168.7	92.5	199.9	94.4	226
ARA-90-S	6	22.6	67.7	0	25	8.6	56	39.6	86.5	67.6	117.5	93.4	148.3	101	180	106.6	211.8
ARA-90-S	7	19.9	110.8	0	0	0	39.5	0	68.8	30.1	100.7	60.2	132.3	88.6	163.4	106.7	194.5
ARA-90-S	8	19.2	78.9	0	18.7	0	45.5	24.5	76	55.5	104	75.5	138.5	95	167.5	111	194
ARA-90-S	9	21	119	0	8	0	35	0	64.5	16	92	47.2	124	79.5	153	104.5	185
ARA-90-S	10	44.1	127.4	0	2.2	0	31.5	0	62.8	6.2	93.2	35.4	124.6	63.4	154.2	69.4	185.3

ARA-110-S	5	47	89	0	33	30	78	74	123	117	168	162	214	206	259	247	305
ARA-110-S	6	58	117	0	20	0	64	41	109	85	152	127	195	170	240	208	286
ARA-110-S	7	72	146	0	0	0	44	11	89	54	134	98	178	142	222	185	267
ARA-110-S	8	85	165	0	0	0	32	0	78	22	123	68	167	112	212	154	252
ARA-110-S	9	102	192	0	0	0	17	0	64	0	111	12	152	19	195	25	234
ARA-110-S	10	121	235	0	0	0	0	0	34	0	78	6	123	47	165	90	210

ARA-127-S	5	25	72	71	110	142	185	202	260	246	336	292	413	325	487	353	564
ARA-127-S	6	70	164	0	54	36	125	111	202	185	278	248	355	302	430	318	505
ARA-127-S	7	107	253	0	14	0	85	27	154	100	223	173	297	244	371	309	444
ARA-127-S	8	82	187	0	36	0	113	72	189	153	268	203	342	233	415	258	488
ARA-127-S	9	144	277	0	0	0	70	0	145	43	206	62	282	*	358	*	430
ARA-127-S	10	150	328	0	4	0	42	0	118	14	190	87	263	161	337	231	410

ARA-140-S	5	17	28	59	133	153	233	248	333	300	423	335	509	370	608	404	710
ARA-140-S	6	49	166	0	109	63	212	122	317	130	423	132	528	138	633	140	735
ARA-140-S	7	106	264	0	71	0	175	95	277	193	383	219	488	245	597	247	701
ARA-140-S	8	77	215	0	108	36	205	116	308	137	412	142	515	149	615	*	712
ARA-140-S	9	114	293	0	58	0	160	0	266	110	368	145	471	157	572	181	667
ARA-140-S	10	112	327	0	37	0	142	19	245	120	349	216	455	298	557	347	656

ARA-160-S	5	85	170	115	211	266	368	414	518	566	672	720	831	839	985	928	1135
ARA-160-S	6	120	241	17	158	168	299	316	450	459	597	522	743	586	886	650	1030
ARA-160-S	7	175	356	0	96	44	245	193	392	342	540	480	688	573	833	645	982
ARA-160-S	8	163	343	0	85	55	246	108	407	136	563	156	718	167	873	169	1011
ARA-160-S	9	236	430	0	42	0	197	77	351	155	503	183	660	188	810	*	950
ARA-160-S	10	231	470	0	26	0	171	60	309	202	455	346	604	468	741	530	887

ARA-210-S	11	83	244	14	725	18	1118	20	1517	***	1912	***	***	***	***	***	***
ARA-210-S	12	106	399	112	689	124	1082	130	1460	135	1833	139	***	145	***	153	***
ARA-210-S	13	116	567	80	475	141	847	197	1237	217	1636	239	***	250	***	253	***
ARA-210-S	14	307	815	0	297	12	680	20	1070	29	1454	30	1843	31	***	***	***
ARA-210-S	15	415	1057	0	250	4	636	7	1115	10	1385	13	1780	16	*	17	*
ARA-210-S	16	475	1195	0	207	0	600	7	995	12	1365	16	1750	*	22	*	25

OUTPUT TORQUE OF AIR SUPPLY													
Air Pressure (bar)		3		4		5		6		7		Spring Stroke	
Model	Spring Qty.	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End
ARM-190-S	5	429	320.4	644.5	535.9							217.4	326
ARM-190-S	6	385.5	255.5	601	470.7							260.9	391.2
ARM-190-S	7	342	190	557.5	405.5							304.4	456.4
ARM-190-S	8			514	340.3	729.5	555.8					347.9	521.6
ARM-190-S	9			470.6	275.1	686.1	490.6					391.3	586.8
ARM-190-S	10			427.1	209.9	642.6	425.4	858.1	640.9	1073.6	856.4	434.8	652
ARM-190-S	11					599.1	360.2	814.6	575.7	1030.1	791.2	478.3	717.2
ARM-190-S	12					555.6	295	771.1	510.5	986.6	726	521.8	782.4

ARM-240-S	5	924	690.5	1488.1	1154.6							468.5	702
ARM-240-S	6	829.9	550.1	1294	1014.2							562.6	842.4
ARM-240-S	7	736.7	409.7	1200.8	873.8							655.8	982.8
ARM-240-S	8			1107.1	733.4	1571.3	1197.6					749.5	1123.2
ARM-240-S	9			1013.4	593	1477.6	1057.2					843.2	1263.6
ARM-240-S	10			919.7	452.6	1383.9	916.8	1848.1	1381	2312.2	1845.1	936.9	1404
ARM-240-S	11							1754.4	1240.6	2218.5	1704.7	1030.6	1544.4
ARM-240-S	12							1660.7	1100.2	2124.8	1564.3	1124.3	1684.8

ARM-270-S	5	1299.7	971.2	1952.4	1623.9							658.5	987
ARM-270-S	6	1168	773.8	1820.7	1426.5							790.2	1184.4
ARM-270-S	7	1036.3	576.4	1689	1229.1							921.9	1381.8
ARM-270-S	8			1557.3	1031.7	2210	1684.4					1053.6	1579.2
ARM-270-S	9			1425.6	834.3	2078.3	1487					1185.3	1776.6
ARM-270-S	10			1293.9	636.9	1946.6	1289.6	2599.3	1942.3	3252	2595	1317	1974
ARM-270-S	11					1814.9	1092.2	2467.6	1744.9	3120.3	2397.6	1448.7	2171.4
ARM-270-S	12					1683.2	894.8	2335.9	1547.5	2988.6	2200.2	1580.4	2368.8

ARM-300-S	5	1603	1183									800	1220
ARM-300-S	6	1483	1066									920	1337
ARM-300-S	7	1330	844	2132	1646							1073	1559
ARM-300-S	8	1177	621	1979	1423	2780	2224					1226	1782
ARM-300-S	9			1825	1201	2626	2002	3427	2803			1380	2004
ARM-300-S	10			1652	977	2473	1778	3274	2579	4075	3380	1533	2228
ARM-300-S	11							3121	2357	3922	3158	1686	2450
ARM-300-S	12							2815	1878	3686	2679	1922	2929

ARM-350-S	5	2399	1739									1199	1859
ARM-350-S	6	2120	1453									1478	2145
ARM-350-S	7	1874	1096	3074	2296							1724	2502
ARM-350-S	8	1627	738	2827	1938	4027	3138					1971	2860
ARM-350-S	9			2580	1581	3780	2781	4979	3980			2218	3217
ARM-350-S	10			2335	1223	3535	2423	4734	3622	5934	4822	2463	3575
ARM-350-S	11					3288	2066	4487	3265	5690	4465	2710	3932
ARM-350-S	12					3120	1537	4319	2736	5519	3936	2878	4461

ARM-400-S	5	3418	2479									1709	2648
ARM-400-S	6	2922	1670									2205	3457
ARM-400-S	7	2647	1239	4357	2949							2480	3888
ARM-400-S	8	2372	806	4082	2516	5191	4225					2755	4321
ARM-400-S	9			3806	2085	5515	3794	7224	5503			3031	4752
ARM-400-S	10			3531	1652	5240	3361	6949	5070	8658	6779	3306	5185
ARM-400-S	11							6672	4639	8381	6348	3583	5616
ARM-400-S	12							6154	3899	8106	5608	4101	6356

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Pneumatic Rotary Actuator

As Per ISO 5211

Stainless Steel 304

Catalogue No.
APL / 2004



"aira"

Offers SRA Series pneumatic actuators are stainless steel actuator which incorporate latest mechanical technology, materials available and our patented technology, through designing, developing, testing and engineering application, we have obtained a high grade product with the characteristics of reliability, high performance, long cycle life, large adjustment, highest levels of corrosion protection, wide selection of model with easy and economy.

Operating Conditions :

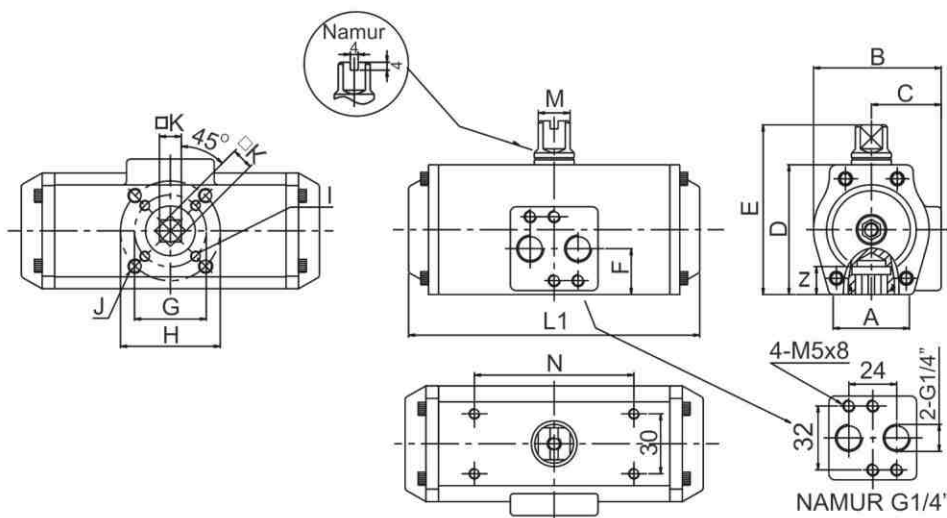
1. Operating Media Dry or lubricated air, the non-corrosive gasses or oil
2. Air supply pressure Double acting: 2~8 Bar ; Spring return: 2~8 Bar
3. Operating temperature Standard (NBR O-ring):- 20°C ~+80°C Low temperature (Silicone O-ring):- 35°C ~+80°C High temperature (Viton O-ring):- 15°C ~+150°C
4. Travel adjustment Have adjustment range of $\pm 4^\circ$ for the rotation at 90°
5. Lubrication Under normal operating condition, need not accrete lubricant
6. Application Either indoor or outdoor
7. Highest pressure The maximum input pressure is 10 Bar

Notes :

If an actuator is properly assembled and used , it will be maintenance free, as it has been lubricated enough to last a normal working life under normal working conditions. Should it get necessary to replace its seals, we suggest turning to my company where the product will be overhauled first, and then tested. On request, my company will be willing to provide its customers with kits and instructions.

Maintenance :

1. It is recommended that periodic checks be performed to make sure that all fasteners remain tight.
2. The actuator is supplied ready-lubricated no further lubrication is required. If lubrication is deemed necessary , use EP-1 grease.
3. Under certain working conditions (heavy duty, non-compatible operating media or abnormal operating conditions) internal seals should be checked periodically and replaced when necessary.
4. On spring return actuators, spring fatigue may set in requiring the replacement of springs. Spring should always be replaced in full sets.



Dimensions :

(All Dimensions are in mm)

Model	A	B	C	D	E	F	G	H	I	J	K	L1	M	N	Z
SRA-45	42	64	35	65	85	23	F 36	F 36	M5 x 8	M6 x 10	11X11	147	16	80	14
SRA-60	48.5	74	39	81	101	23	----	F 50	----	M6 x 10	14X14	146	16	80	18
SRA-85	66	101	52	108	128	24	F 50	F 70	M6 x 10	M8 x 13	17X17	198	16	80	21
SRA-105	80	118	60	133	153	24	----	F 70	----	M8 x 13	22X22	251	16	80	26
SRA-125	100	138	69	155	185	28	F 70	F 102	M8 x 13	M10 x 16	22X22	242	22	130	26
SRA-140	115	153	77	171	201	34	F 102	F 125	M10 x 16	M12 x 20	27X27	358	22	130	31
SRA-160	132	174	87	197	227	39	F 102	F 125	M10 x 16	M12 x 20	27X27	325	22	130	31

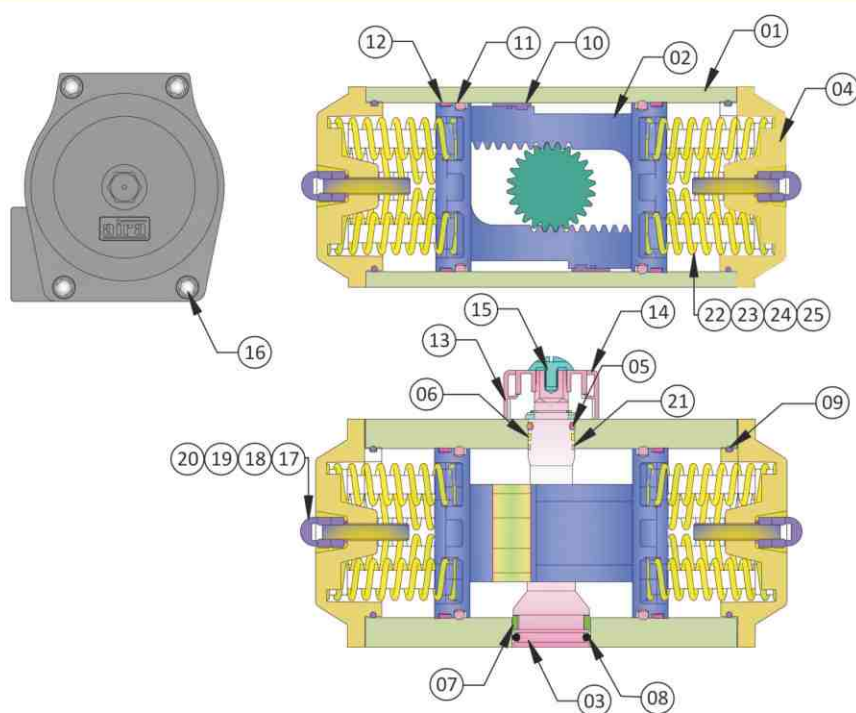
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Parts List

NO	Name	Qty	Material.
1	Body	01	Stainless Steel
2	Piston	02	Stainless Steel
3	Shaft	01	Stainless Steel
4	End Cover	02	Stainless Steel
5	Shaft UP 'O' Ring	01	NBR
6	Shaft UP Guide	01	Delrin
7	Shaft Low Guide	01	Delrin
8	Shaft Low 'O' Ring	01	NBR
9	'O' Ring For End Cap	02	NBR
10	Piston Scat	02	Delrin
11	'O' Ring For Piston	02	NBR
12	Piston Guide Ring	02	Delrin
13	Indicator	01	Nylon
14	Indicator Strip	04	Nylon
15	Indicator Screw	01	Nylon + M. S.
16	L. N. Bolt For End Cap	04	Stainless Steel
17	Adjustable Screw	02	Stainless Steel
18	Adjustable Screw Nut	02	Stainless Steel
19	Adjustable Screw Washer	02	Stainless Steel
20	Adjustable Screw O - Ring	02	NBR
21	Inside Shaft Washer	01	PTFE
22	Spring	*	Spring Steel
23	Spring Retainer (L)	*	Nylon 66
24	Spring Retainer (R)	*	Nylon 66
25	Retainer Connector	*	Brass

Torque In Nm 10Nm = 1KgF

DOUBLE ACTING ACTUATOR TORQUE CHART

Model	Air Pressure (Bar)									
	2	2.5	3	4	4.5	5	5.5	6	7	8
SRA-45D	6.0	7.6	9.1	12.1	13.6	15.1	16.6	18.1	21.1	24.2
SRA-60D	14.2	17.8	21.3	28.4	32.0	35.5	39.1	42.6	49.7	56.8
SRA-85D	30.8	38.5	46.2	61.6	69.4	77.1	84.8	92.5	107.9	123.3
SRA-105D	65.8	82.2	98.7	131.6	148.0	164.4	180.9	197.3	230.2	263.1
SRA-125D	103	128	154	205	231	256	282	308	359	410
SRA-140D	175	219	263	351	395	439	482	526	614	702
SRA-160D	267	334	401	535	601	668	735	802	935	1069

Torque In Nm 10Nm = 1KgF

SINGLE ACTING ACTUATOR TORQUE CHART

Model	Air Pressure (Bar)							
	2	2.5	3	4	5	6	7	8
SRA-45S	1.2	2.8	3.3	5.3	7.3	9.4	11.4	14.5
SRA-60S	3.2	6.8	8.1	13.0	17.9	22.8	27.7	34.8
SRA-85S	6.6	14.3	17.1	27.7	38.3	48.9	59.5	74.9
SRA-105S	14.0	30.4	36.5	59.1	81.5	104.1	126.6	159.5
SRA-125S	20.5	45.5	55.0	89.5	124.0	159.5	194.0	245.0
SRA-140S	39.3	83.3	100.1	161.0	221.8	281.7	342.5	430.5
SRA-160S	47.7	114.7	137.9	228.0	317.2	407.3	496.5	630.5

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Pneumatic Scotch & Yoke Actuator

Catalogue No.
APL / 1077



"aira"

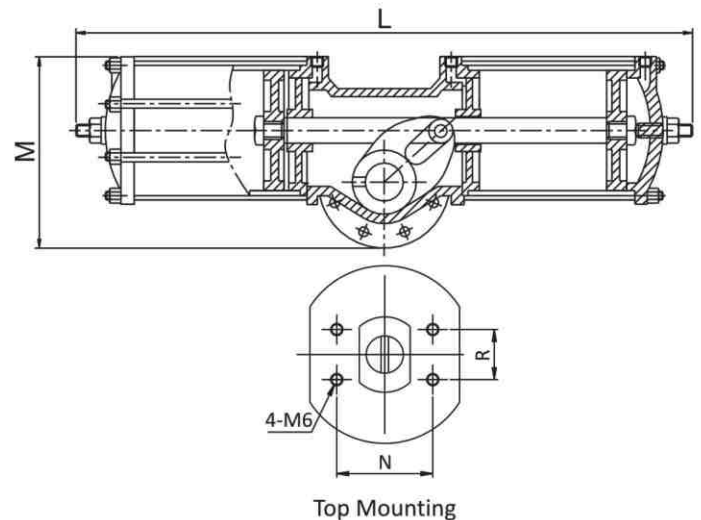
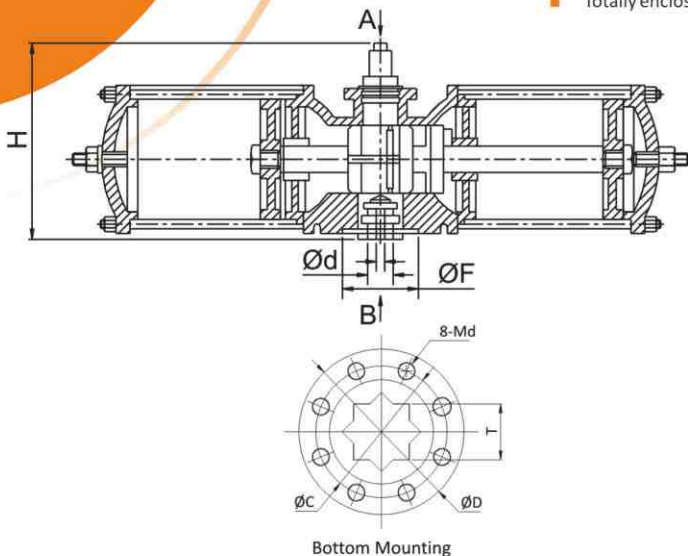
Offers WAW / SAW Series heavy duty Scotch Yoke Actuators offer a broad range of torques to 116984 NM. The Scotch & Yoke is designed to operate Ball, Butterfly, Plug Valves, Dampers or any device that requires a quarter-turn movement for on-off or throttling services. Our standard offering is te symmetrical design yoke that delivers maximum torque at both ends of the 90° cycle. The square sliding bearing with guide bar gives high cycle life and smooth stroke while minimizing wear points. As with all "aira" actuators, our Scotch & Yoke comes with a complete line of accessories, including jackscrew, hydraulic overrides, limit switches, solenoids and positioners...

CE
Approved



WAW Series Heavy Duty Scotch and Yoke Actuators features

- Travel adjustment $\pm 8^\circ$ for clock wise and counter-clock wise strokes
- Nitrile rubber piston O-rings offer excellent sealing and wear. Optional low and high temperature seals and lube are available
- RTFE Guide Band supports piston while providing smooth operation and extended life
- Extra large, strong piston rod for long life and torque transmission
- Namur accessory mounting pads permit mounting standardization of limit switches, positioners etc.
- Ductile iron center body
- Modular design allows for installing power groups and spring cartridges so that actuators may be set up for different air pressures and for Fail Clockwise and Fail Counter-clockwise
- Rugged heavy duty steel pressure cylinders chrome plated for long wear and corrosion resistance
- Safe, welded spring cartridges with numerous options for a broad range of air pressure conditions
- Alloy Steel, corrosion resistant and heat treated springs designed and manufactured for long high cycle life
- Steel slide block, bronze slide bearings to minimize friction and provide long cycle life
- Visual position indicator
- Carbon steel Scotch Yoke mechanism available in symmetric form
- Totally enclosed weatherproof central body



WAW 14 - WAW 35 Dimensions Table DOUBLE ACTING

Model	L	H	M	ØC;C	ØD;D	Z - M	Ød	ØF	SQUARE T	W	Y	N	R	X - M	AIR SUPPLY PORT
WAW - 14	658	228	200	102	130	4-M12	32	80	27 X 27	85	95	70	35	4-M6	G 1/4"
WAW - 18	810	293	280	140	170	4-M16	45	120	34 X 34	115	145	100	50	4-M6	G 3/8"
WAW - 20A	1040	330	320	180	218	4-M16	54	130	34 X 34	120	150	120	50	4-M6	G 1/2"
WAW - 20B	1040	330	320	180	218	4-M16	54	130	38 X 38	120	150	120	50	4-M6	
WAW - 25	1200	370	387	200	235	8-M18	64	166	45 X 45	137	157	120	50	4-M6	
WAW - 28	1430	444	480	272	330	8-M18	74	220	55 X 55	160	170	130	60	4-M6	
WAW - 35	1860	450	540	300	350	8-M24	100	220	28 X 2	204	----	180	60	4-M8	G 3/4"
WAW - 40	1860	500	580	300	350	8-M24	100	220	28 X 2	230	----	180	60	4-M6	
WAW - 50	2340	615	695	356	415	8-M30	120	260	32 X 2	230	----	180	60	4-M8	
WAW - 60	2430	720	720	356	415	8-M30	120	260	32 X 2	256	----	220	60	4-M8	
WAW - 70	3160	850	920	483	550	12-M36	180	370	45 X 2	256	----	250	60	4-M8	

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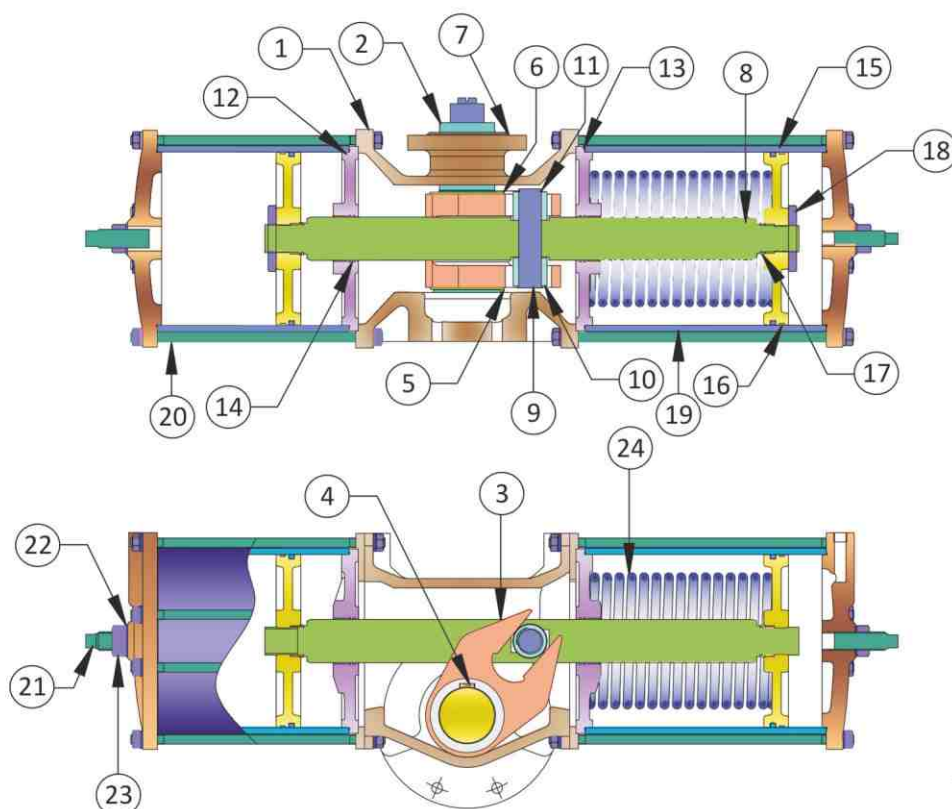


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Dimensions Table SINGLE ACTING

Model	L	H	M	ØC,C	ØD,D	Z - M	Ød	ØF	B	W	Y	N	R	X - M	AIR SUPPLY PORT
SAW - 114	865	230	204	102	130	4-M12	32	80	8 X 2	95	70	70	35	4 - M6	G 1/4"
SAW - 118	1090	300	280	140	170	4-M16	45	120	14 X 2	145	100	100	50	4 - M6	G 3/8"
SAW - 120	1430	330	320	180	218	4-M16	54	130	14 X 2	150	120	120	50	4 - M6	G 1/2"
SAW - 125	1570	350	387	200	235	8-M16	64	166	18 X 2	150	120	120	50	4 - M6	
SAW - 128	1810	350	480	272	330	8-M18	74	220	20 X 2	157	120	120	50	4 - M6	
SAW - 135	2500	450	540	300	350	8-M24	100	220	28 X 2	170	130	130	60	4 - M8	
SAW - 140	2500	500	580	300	350	8-M24	100	220	28 X 2	----	180	180	60	4 - M8	G 3/4"
SAW - 150	3210	615	695	356	415	8-M30	120	260	32 X 2	----	180	180	60	4 - M8	
SAW - 160	3210	720	720	356	415	8-M30	120	260	32 X 2	----	180	180	60	4 - M8	



NO	DESCRIPTION	QTY
1	BODY	1
2	STEM	1
3	SCOTCH YOKE	1
4	KEY	1
5	O-RING FOR STEM LOW GUIDE	1
6	O-RING FOR STEM UP GUIDE	1
7	SNAP RING	2
8	PISTON ROD	1
9	PIN	1
10	ROLLER	2
11	SNAP RING	1
12	ADAPTOR	2
13	GASKET	2
14	O-RING	4
15	PISTON	2
16	O-RING	2
17	O-RING	2
18	NUT	2
19	CYLINDER	2
20	CYLINDER STUD	12
21	ADJUST BOLT	2
22	GASKET	2
23	CAP NUT	2
★ 24	SPRING	1

★ Only For Spring Return Single Acting Actuator

Torque In Nm 10Nm = 1 kgf

Output Torque of WAW Double Acting Pneumatic Actuator

Model	AIR SUPPLY (Bar)				
	3	4	5	6	7
WAW-14	515	620	770	930	1080
WAW-18	950	1270	1590	1910	2230
WAW-20A	1125	1500	1875	2250	2625
WAW-20B	1540	2050	2570	3090	3590
WAW-25	3075	4011	5125	6150	7175
WAW-28	5150	6860	8580	10300	12020
WAW-35	10120	13500	16870	20250	23620
WAW-40	13220	17630	22040	26450	30860
WAW-50	20790	27720	34650	41580	48510
WAW-60	30120	40160	50201	60241	70281
WAW-70	50136	66848	83560	100272	116984

Torque In Nm 10Nm = 1 kgf

Output Torque of Single Acting Pneumatic Actuator

Model	SPRING TORQUE		AIR (BAR) TORQUE Nm					
			4		5		6	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
SAW - 114	230	430	183	330	330	540	490	700
SAW - 118	330	670	600	930	920	1290	1230	1570
SAW - 120	1190	1980	800	1670	1600	2390	2320	3100
SAW - 125	1600	2510	1970	2880	3090	4000	4210	5120
SAW - 128	2080	3820	3040	4880	4760	6490	6480	8210
SAW - 135	4380	8070	5240	9110	8800	12490	12180	15860
SAW - 140	7091	12478	5873	11260	9544	14930	13214	18600
SAW - 150	14188	25463	9186	20461	16116	27391	23046	34322
SAW - 160	20102	36550	13650	30098	23691	40138	33731	50178

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Mfg. & Mkt by :

aira Euroautomation pvt. ltd.

ISO 9001:2008 Certified Co.

Ahmedabad-382 405, INDIA

www.airaindia.com / www.airaeuro.com



Available At :



Tel. +1.713.592.0869
info@valvact.com
www.valvact.com