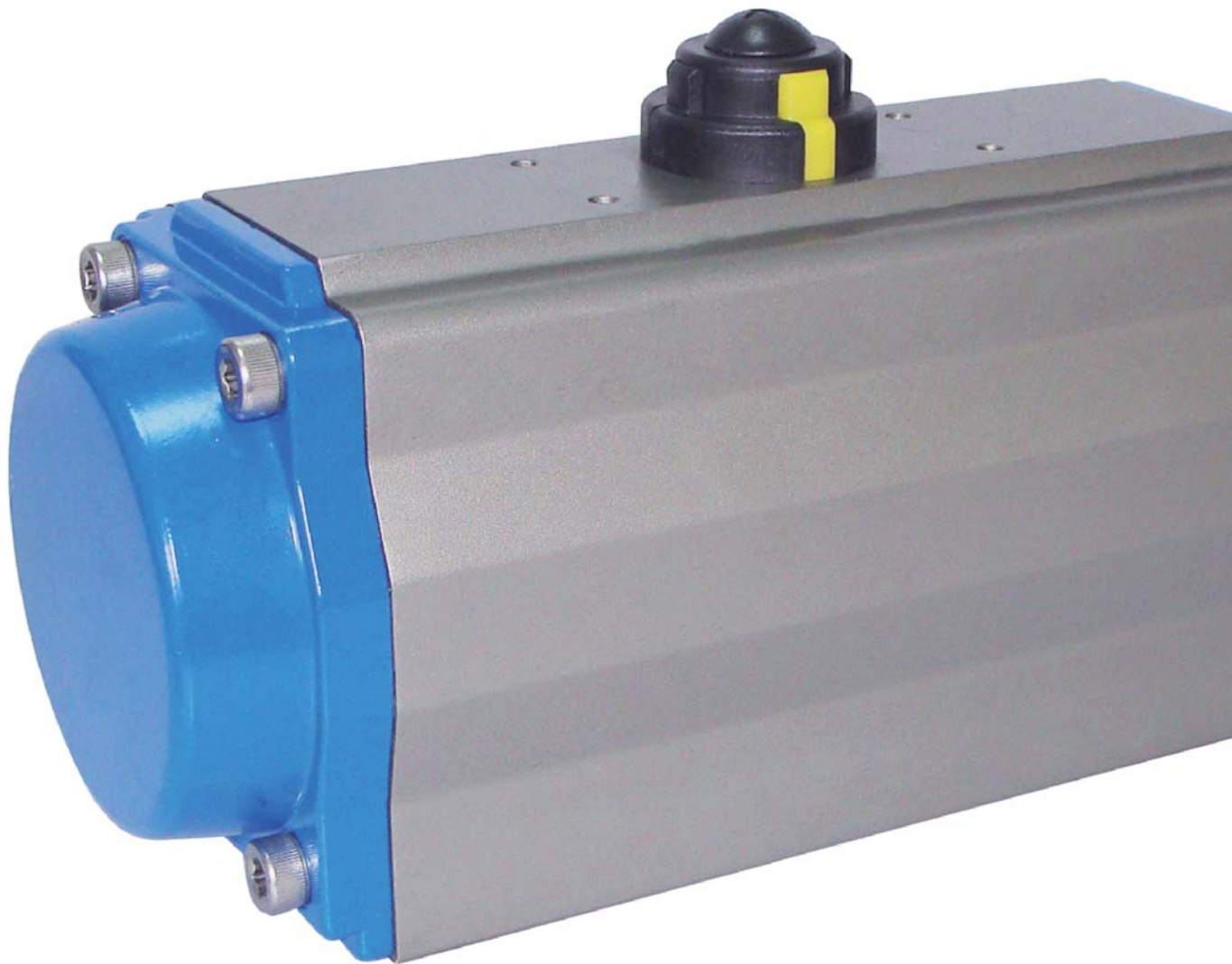




*Pneumatic Rack & Pinion*  
**AC-SERIES ACTUATOR**





a **WOLSELEY** company

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# DESIGN

The Meridian™ AC-Series Pneumatic Actuator has an aluminum rack & pinion in double acting or spring return based on our patented, newly designed and innovative technology. This kind of actuator features a top mount multifunction indicator and open-close stop adjustment as a standard. In addition, state-of-the-art engineering has allowed us to reduce the size of the actuator without sacrificing torque. The Meridian™ AC-Series is a 4th generation pneumatic actuator with the latest features and characteristics.



## INDICATOR

Position indicator with NAMUR is convenient for mounting accessories such as limit switch box, positioner etc.

## PINION

The pinion is high-precision CNC machined, made from nickel alloy steel and fully conforming to the latest standards of ISO5211, DIN3337 & NAMUR. The dimensions can be customized and stainless steel is available.

## ACTUATOR BODY

According to the different requirements, the extruded aluminum alloy ASTM6005 body can be treated with hard anodized (standard), powder polyester paint, PTFE or nickel plated.

## END CAPS

Die-casting aluminum powder polyester paint (standard), PTFE or nickel plated.

## HIGH-PERFORMANCE SPRINGS

Preloaded coated springs are made from high quality material that is resistant to corrosion and has longer life cycle. They can be removed safely and conveniently for different torque requirement or air pressure by changing quantity of springs.

## TRAVEL ADJUSTMENT

The two independent external travel stop adjustment bolts can adjust at both open and close directions easily and precisely.

## PISTONS

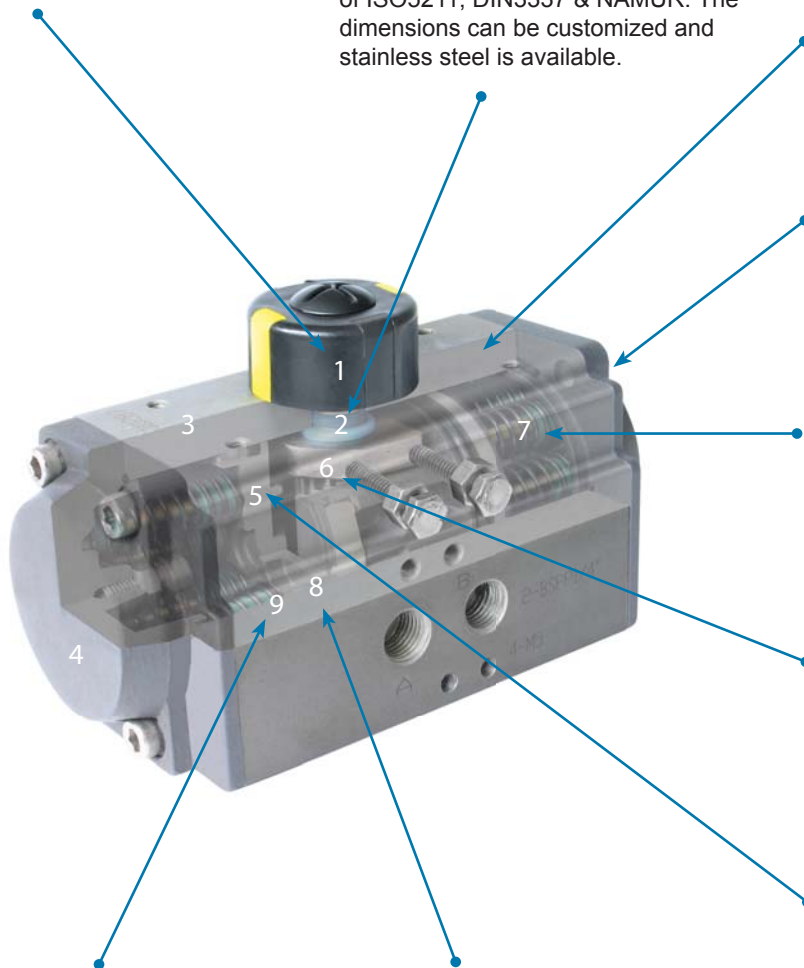
The twin rack pistons are made from die-casting aluminum treated with hard anodized or made from cast steel with galvanization. Symmetrical mounting position, long life and fast operation. Reverse rotation by simply inverting the pistons.

## O-RINGS

NBR rubber o-rings provide trouble-free operation at standard temperature ranges. For high temperature, viton or silicone is used. For low temperature, NBR is used.

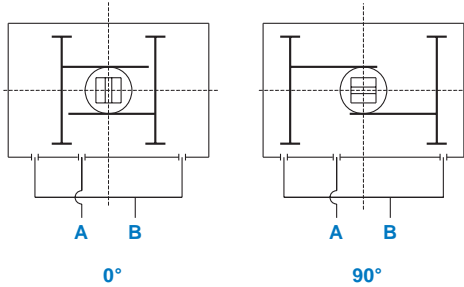
## BEARINGS & GUIDES

Made from low friction, long life compound material that avoids direct contact between metals. Maintenance and replacement are easy and convenient.



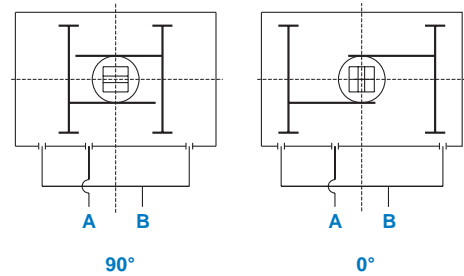
# MERIDIAN™ AC-SERIES ACTUATOR OPERATING PRINCIPLE

## DOUBLE ACTING



**STANDARD ROTATION (CCW)**

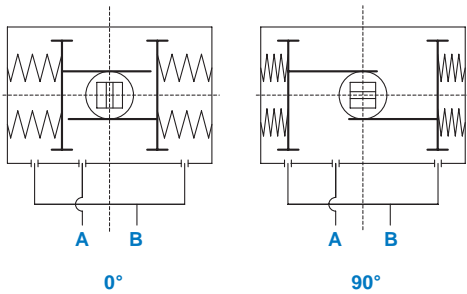
Air to port “A” forces the pistons outwards, causing the pinion to turn counterclockwise while the air is being exhausted from port “B”. Air to port “B” forces the pistons inwards, causing the pinion to turn clockwise while the air is being exhausted from port “A”.



**REVERSE ROTATION (CW)**

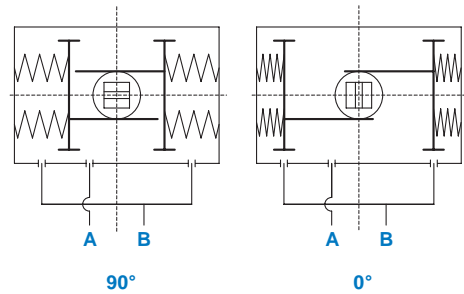
Air to port “A” forces the pistons outwards, causing the pinion to turn clockwise while the air is being exhausted from port “B”. Air to port “B” forces the pistons inwards, causing the pinion to turn counterclockwise while the air is being exhausted from port “A”.

## SPRING RETURN



**STANDARD ROTATION**

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



**REVERSE ROTATION**

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

## OPERATING CONDITIONS

### 1. OPERATING MEDIA

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

### 2. AIR SUPPLY PRESSURE

The minimum supply pressure is 30 psi. The maximum supply pressure is 115 psi.

### 3. OPERATING TEMPERATURE

Standard (NBR o-ring): -20°C ~ +80°C  
 Low temp (L NBR o-ring): -40°C ~ +80°C  
 High temp (Viton o-ring): -15°C ~ 150°C

### 4. TRAVEL ADJUSTMENT

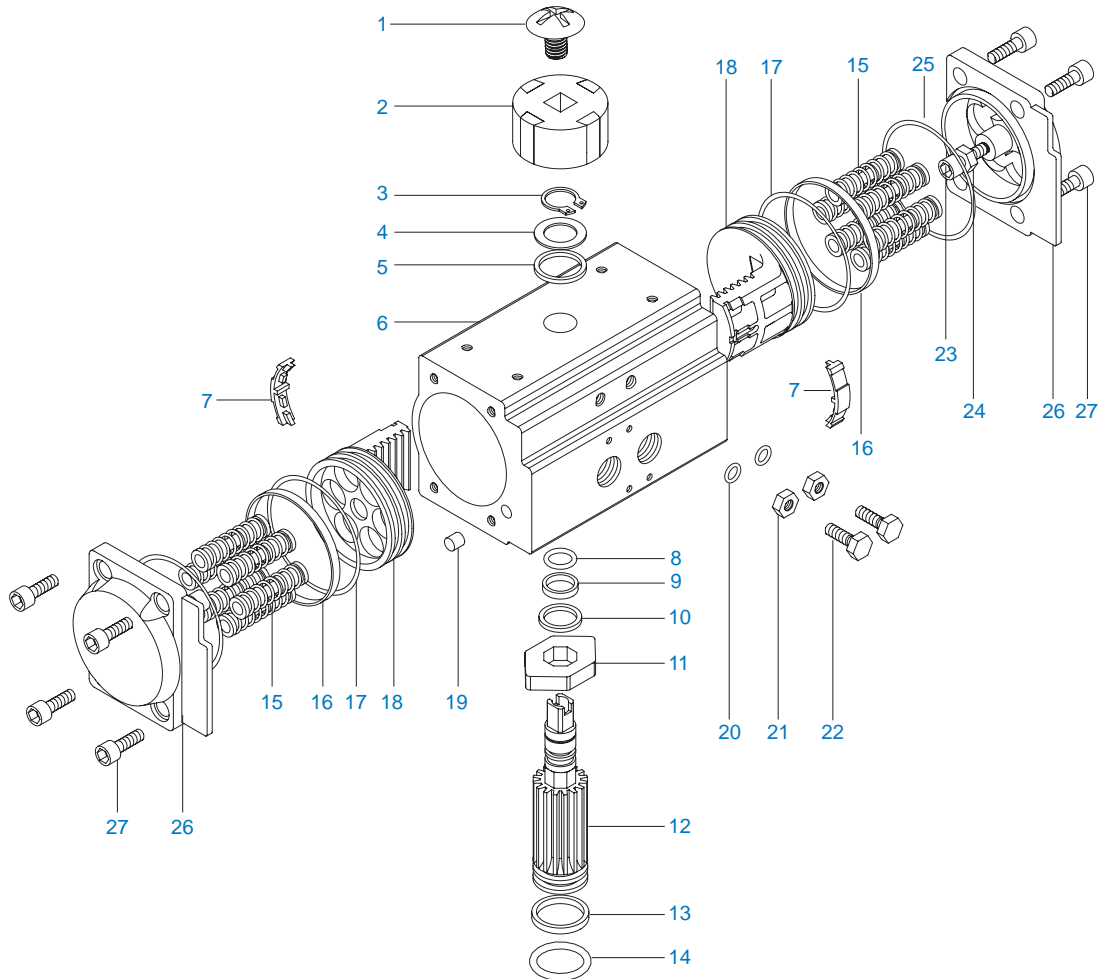
Have adjustment range of +/-5° for the rotation at 0° and 90°.

### 5. APPLICATION

Suitable for both indoor and outdoor.

## PARTS & MATERIALS

### Meridian™ AC-Series Pneumatic Rack & Pinion Actuator



ITEM	DESCRIPTION	QTY.	MATERIAL
1	INDICATOR SCREW	1	ABS PLASTIC
2	INDICATOR	1	ABS PLASTIC
3	SNAP RING	1	SS 304
4	THRUST WASHER	1	SS 304
5	OUTSIDE WASHER	1	POM (ACETAL)
6	BODY	1	EXT. ALUM. ALLOY 6005-T5
7	PISTON GUIDE	2	POM (ACETAL)
8	O-RING	1	NBR
9	BEARING	1	POM (ACETAL)
10	INSIDE WASHER	1	POM (ACETAL)
11	CAM	1	STEEL NICKEL PLATED AISI 1045
12	PINION	1	STEEL NICKEL PLATED AISI 1045
13	BEARING	1	POM (ACETAL)
14	O-RING	1	NBR

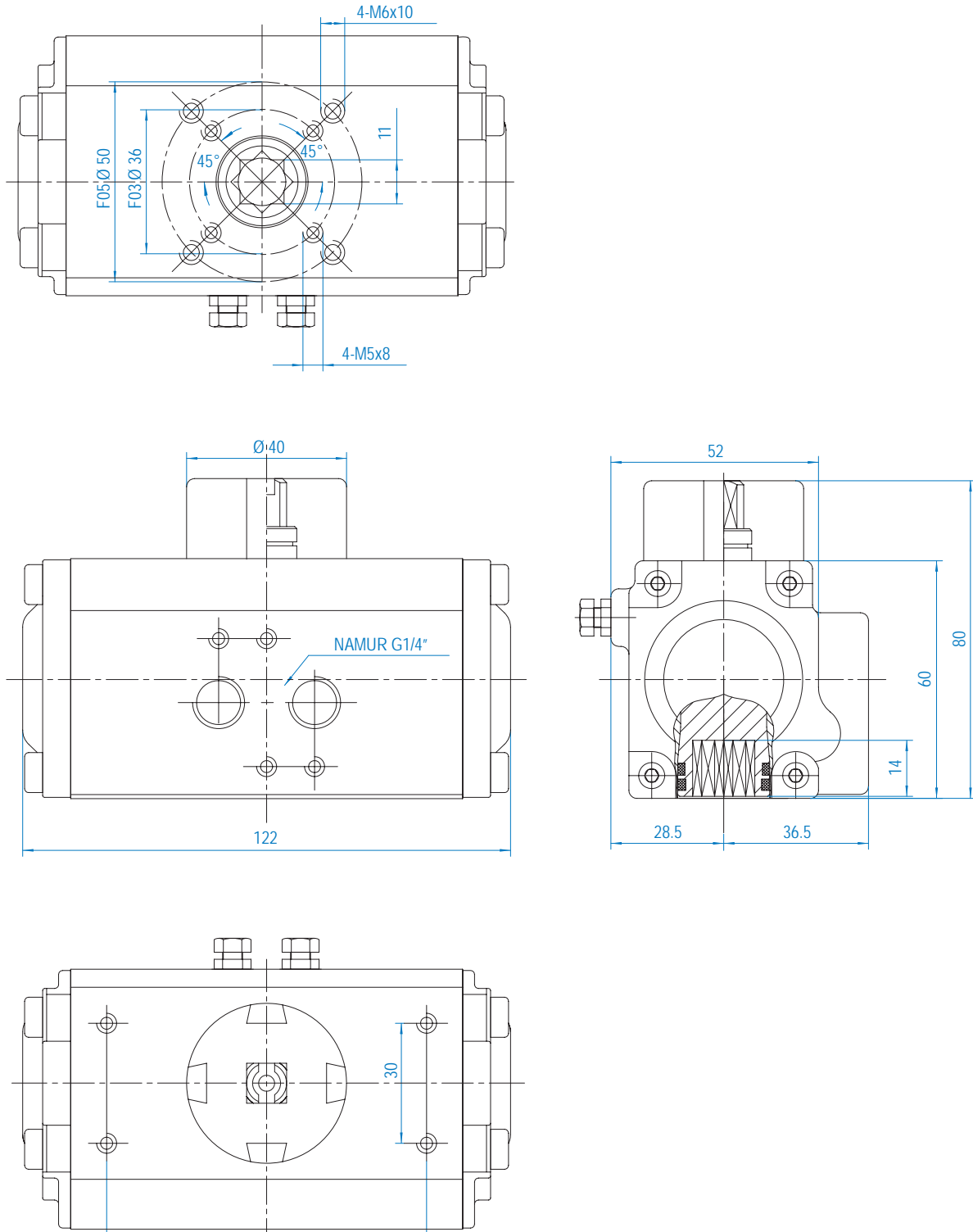
ITEM	DESCRIPTION	QTY.	MATERIAL
15	SPRING	1-12	SPRING STEEL
16	PISTON BEARING	2	POM (ACETAL)
17	O-RING	2	NBR
18	PISTON	2	DIE-CAST ALUMINUM 101A
19	PLUG	2	NBR
20	O-RING	2	NBR
21	NUT	2	SS 304
22	ADJUST SCREW	2	SS 304
23	STOP SCREW	2	SS 304
24	NUT	2	SS 304
25	O-RING	2	NBR
26	END CAP	2	DIE-CAST ALUMINUM 101A
27	SCREW	8	SS 304

# DIMENSIONS

## MERIDIAN™ Pneumatic Rack & Pinion Actuator

### Model AC-40

Dimensions in mm.

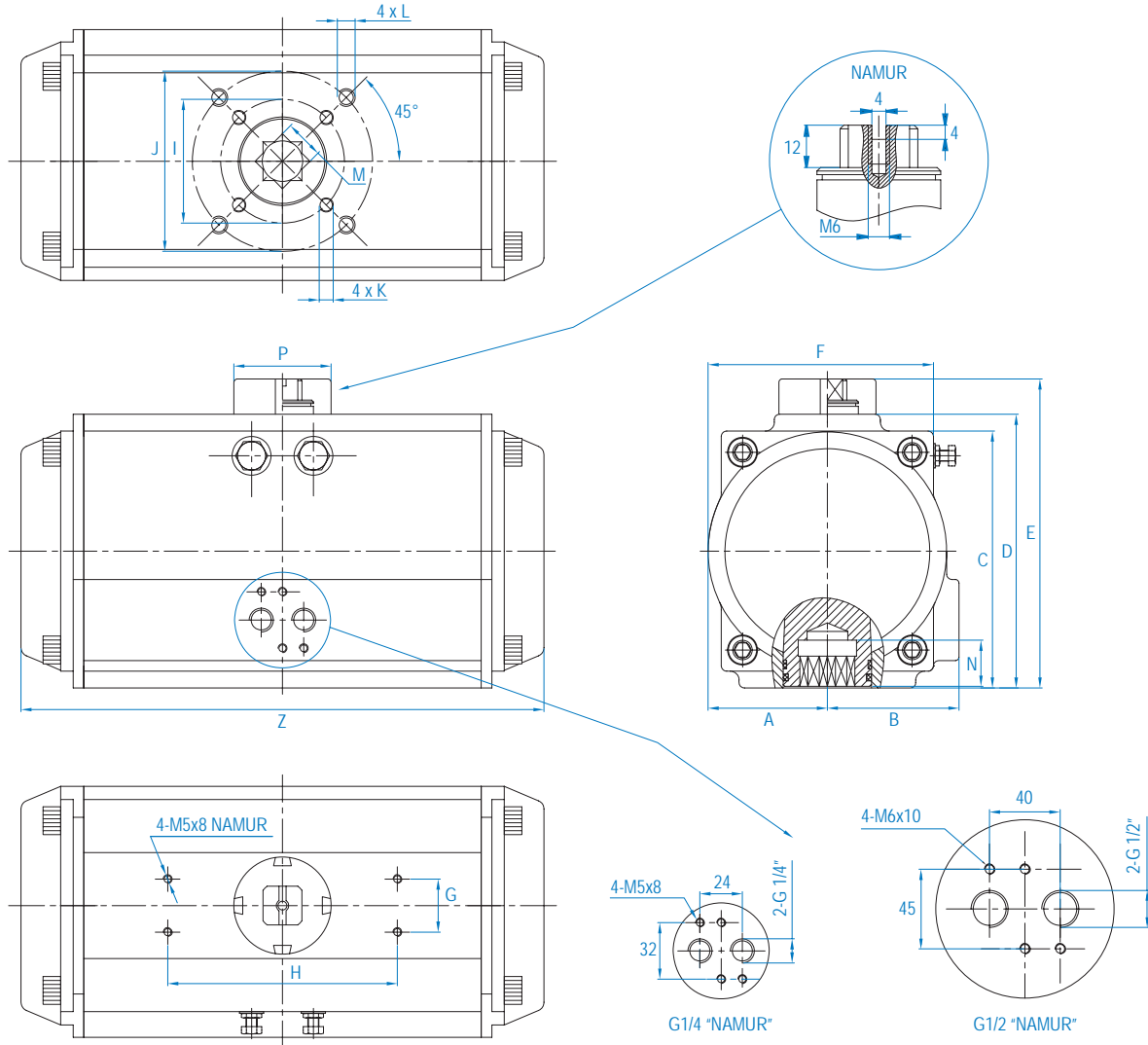


# DIMENSIONS

## MERIDIAN™ Pneumatic Rack & Pinion Actuator

### Model AC-52 thru AC-270

Dimensions in mm.



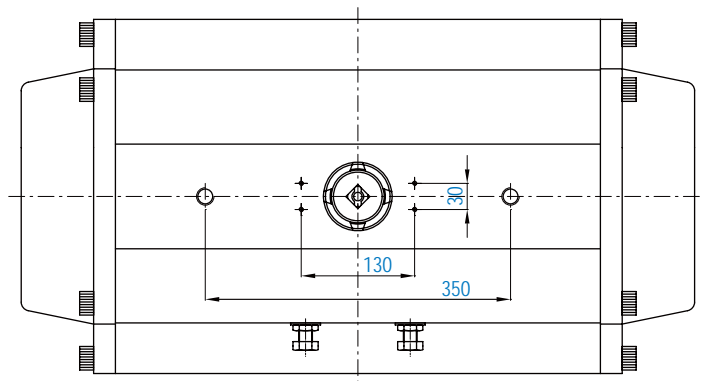
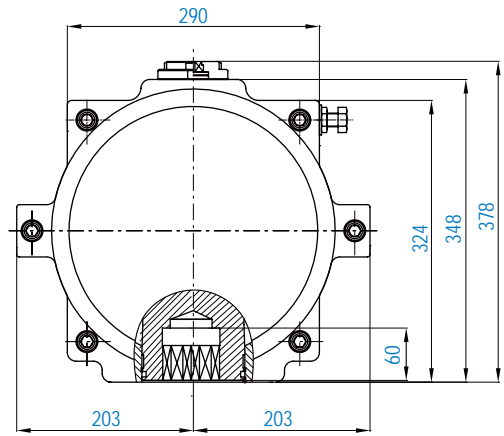
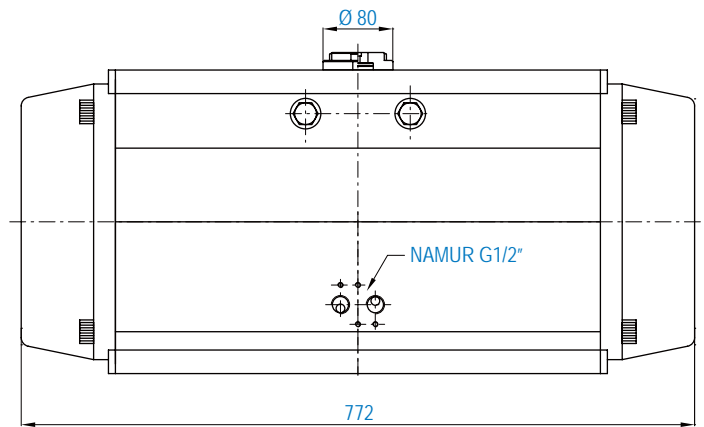
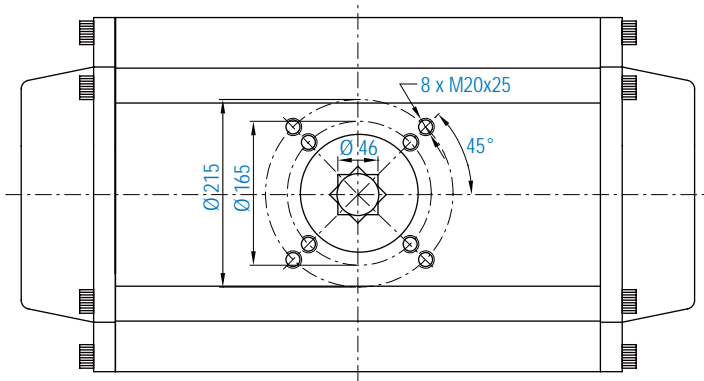
Model	A	B	C	D	E	F	G	H	I Ø	J Ø	K	L	M	N	Z	P Ø	Air Connection
AC-52	30	41.5	65.5	72	92	65	30	80	36	50	M5x8	M6x10	11	14	147	40	G1/4" (1/4" NPT)
AC-63	36	47	81	87.5	107.5	72	30	80	50	70	M6x10	M8x13	14	18	168	40	G1/4" (1/4" NPT)
AC-75	42	53	94	99.5	119.5	81	30	80	50	70	M6x10	M8x13	14	18	184	40	G1/4" (1/4" NPT)
AC-83	46	57	98.5	108.7	128.7	92	30	80	50	70	M6x10	M8x13	17	21	204	40	G1/4" (1/4" NPT)
AC-92	50	58.5	111	116.5	136.5	98	30	80	50	70	M6x10	M8x13	17	21	262	40	G1/4" (1/4" NPT)
AC-105	57.5	64	122.5	133	153	109.5	30	80	70	102	M8x13	M10x16	22	26	268	40	G1/4" (1/4" NPT)
AC-125	37.5	74.5	145.5	155	175	127.5	30	80	70	102	M8x13	M10x16	22	26	301	55	G1/4" (1/4" NPT)
AC-140	75	77	161	172	192	137.5	30	80	102	125	M10x16	M12x20	27	31	390	55	G1/4" (1/4" NPT)
AC-160	87	87	184	197	217	158	30	80	102	125	M10x16	M12x20	27	31	458	55	G1/4" (1/4" NPT)
AC-190	103	103	216	230	260	189	30	130		140		M16x25	36	50	525	80	G1/4" (1/4" NPT)
AC-210	113	113	235.5	255	285	210	30	130		140		M16x25	36	50	532	80	G1/4" (1/4" NPT)
AC-240	130	130	264.5	289	319	245	30	130		165		M20x25	46	60	602	80	G1/4" (1/4" NPT)
AC-270	147	147	299	326	356	273	30	130		165		M20x25	46	60	722	80	G1/2" (1/2" NPT)

# DIMENSIONS

## MERIDIAN™ Pneumatic Rack & Pinion Actuator

### Model AC-300

Dimensions in mm.



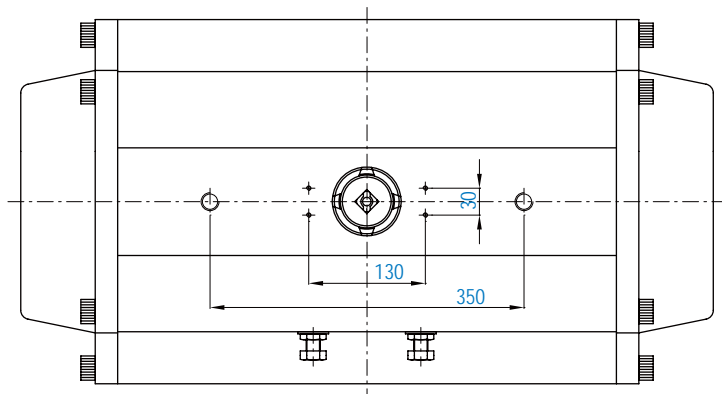
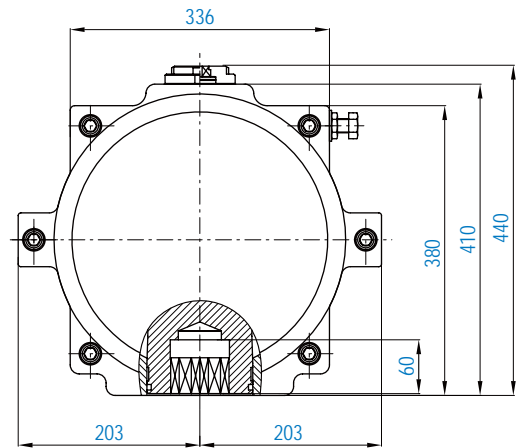
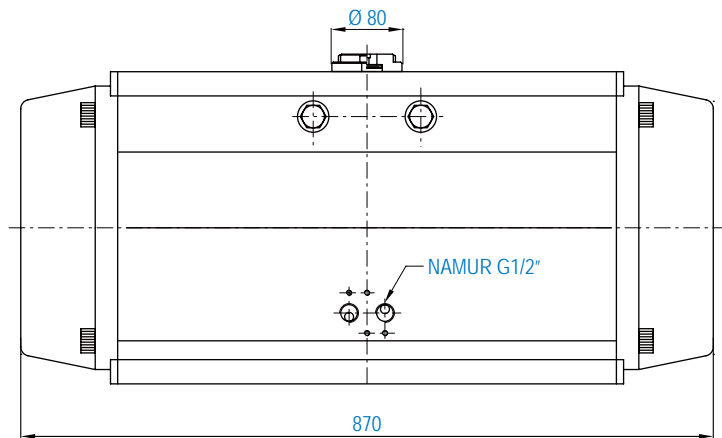
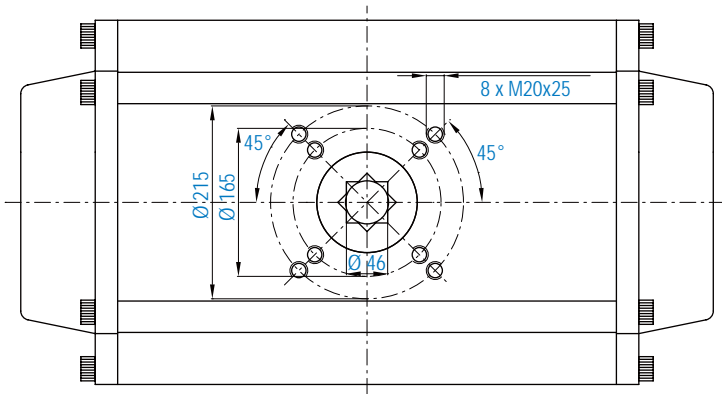


# DIMENSIONS

## MERIDIAN™ Pneumatic Rack & Pinion Actuator

### Model AC-350

Dimensions in mm.



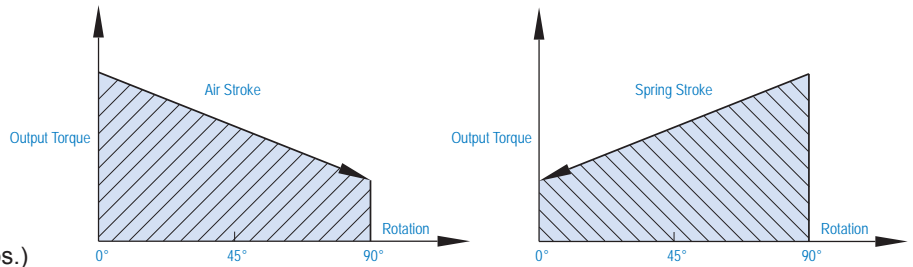
# TORQUE SHEET

## SPRING-RETURN ACTUATOR (in Inch-lbs.)

Model	Spring Quantity	Air Pressure (psi)											
		30		40		60		80		100		Spring Output	
		0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	90° Start	90° End
AC52SR	4	41	27									44	30
	5			57	40							55	38
	8					83	55					88	59
	11							108	70			120	82
	12									147	107	131	90
AC63SR	4	86	60									73	48
	6			105	67							111	73
	8					158	101					148	96
	9							211	135			166	109
	12									300	224	221	145
AC75SR	4	109	81									103	74
	6			132	91							154	112
	9					199	136					231	168
	11							284	207			282	205
	12									388	305	307	224
AC83SR	4	174	124									163	112
	6			214	138							244	168
	8					350	248					326	224
	11							457	317			448	308
	12									620	468	489	336
AC92SR	4	247	170									243	166
	6			303	186							365	248
	8					496	339					487	330
	11							646	432			669	455
	12									881	647	730	496
AC105SR	4	381	257									349	224
	6			471	284							523	335
	9					707	426					784	504
	11							998	655			959	616
	12									1346	972	1045	672
AC125SR	4	550	359									559	368
	5			764	525							699	460
	8					1093	730					1106	743
	11							1431	918			1531	1018
	12									1955	1397	1664	1106
AC140SR	4	956	652									913	609
	5			1326	945							1142	761
	8					1918	1307					1823	1213
	11							2501	1660			2514	1673
	12									3394	2474	2744	1823

Please contact MERIDIAN™ for other operating pressures or spring combinations.

# TORQUE SHEET

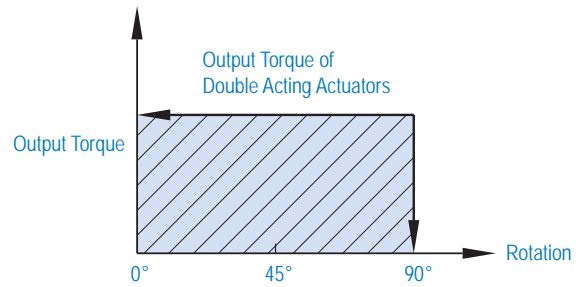


## SPRING-RETURN ACTUATOR (in Inch-lbs.)

Model	Spring Quantity	Air Pressure (psi)										Spring Output	
		30		40		60		80		100			
		0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	90° Start	90° End
AC160SR	4	1444	962									1473	991
	5			2007	1405							1841	1239
	8					2896	1922					2947	1974
	11							3776	2439			4054	2717
	12									5151	3691	4425	2965
AC190SR	4	2480	1708									2188	1416
	6			3070	1911							3284	2124
	9					4605	2862					4930	3186
	11							6494	4370			6018	3894
	12							6140	3821	8737	6419	6567	4248
AC210SR	4	2923	2179									2691	1947
	5			4059	3130							3363	2434
	9					5358	3685					6054	4381
	11							7631	5587			7399	5355
	12									10391	8160	8072	5841
AC240SR	4	4141	3121									3923	2903
	5			5763	4488							4903	3629
	8					8281	6246					7842	5806
	11							10791	7994			10789	7992
	12									14761	11707	11771	8718
AC270SR	4	6741	5134									5572	3965
	6			8327	5928							8346	5948
	9					12499	8879					12533	8913
	11							17654	13237			15312	10895
	12							16672	11848	23809	18985	16701	11878
AC300SR	4	8799	6456									7512	5169
	6			10871	7357							11267	7753
	9					16307	11040					16896	11630
	11							23034	16591			20658	14214
	12							21742	14715	31054	24027	22534	15506
AC350SR	4	12608	8863									12051	8305
	5			17503	12821							15064	10382
	8					25215	17719					24109	16613
	11							32927	22625			33146	22844
	12									44789	33549	36164	24924

Please contact MERIDIAN™ for other operating pressures or spring combinations.

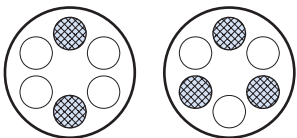
# TORQUE SHEET



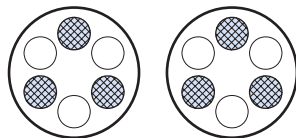
## DOUBLE ACTING ACTUATOR (in Inch-lbs.)

Model	Air Pressure (psi)					
	30	40	60	80	100	115
AC40DA	44	58	87	116	145	167
AC52DA	73	97	146	195	243	280
AC63DA	133	178	269	356	445	512
AC75DA	184	245	367	490	612	704
AC83DA	287	382	574	765	956	1100
AC92DA	413	551	826	1101	1377	1583
AC105DA	605	807	1210	1614	2017	2320
AC125DA	918	1224	1836	2448	3060	3519
AC140DA	1565	2087	3130	4174	5217	6000
AC160DA	2435	3246	4869	6492	8116	9333
AC190DA	3896	5194	7791	10388	12985	14933
AC210DA	4869	6492	9739	12985	16231	18666
AC240DA	7043	9391	14086	18782	23477	26999
AC270DA	10705	14274	21411	28548	35685	41037
AC300DA	13967	18623	27934	37246	46557	53541
AC350DA	20912	27883	41825	55766	69708	80164

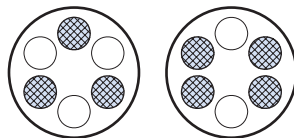
## SPRING OPTIONS FOR SPRING RETURN ACTUATORS



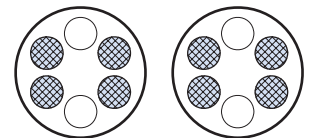
5 Springs



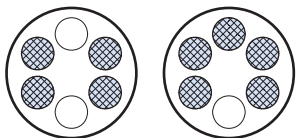
6 Springs



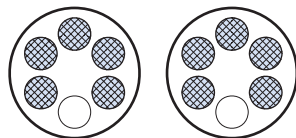
7 Springs



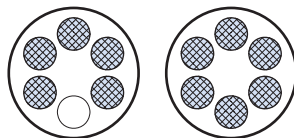
8 Springs



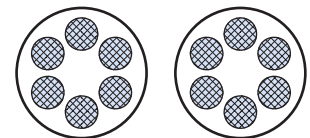
9 Springs



10 Springs



11 Springs



12 Springs

## MEASUREMENTS

### Meridian™ AC-Series Pneumatic Rack & Pinion Actuator

#### WEIGHT (in Kg.)

Model	40	52	63	75	83	92	105	125	140	160	190	210	240	270	300	350
Double Acting	0.8	1.38	2.03	2.7	3.13	4.6	6.77	8.9	13.25	20.14	31.3	46.8	67.28	96.9	136.6	205.2
Spring Return		1.45	2.05	2.9	3.6	5.22	6.85	10.11	15.55	24	35.25	54.8	80.2	118	163	258

#### AIR CONSUMPTION

Air volume opening & closing (in Litres)

Model	40	52	63	75	83	92	105	125	140	160	190	210	240	270	300	350
Air Volume (Opening)	0.05	0.12	0.21	0.3	0.43	0.64	0.95	1.6	2.5	3.7	5.9	7.5	11	17	23.8	35.1
Air Volume (Closing)	0.06	0.16	0.23	0.34	0.47	0.73	0.88	1.4	2.2	3.2	5.4	7.5	9	14	29.7	46.3

**NOTE:** Air consumption depends on air supply.

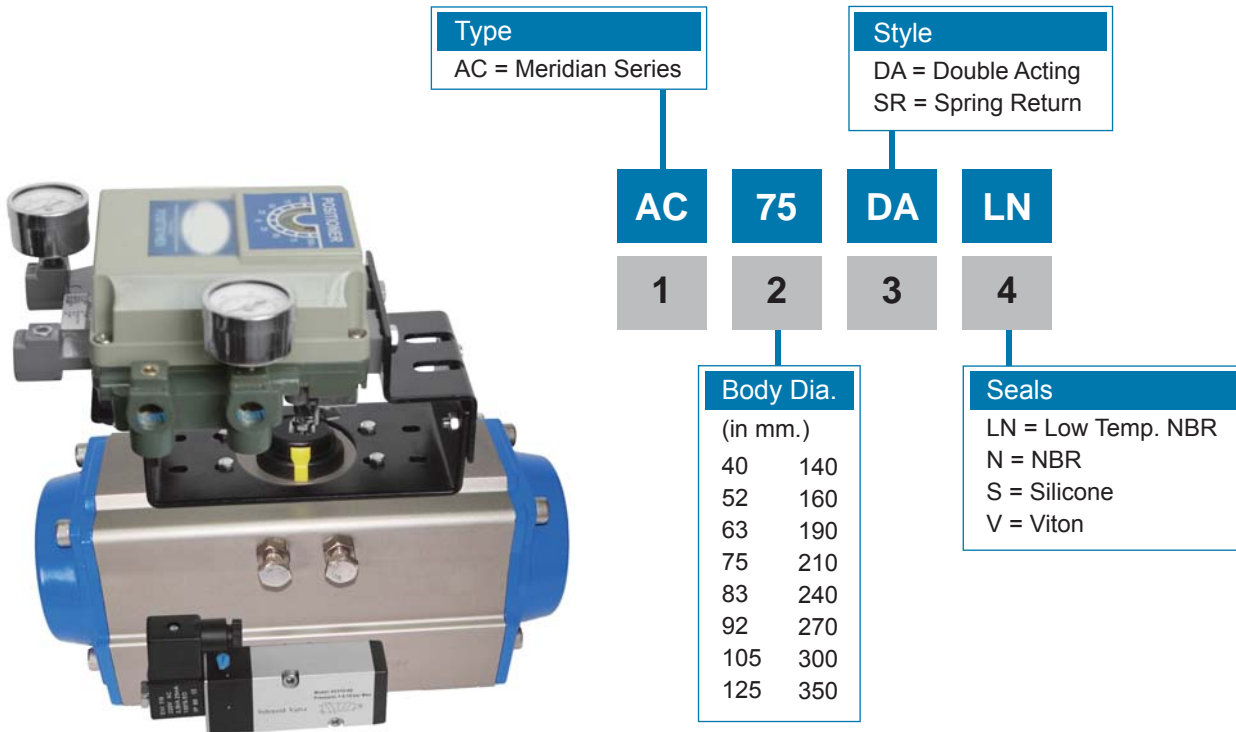
#### ACTUATOR STROKE SPEED\* (in seconds)

Double Acting			Spring Return														
Size	0°-90°	90°-0°	Size	Spring Quantity													
				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°
52DA	0.6	0.53	52SR	2.46	0.48	2.48	0.46	2.5	0.44	2.52	0.42	2.54	0.4	2.56	0.38	2.58	0.36
63DA	0.66	0.58	63SR	2.54	0.56	2.56	0.54	2.58	0.52	2.6	0.5	2.62	0.48	2.64	0.46	2.66	0.44
75DA	0.72	0.64	75SR	2.62	0.64	2.64	0.62	2.66	0.6	2.68	0.58	2.7	0.56	2.72	0.54	2.74	0.52
83DA	0.83	0.73	83SR	2.71	0.73	2.73	0.71	2.75	0.69	2.77	0.67	2.79	0.65	2.81	0.63	2.83	0.61
92DA	1	0.86	92SR	2.89	0.86	2.91	0.84	2.93	0.82	2.95	0.8	2.97	0.78	2.99	0.76	3.01	0.74
105DA	1.35	1.3	105SR	3.14	0.91	3.16	0.89	3.18	0.87	3.2	0.85	3.22	0.83	3.24	0.81	3.26	0.79
125DA	2.4	1.79	125SR	4.24	1.2	4.26	1.18	4.28	1.16	4.3	1.14	4.32	1.12	4.34	1.1	4.36	1.08
140DA	2.5	2.1	140SR	4.4	1.35	4.4	1.33	4.62	1.31	4.64	1.29	4.66	1.27	4.68	1.25	4.68	1.22
160DA	3.93	2.6	160SR	4.74	1.77	4.76	1.75	4.78	1.73	4.8	1.71	4.82	1.69	4.82	1.67	4.84	1.65
190DA	4.55	3.45	190SR	5.75	3.7	5.77	3.5	5.75	3.48	5.77	3.46	5.79	3.44	5.8	3.42	5.83	3.4
210DA	5.5	4.35	210SR	8.25	4.8	8.4	4.6	8.42	4.58	8.44	4.56	8.46	4.54	8.48	4.52	8.5	4.5
240DA	8.4	8.33	240SR	16.2	5.14	16.4	5.12	16.42	5.1	16.44	4.9	16.6	4.98	16.8	4.86	17	4.84
270DA	10.9	8.53	270SR	17.6	6.28	17.8	6.26	17.6	6.24	18.8	6.2	18	6.18	18.2	6.16	18.4	6.14
300DA	15	14.9	300SR	31	17.3	31.5	17	31.3	16.8	31	16	31.2	16.58	31.4	16.56	31.6	16.54
350DA	23.7	18.6	350SR	45	27	51	27	51.3	26.8	51.5	26.8	51.7	26.6	51.9	26.4	52.1	26.2

\* **NOTE:** Air Pressure = 80 psi

# -sizing information & how to order

## ORDERING FIGURE NUMBER CHART



## MAINTENANCE

1. It is recommended that periodic checks be performed to make sure that all fasteners remain tight.
2. The Meridian™ AC-Series Actuator is supplied already lubricated with EP-1 grease.
3. Under certain working conditions (Heavy-duty, non-compatible operating media or normal 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. Always replace springs in new full sets.

### NOTE:

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 be necessary to replace the seals, we suggest returning to Meridian™ where the product will be repaired and tested.

Meridian™ provides kits with instructions to customers on request.

Meridian provides rapid turn-around valve actuation solutions and will customize its industry leading valve product range to meet its customers' actuation

needs. Actuation products include electric actuators, pneumatic and hydraulic actuators, and control accessories.

*Same day shipment of Meridian actuation packages!*



## CAPABILITIES

- Quarter-turn actuation
- Multi-turn/linear actuation
- Complete shop facilities
- Experienced Technicians
- Retrofit in service
- In-field services
- Total package responsibility
- All actuators are sized for full ANSI differential pressure and Meridian ensures that the appropriate safety factor is added to ensure safe operation

## IN STOCK

- Pneumatic, Hydraulic, and Electric
- Control accessories and mounting hardware
- ESD packages

## PACKAGES

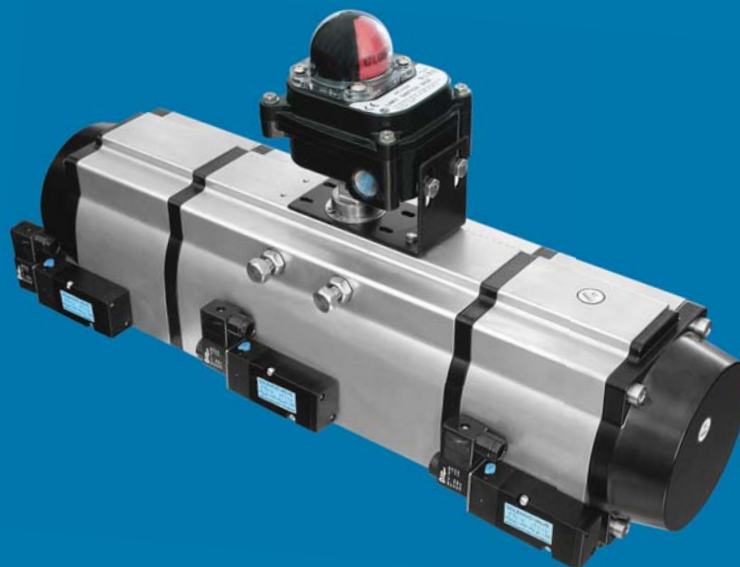
Meridian™ actuated packages including:

- Pneumatic actuated ball valves
- Self-contained hydraulic ESD system
- Electric actuated quarter and multi-turn valves
- Actuated control chokes
  - Meridian™ MAP 2000
  - Meridian™ MAP 2100
- Gas-over-oil packages

FNW™ actuated packages

- FNW™ ball valves
- FNW™ knife gates
- FNW™ butterfly valves





  
VALVES · ACTUATION · PVF

a WOLSELEY company

**Head Office**

3780 - 98 Street  
Edmonton, AB  
T6E 6B4

Phone: 1.800.661.6997  
Fax: 1.800.263.8298

**Edmonton**

Ph: 780.468.7161  
Fax: 780.469.2655

**Calgary**

Ph: 403.243.3001  
Fax: 403.243.0492

**Richmond**

Ph: 604.278.4640  
Fax: 604.278.7515

**Fort St. John**

Ph: 250.785.9643  
Fax: 250.785.9651

**Grande Prairie**

Ph: 780.532.4208  
Fax: 780.532.4264

**Burlington**

Ph: 905.331.2180  
Fax: 905.331.3218

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Ph: 519.336.0014  
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Ph: 705.682.9779  
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**Montreal**

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Fax: 514.343.8625

• **Hanna**

Ph: 403.854.4960  
Fax: 403.854.4967

• **Olds**

Ph: 403.556.1990  
Fax: 403.556.2731

• **Oyen**

Ph: 403.664.2100  
Fax: 403.664.3050

• **Ponoka**

Ph: 403.783.4405  
Fax: 403.783.2855

• **Rimbey**

Ph: 403.843.2661  
Fax: 403.843.3775



Meridian/Maverick locations identified with "•".