



PNEUMATIC ACTUATORS



RACK AND PINION DESIGN

- 4MATIC PNEUMATIC ACTUATORS ARE DESIGNED AND MANUFACTURED WITH PRECISION.
- 4MATIC ACTUATOR HAS ACHIEVED HIGH CUSTOMERS SATISFACTION RATING WITH CLIENTS ACROSS FOUR CONTINENTS.
- 4MATIC PNEUMATIC ACTUATOR ARE CERTIFIED AND APPROVED OF CE, SIL3, IECEX AND ATEX.

1. FASTENERS

ALL STAINLESS-STEEL FASTENERS TO RESIST CORROSION AND HARSH ENVIRONMENT.

2. SPRINGS

PRELOADED AND CARTRIDGE STRUCTURE SPRINGS ARE DESIGNED AND MANUFACTURED FROM PIANO SPRING ALLOY TO ENSURE SMOOTH ROTARY OPERATION. ALTERING THE QUANTITY OF SPRINGS BASED ON TORQUE REQUIREMENT IS SAFE AND CONVENIENT.

3. PISTONS

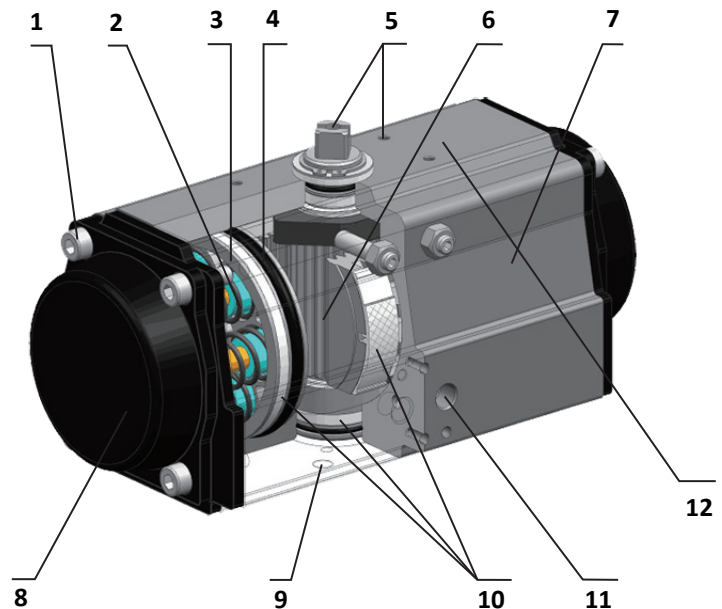
TWIN RACK DIE-CAST ALUMINUM ANODIZED PISTONS WITH SYMMETRIC MOUNT DESIGN ENSURES CONTINUOUS ROTARY MOTION. REVERSE ROTATIONS MADE EASY BY INVERTING.

4. SEALS & O-RINGS

NBR O-RINGS ENSURE EXCELLENT SEALING FOR LONG-TERM WITHIN STANDARD TEMPERATURE RANGES. OPTIONS VITON AND LNBR AVAILABLE HIGH TEMPERATURE RESISTANCE.

5. NAMUR TOP MOUNT

NAMUR (VDI/VDE 3845) POSITION INDICATOR AND MOUNT DIMENSIONS ENSURES CONVENIENT AND STANDARDIZED INSTALLATION FOR LIMIT SWITCH, POSITION SENSORS AND POSITIONER.



6. PINION

IN ACCORDANCE OF ISO5211, DIN3337, NAMUR, THE PINION ARE DESIGNED AND MADE OF EXTRUDED LOW CARBON ALLOY STEEL WITH NICKEL PHOSPHORUS COATED FOR LONGITIVITY OF ACTUATOR.

7. BODY

IN ACCORDANCE WITH ISO5211, BODY IS DESIGNED AND MADE FROM EXTRUDED ALUMINUM ASTM 6005. THE HARD ANODIZED COATED IS STANDARD FOR BODY SURFACE AND THE POLYESTER, NICKEL PHOSPHORUS OR PTFE COATED ARE OPTIONAL IN ANY COLOR.

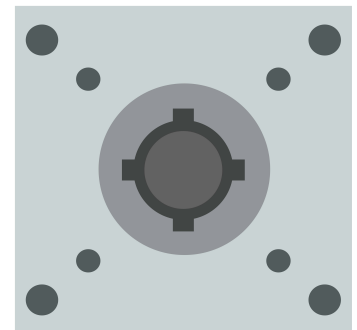
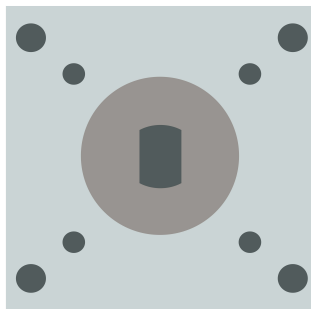
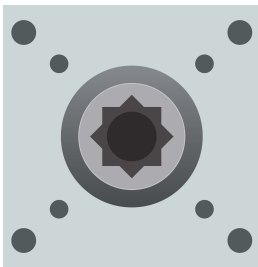


8. END CAPS

THE END-CAPS MADE FROM DIE-CASTING ALUMINUM WITH ANODIZED AND POLYESTER COATED. THE NICKEL PHOSPHORUS OR PTFE COATED ARE OPTIONAL FOR USE IN A HARSH ENVIRONMENT. THE COINCIDENCE DESIGN ENSURES END-CAPS AND THE BODY TO BE IN PERFECT INSTALLATION.

9. VALVE MOUNTING (FLANGE DIMENSIONS)

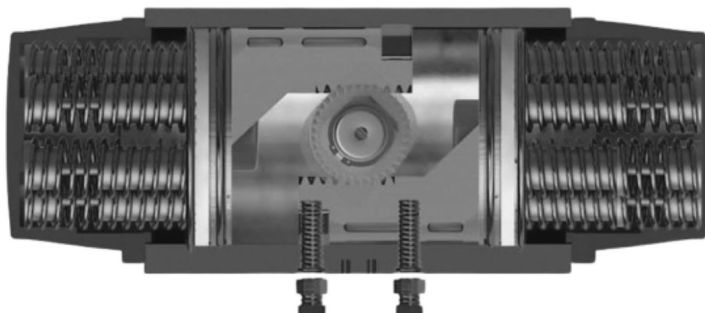
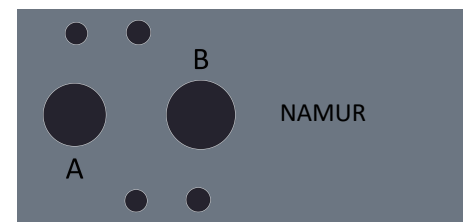
THE FLANGE DIMENSIONS ON 4A SERIES ACTUATOR FULLY COMPLY WITH THE INTERNATIONAL STANDARD OF ISO5211:2001(E). THE BRITISH SYSTEM MOUNTING PATTERN IS AVAILABLE FOR CHOICE. THIS ACTUATOR IS ABLE TO OFFER DOUBLE SQUARE (FS), DOUBLE D (FD) OR KEYED (FK) FEMALE DRIVE FORM FOR A NUMBER OF DIFFERENT NEW OR EXISTING VALVE STEM CONFIGURATIONS.

**10. BEARINGS AND GUIDES**

THESE ARE MADE FROM LOW FRICTION, LONG-LIFE COMPOUND MATERIAL (POM AND NYLON AND 30% GLASS FIBER) TO AVOID THE DIRECT CONTACT BETWEEN METALS AND ENSURE THE LONG-TERM OPERATION EVEN IN A HARSH ENVIRONMENT. THE MAINTENANCE AND REPLACEMENT ARE EASY AND CONVENIENT.

11. INTERFACE TO SOLENOID VALVE

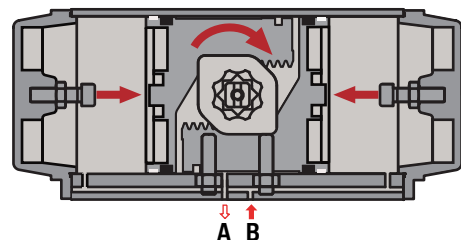
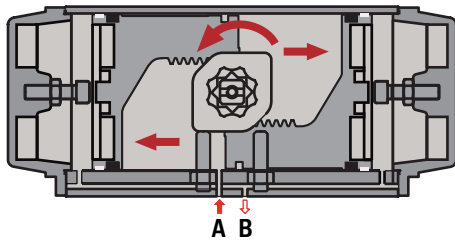
THE DESIGN OF THIS INTERFACE IS FULLY COMPLY WITH THE INTERNATIONAL STANDARD OF NAMUR (VDI/VDE 3845) AND BS EN15714-3:2009(E) WHICH ARE AVAILABLE FOR PRESSURE CONNECTION DIRECTLY WITH NAMUR SOLENOID VALVE OR INLINE SOLENOID VALVE.

**12. TRAVEL STOPS**

EQUIPPED WITH DOUBLE ADJUSTABLE TRAVEL STOPS THAT ALLOW THE ACTUATORS TO DRIVE THE VALVE TO THE FULLY OPEN OR FULLY CLOSED POSITION WITH A RANGE OF $\pm 5^\circ$.

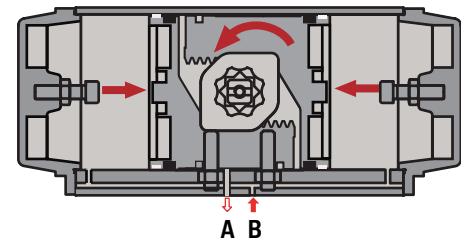
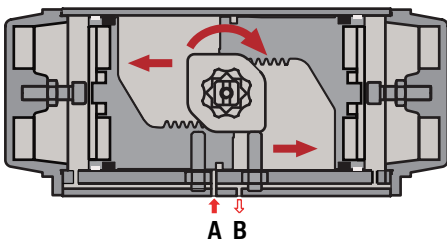
DOUBLE ACTING

STANDARD ROTATION:



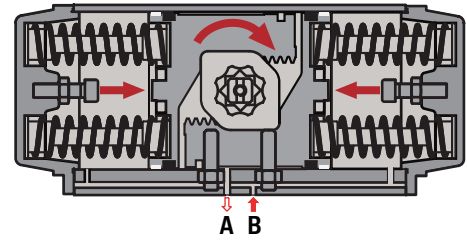
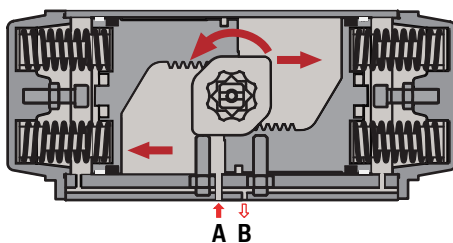
AIR TO PORT A FORCES THE PISTONS OUTWARDS, CAUSING THE PINION TO TURN COUNTERCLOCKWISE WHILE THE AIR IS BEING EXHAUSTED FROM PORT B. AIR TO PORT B FORCES THE PISTONS INWARDS, CAUSING THE PINION TO TURN CLOCKWISE WHILE THE AIR IS BEING EXHAUSTED FROM PORT A.

REVERSE ROTATION:



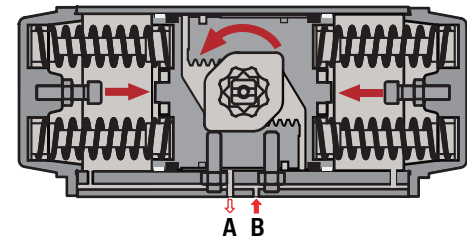
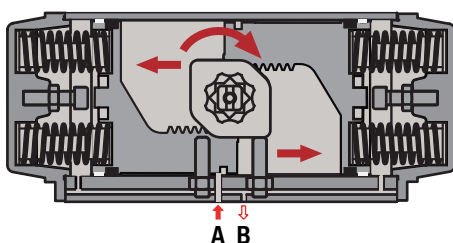
SPRING RETURN

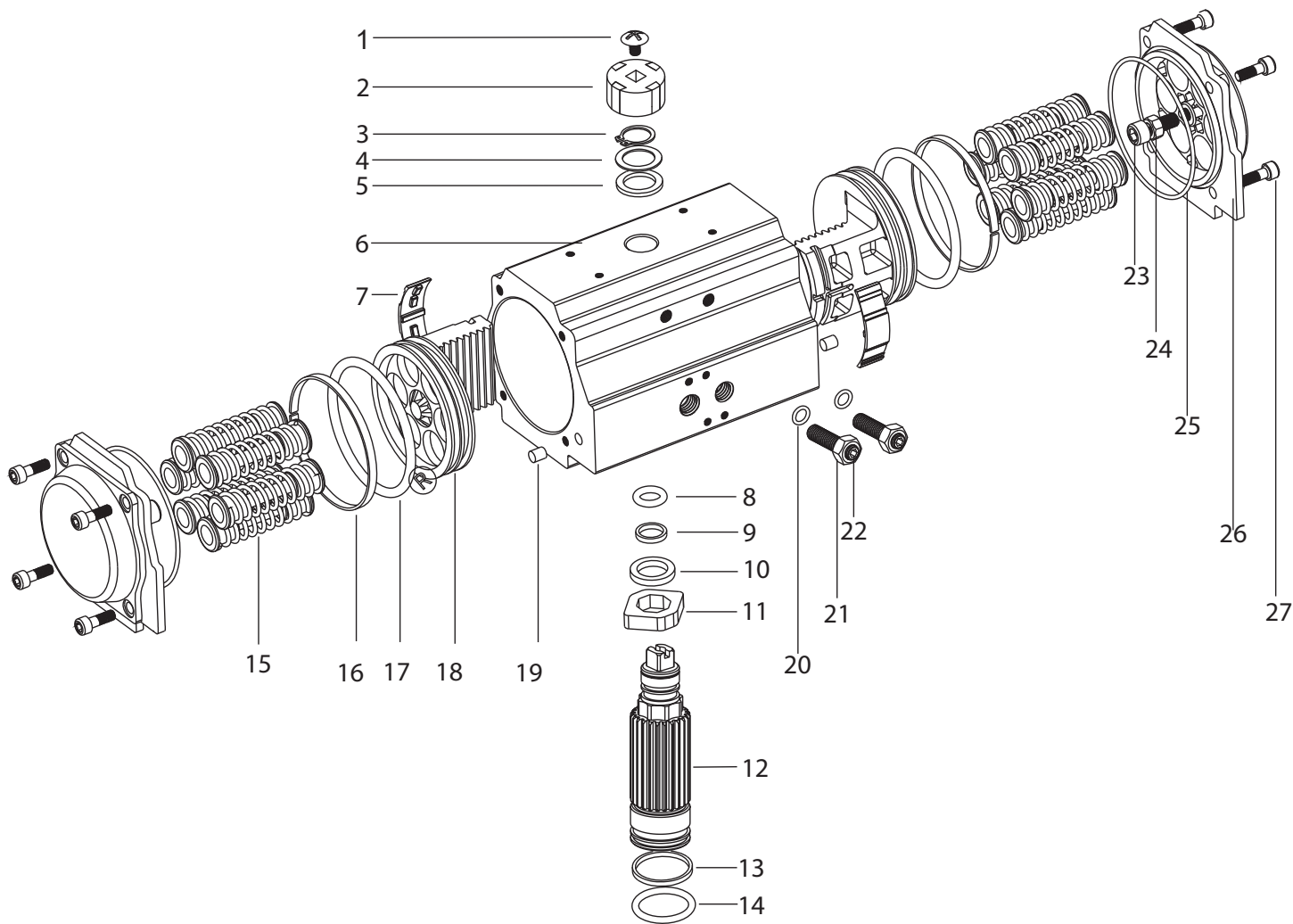
STANDARD ROTATION (FAIL TO CLOSE)



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, THE STORED ENERGY IN THE SPRINGS FORCES THE PISTONS INWARDS. THE PINION TURNS CLOCKWISE WHILE AIR IS BEING EXHAUSTED FROM PORT A.

REVERSE ROTATION (FAIL TO OPEN)





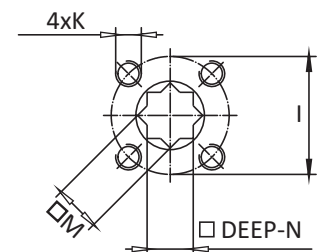
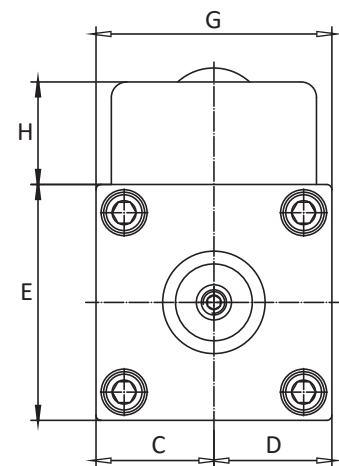
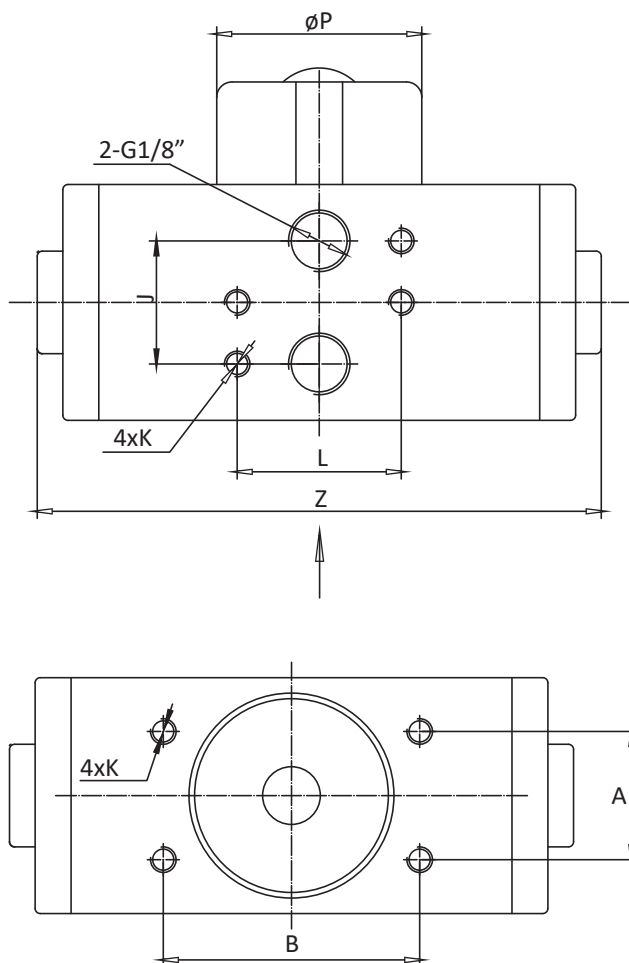
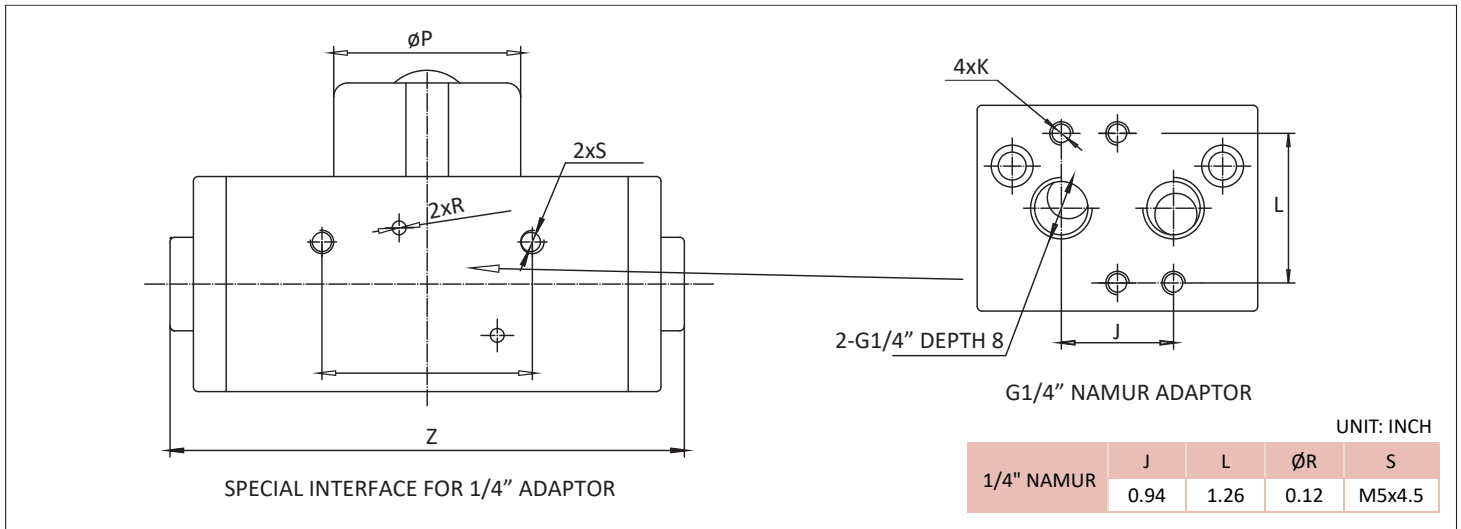
#	COMPONENTS	Q	MOC	#	COMPONENTS	Q	MOC
1	INDICATOR SCREW	1	STAINLESS STEEL (304)	15	SPRING	0-12	PIANO SPRING STEEL
2	INDICATOR	1	PLASTIC (ABS)	16	BEARING (PISTON)	2	POLYOXYMETHYLENE
3	CIRCLIP	1	STAINLESS STEEL (304)	17	O-RING (PISTON)	2	NBR
4	THRUST WASHER	1	STAINLESS STEEL (304)	18	PISTON	2	CAST ALUMINUM
5	OUTSIDE WASHER	1	POLYOXYMETHYLENE	19	PLUG	2	NBR
6	BODY	1	EXTRUDED ALUMINUM ALLOY (6005-T5)	20	O-RING (ADJUST SCREW)	2	NBR
7	GUIDE(PISTON)	2	NYLON66+30% GLASS FIBER	21	NUT (ADJUST SCREW)	2	STAINLESS STEEL (304)
8	O-RING (PINION TOP)	1	NBR	22	ADJUST SCREW	2	STAINLESS STEEL (304)
9	BEARING (PINION TOP)	1	POLYOXYMETHYLENE	23	STOP SCREW	2	STAINLESS STEEL (304)
10	INSIDE WASHER	1	POLYOXYMETHYLENE	24	NUT (STOP SCREW)	2	STAINLESS STEEL (304)
11	CAM	1	EXTRUDED LOW CARBON ALLOY STEEL	25	O-RING (END CAP)	2	NBR
12	PINION	1	EXTRUDED LOW CARBON ALLOY STEEL	26	END CAP	2	CAST ALUMINUM (A380)
13	BEARING (PINION BOTTOM)	1	POLYOXYMETHYLENE	27	CAP SCREW	8	STAINLESS STEEL (304)
14	O-RING (PINION BOTTOM)	1	NBR				

1	1	2	-	3	3	3	-	4	5	6	-	7	8	8
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1. SERIES	CODE	7. OPERATING STROKE	CODE
4MATIC SERIES	4A	ROTARY STROKE 90°	1
		ROTARY STROKE 100°	2
		ROTARY STROKE 120°	3
		ROTARY STROKE 180°	4
2. ACTUATOR TYPE		8. NO. OF SPRINGS	
SINGLE ACTING	S	1	01
DOUBLE ACTING	D	2	02
			
		12	12
3. ACTUATOR SIZE			
32	032		
40	040		
52	052		
63	063		
75	075		
83	083		
92	092		
105	105		
...			
400	400		
4. OPERATING POSITION			
TWO POSITIONS	2		
THREE POSITIONS	3		
5. BOTTOM DRIVE			
FEMALE DOUBLE SQUARE	A		
FEMALE DOUBLE D	B		
FEMALE KEYS	C		
MALE SQUARE	D		
MALE DOUBLE D	E		
6. TOP DRIVE			
NAMUR STEM	N		
FEMALE DOUBLE SQAURE	A		
FEMALE DOUBLE D	B		
FEMALE KEYS	C		
MALE SQUARE	D		
MALE DOUBLE D	E		

4A-32

STANDARD: IMPERIAL



UNIT: INCH

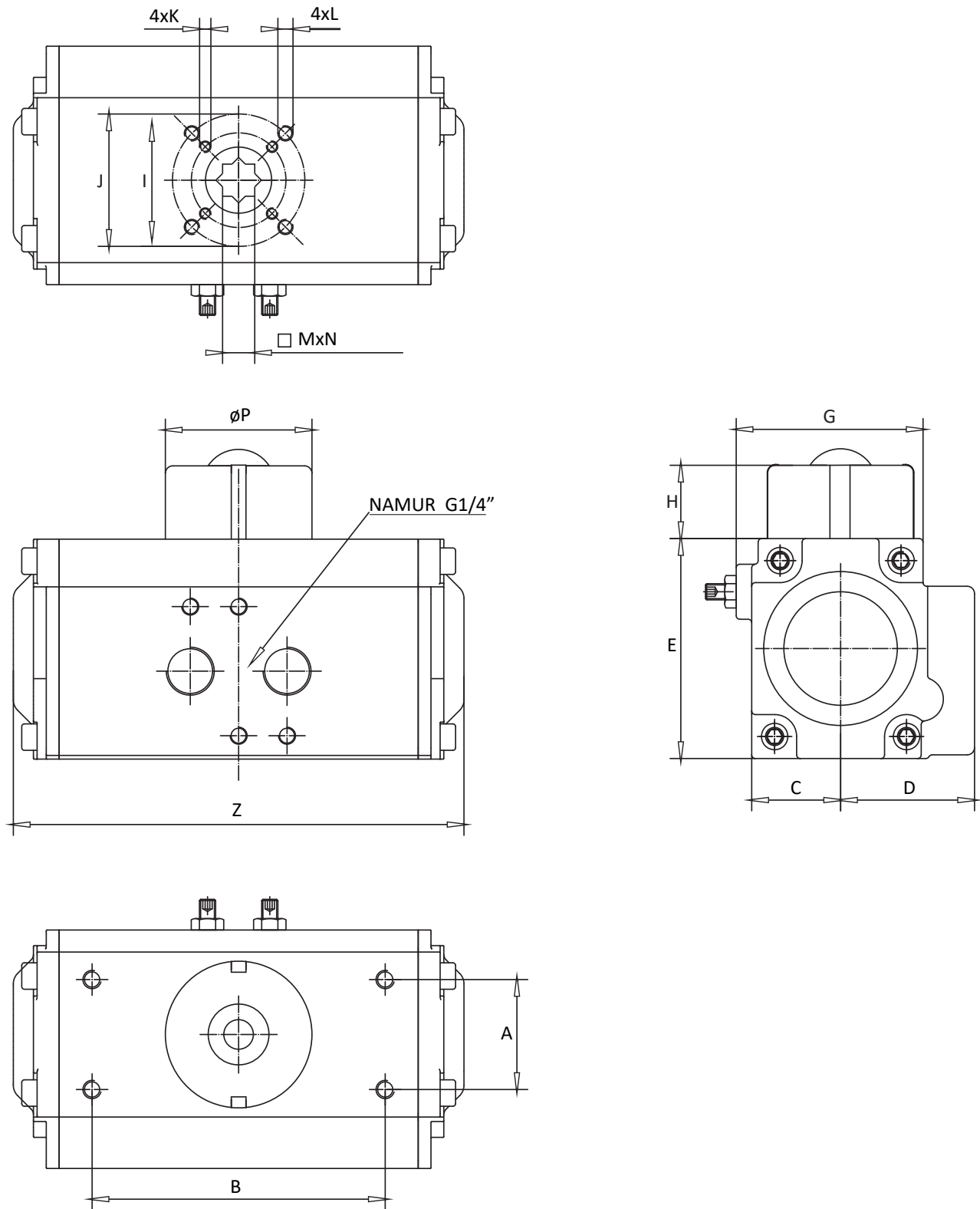
MODEL	A	B	C	D	E	G	H	I	K	M	N	Z	ØP	AIR PORT	TYPE
4A-032	0.98	1.97	0.91	0.91	1.81	1.81	0.79	F03	M5x8	0.35	0.43	4.33	1.57	1/8"or1/4"	G, NPT

* FACE TO FACE CAN BE REDUCED TO 3.94 inch



4A-40

STANDARD: IMPERIAL

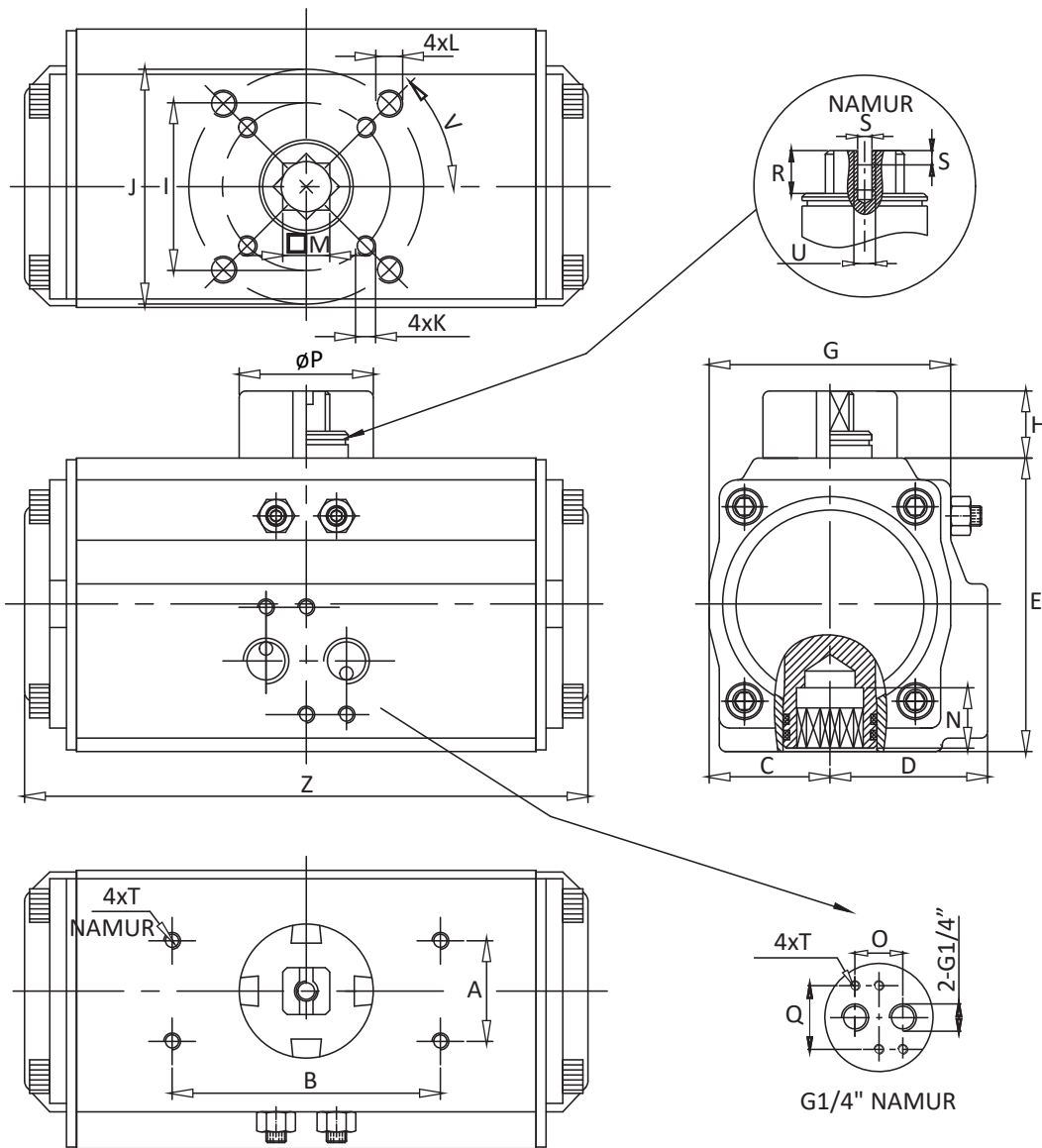


UNIT: INCH

MODEL	A	B	C	D	E	G	H	I	J	K	L	M	N	Z	Ø	AIR PORT	TYPE
4A-040	1.18	3.15	1.14	1.44	2.36	2.01	0.79	F03	F05	M5x8	M6x10	0.43	0.55	4.80	1.57	1/4"	G, NPT

4A-52 ~ 210

STANDARD: IMPERIAL



UNIT: INCH

NAMUR	U	R	S
	M6	0.47	0.16

UNIT: INCH

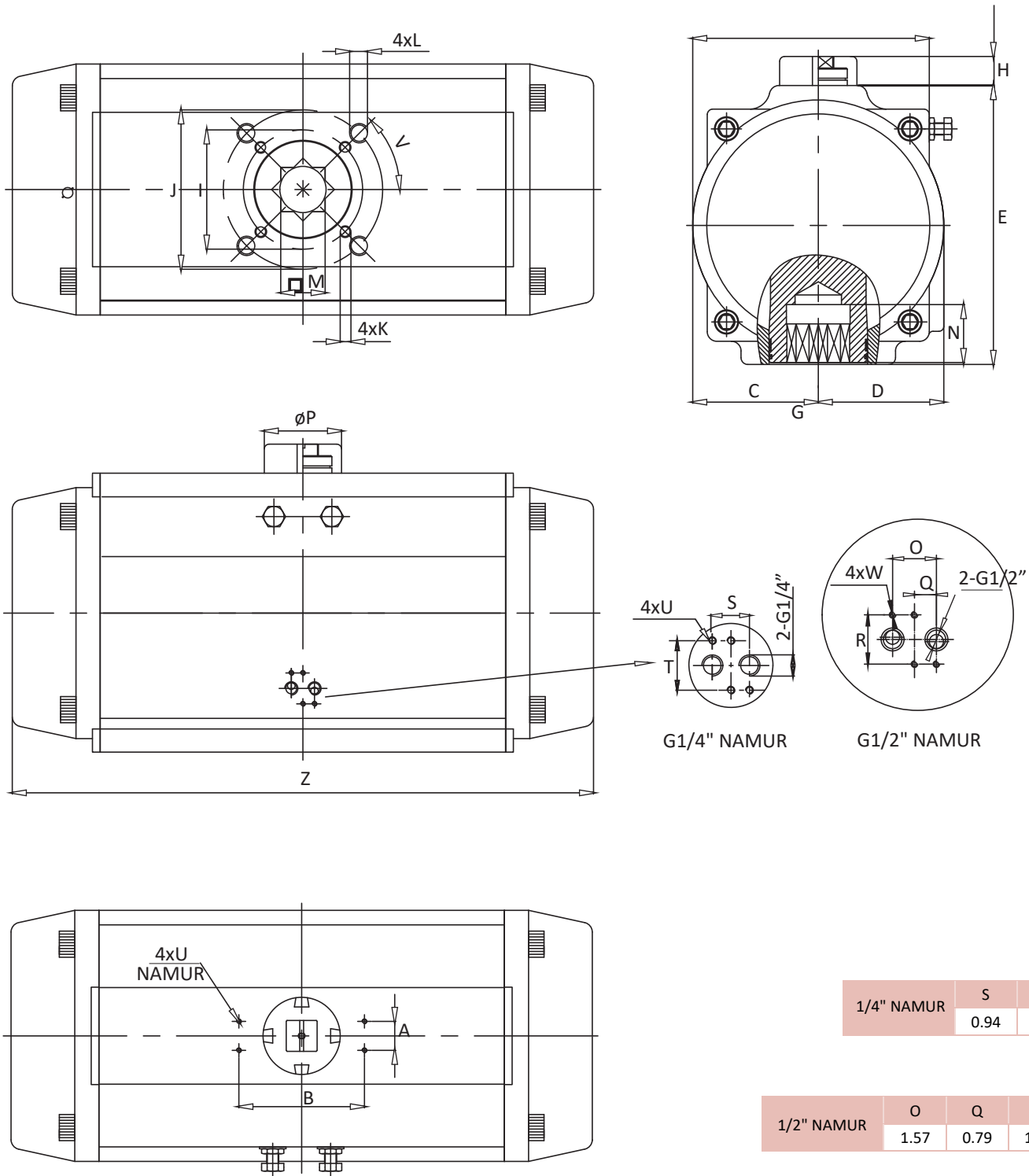
1/4" NAMUR	O	Q	T
	0.94	1.26	M5x8

UNIT: INCH

MODEL	A	B	C	D	E	G	H	I	J	K	L	M	N	Z	ØP	V	AIR PORT	TYPE
4A-052	1.18	3.15	1.18	1.63	2.83	2.56	0.79	F03	F05	M5x8	M6x10	0.43	0.55	5.79	1.57	45°	1/4"	G, NPT
4A-063	1.18	3.15	1.42	1.85	3.44	2.83	0.79	F05	F07	M6x10	M8x13	0.55	0.71	6.61	1.57	45°	1/4"	G, NPT
4A-075	1.18	3.15	1.65	2.09	3.92	3.19	0.79	F05	F07	M6x10	M8x13	0.55	0.71	7.28	1.57	45°	1/4"	G, NPT
4A-083	1.18	3.15	1.81	2.24	4.28	3.46	0.79	F05	F07	M6x10	M8x13	0.67	0.83	8.31	1.57	45°	1/4"	G, NPT
4A-092	1.18	3.15	1.97	2.40	4.59	3.86	0.79	F05	F07	M6x10	M8x13	0.67	0.83	10.31	1.57	45°	1/4"	G, NPT
4A-105	1.18	3.15	2.26	2.52	5.24	4.31	0.79	F07	F10	M8x13	M10x16	0.87	1.02	10.63	1.57	45°	1/4"	G, NPT
4A-125	1.18	3.15	2.66	2.93	6.10	5.02	0.79	F07	F10	M8x13	M10x16	0.87	1.02	11.93	2.17	45°	1/4"	G, NPT
4A-140	1.18	3.15	2.95	3.03	6.77	5.41	0.79	F10	F12	M10x16	M12x20	1.06	1.22	15.51	2.17	45°	1/4"	G, NPT
4A-160	1.18	3.15	3.43	3.43	7.76	6.22	0.79	F10	F12	M10x16	M12x20	1.06	1.22	18.03	2.17	45°	1/4"	G, NPT
4A-190	1.18	5.12	4.06	4.06	9.06	7.44	1.18		F14		M16x25	1.42	1.57	20.79	3.15	45°	1/4"	G, NPT
4A-210	1.18	5.12	4.49	4.49	10.04	8.31	1.18		F14		M16x25	1.42	1.57	20.94	3.15	45°	1/4"	G, NPT

4A-240 ~ 300

STANDARD: IMPERIAL

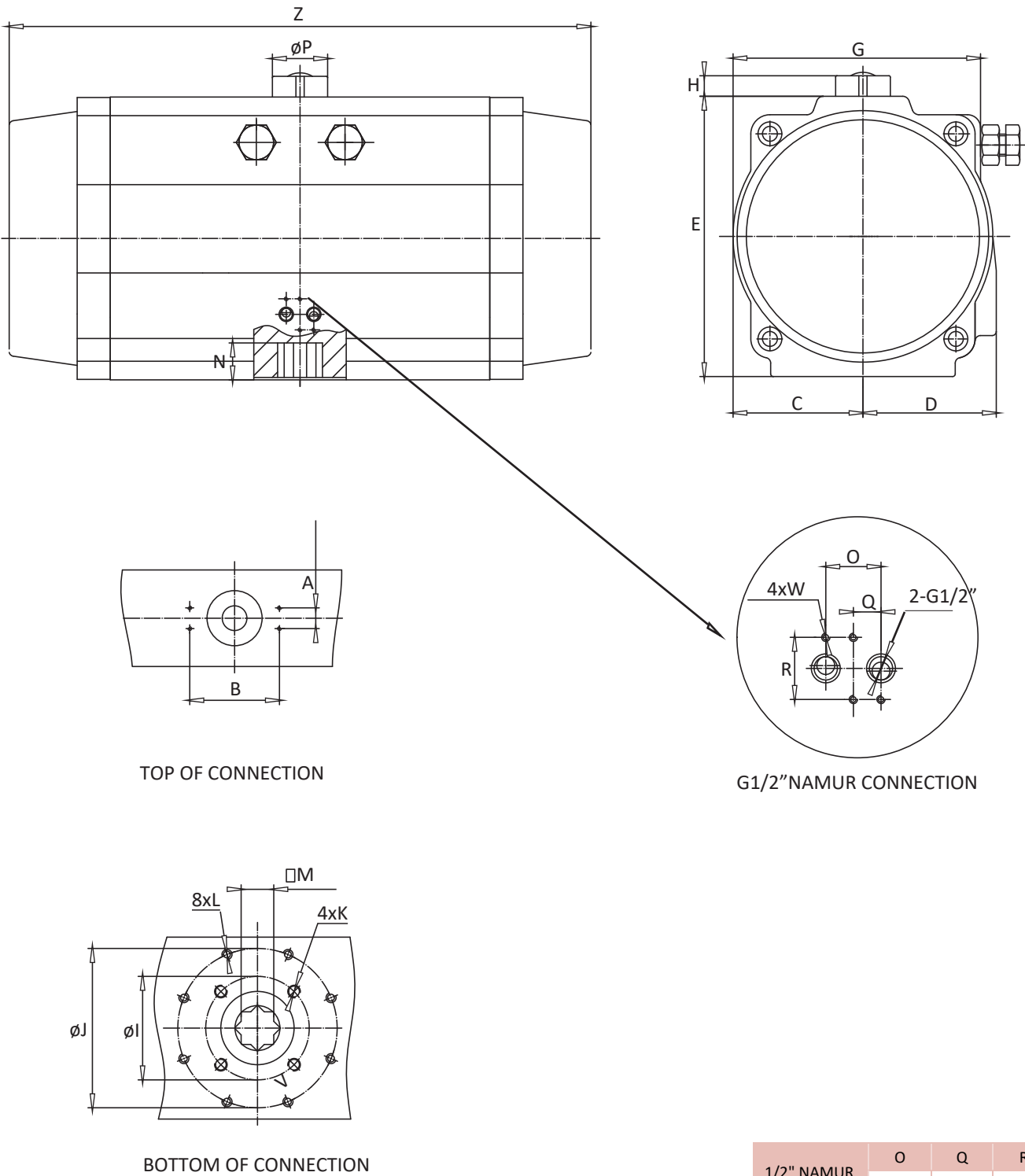


UNIT: INCH

MODEL	A	B	C	D	E	G	H	I	J	K	L	M	N	Z	ØP	V	AIR PORT	TYPE
4A-240	1.18	5.12	5.12	5.12	11.38	9.49	1.18		F16		M20x25	1.81	1.97	23.70	3.15	45°	1/4"	G, NPT
4A-270	1.18	5.12	5.79	5.79	12.83	10.71	1.18		F16		M20x25	1.81	1.97	28.43	3.15	45°	1/2"	G, NPT
4A-300	1.18	5.12	6.50	6.69	13.78	12.40	1.18	F16		M20x25		1.81	2.36	29.92	3.15	45°	1/2"	G, NPT

4A-350

STANDARD: IMPERIAL



UNIT: INCH

1/2" NAMUR	O	Q	R	W
	1.57	0.79	1.77	M6x10

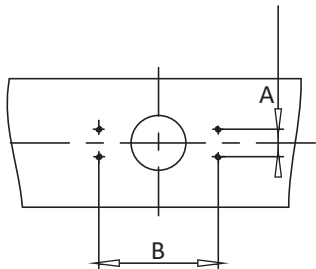
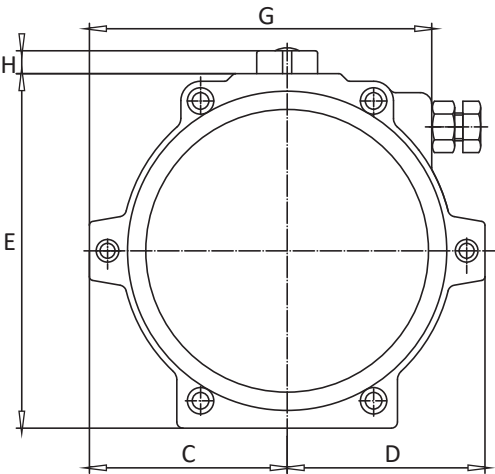
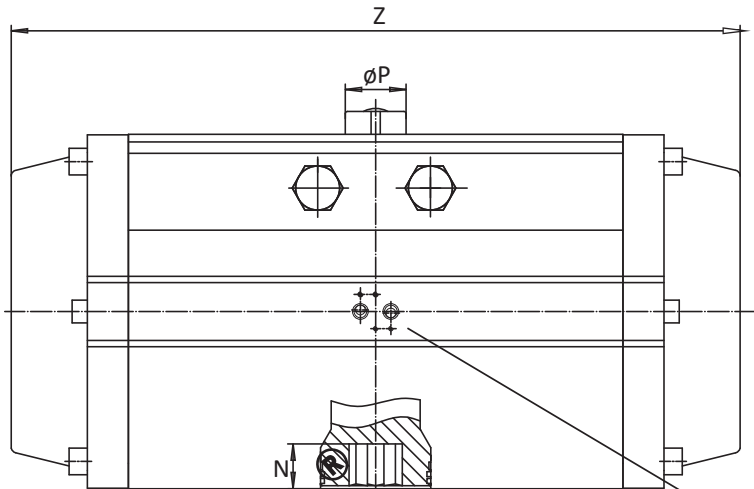
UNIT: INCH

MODEL	A	B	C	D	E	G	H	I	J	K	L	M	N	Z	ØP	AIR PORT	TYPE
4A-350	1.18	5.12	7.48	7.68	16.14	14.25	1.18	6.50	10.00	M20x25	M16x30	1.81	2.36	36.22	3.15	1/2"	G, NPT

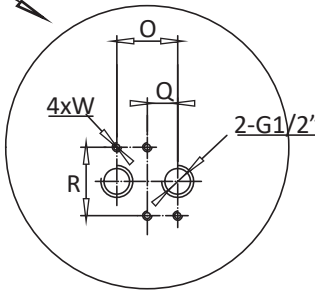


4A-400

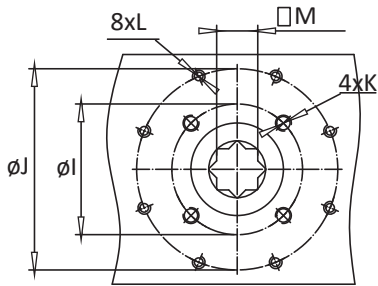
STANDARD: IMPERIAL



TOP OF CONNECTION



G1/2" NAMUR CONNECTION



BOTTOM OF CONNECTION

UNIT: INCH

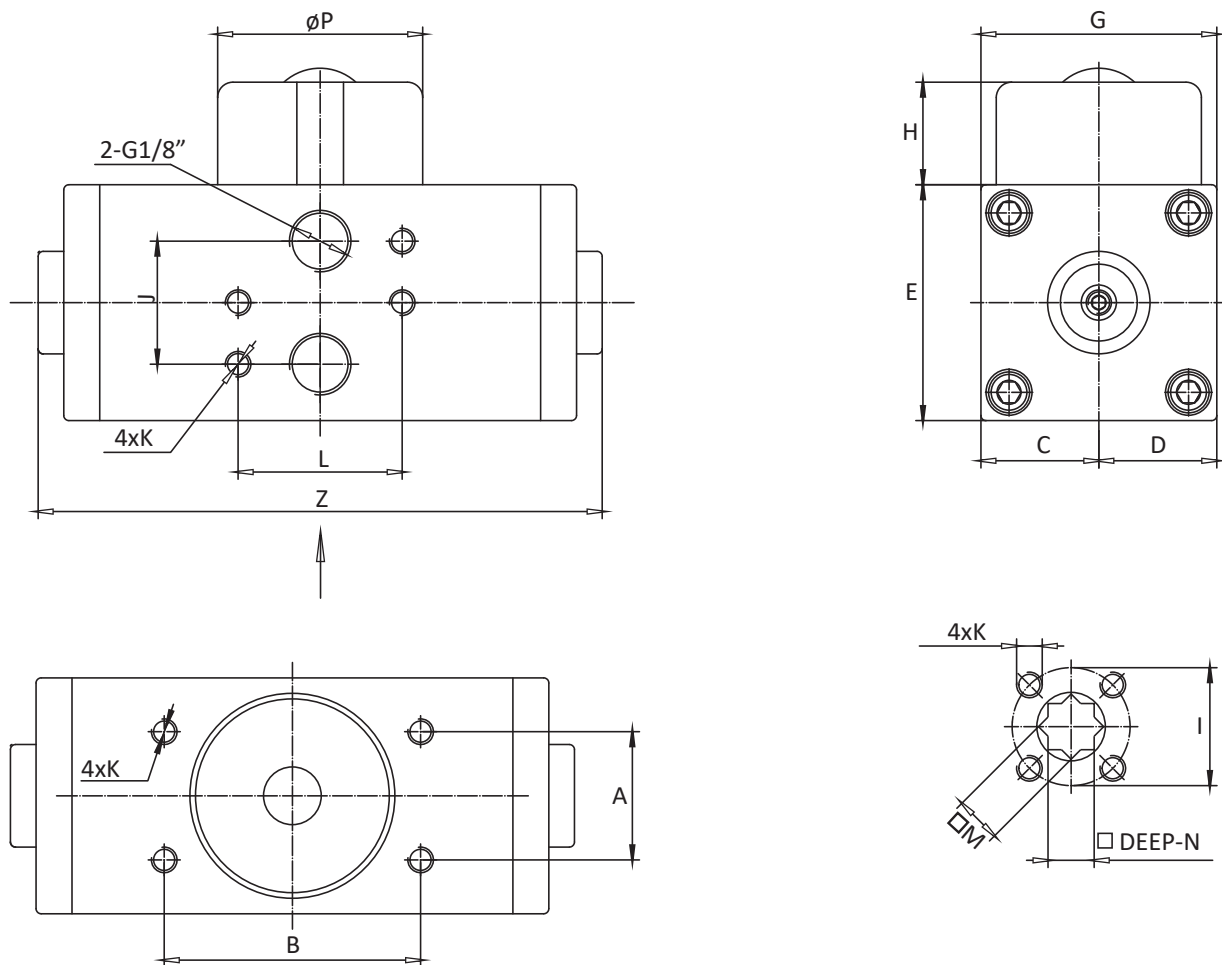
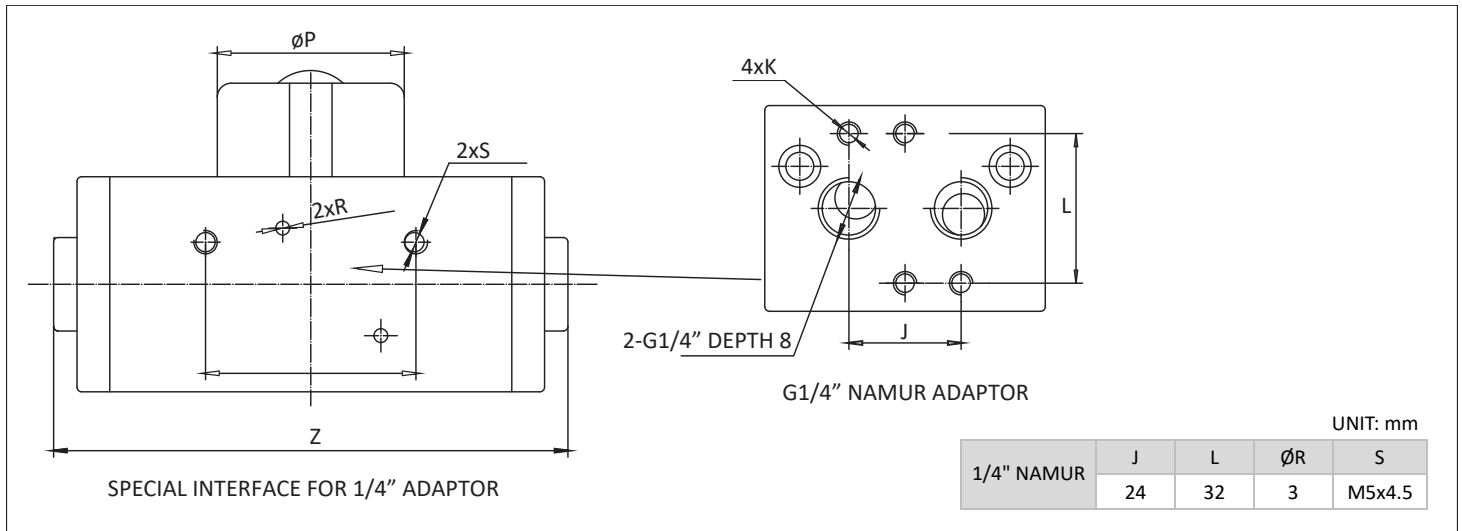
1/2" NAMUR	O	Q	R	W
	1.57	0.79	1.77	M6x10

UNIT: INCH

MODEL	A	B	C	D	E	G	H	I	J	K	L	M	N	Z	ØP	AIR PORT	TYPE
4A-400	1.18	5.12	10.24	10.24	18.35	17.72	1.18	6.50	10.00	M20x25	M16x30	2.17	2.36	37.01	3.15	1/2"	G, NPT

4A-32

STANDARD: METRIC



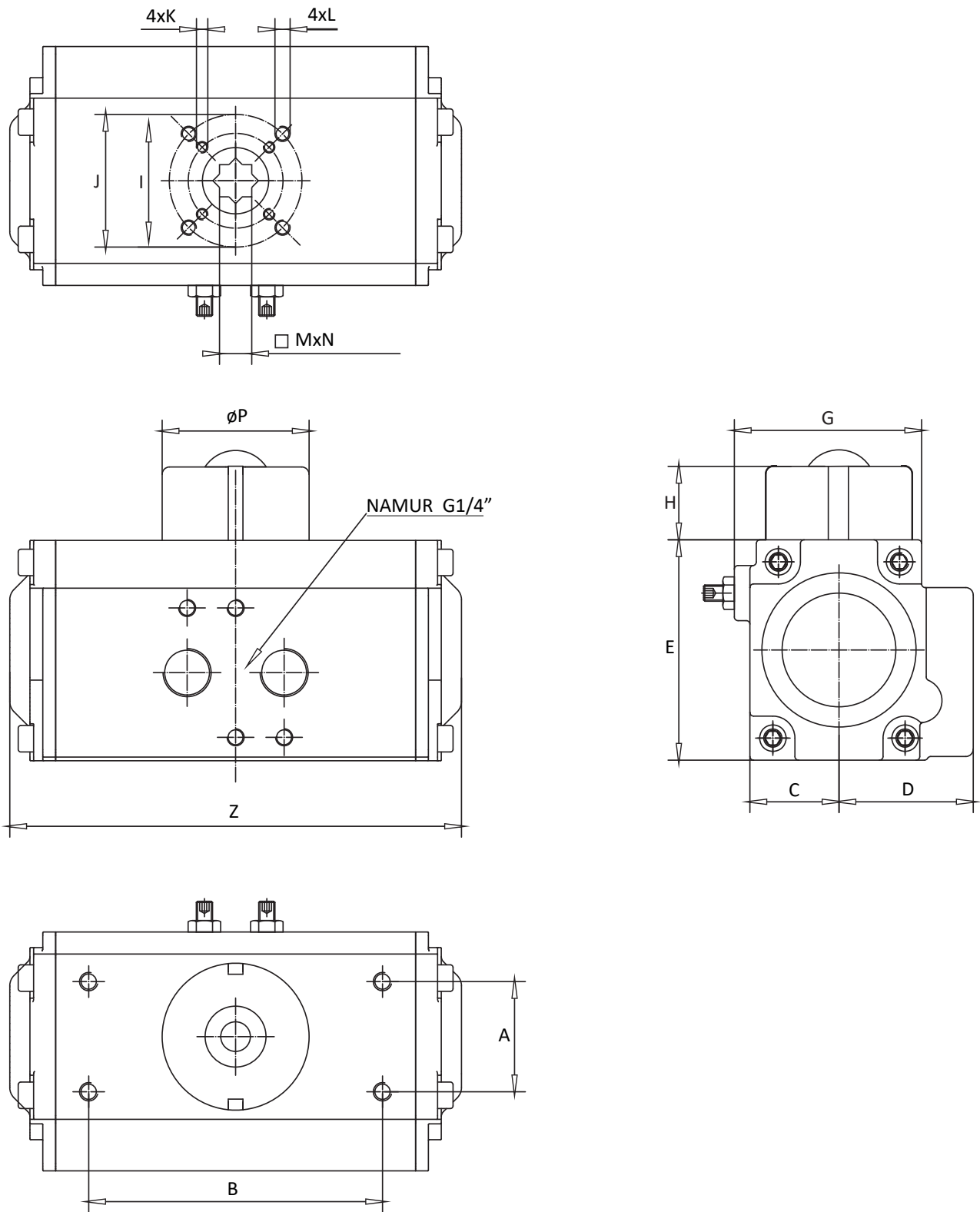
UNIT: mm

MODEL	A	B	C	D	E	G	H	I	K	M	N	Z	ØP	AIR PORT	TYPE
4A-032	25	50	23	23	46	46	20	F03	M5x8	9	11	110	40	1/8"or1/4"	G, NPT

* FACE TO FACE CAN BE REDUCED TO 100 mm

4A-40

STANDARD: METRIC

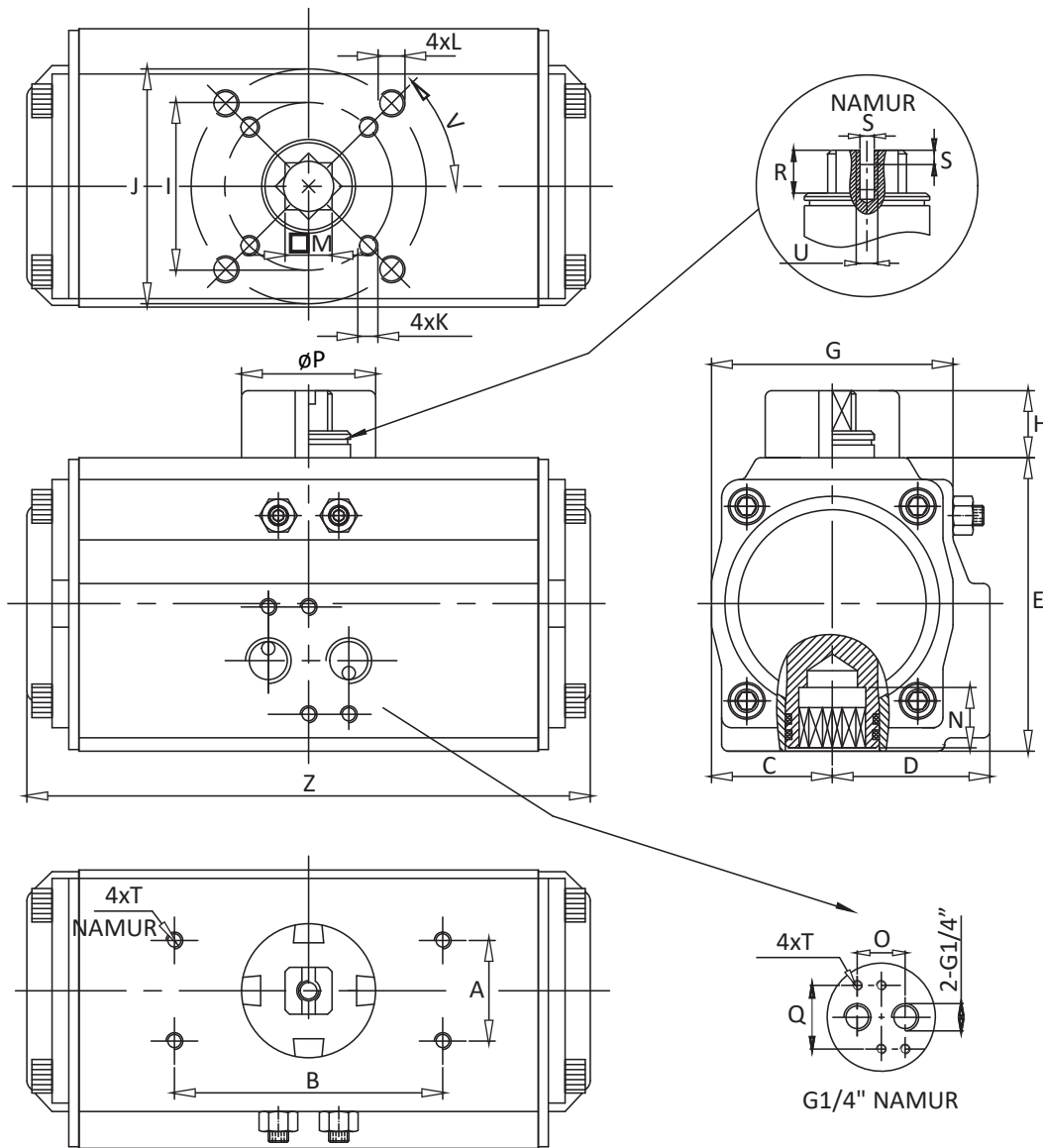


UNIT: mm

MODEL	A	B	C	D	E	G	H	I	J	K	L	M	N	Z	ØP	AIR PORT	TYPE
4A-040	1.18	3.15	1.14	1.44	2.36	2.01	0.79	F03	F05	M5x8	M6x10	0.43	0.55	4.80	1.57	1/4"	G, NPT

4A-52 ~ 210

STANDARD: METRIC



UNIT: mm

NAMUR	U	R	S
	M6	12	4

UNIT: mm

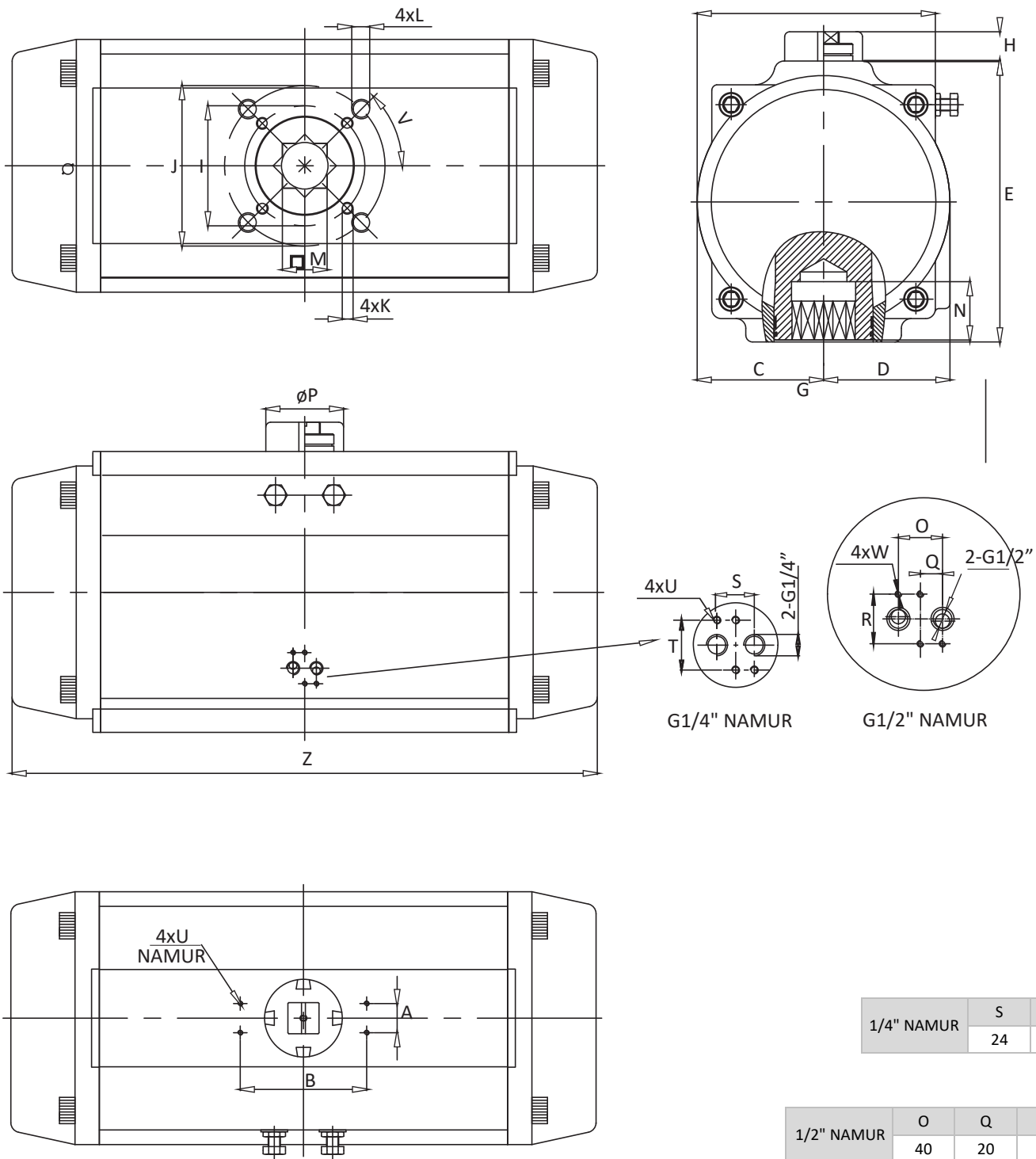
1/4" NAMUR	O	Q	T
	24	32	M5x8

UNIT: mm

MODEL	A	B	C	D	E	G	H	I	J	K	L	M	N	Z	ØP	V	AIR PORT	TYPE
4A-052	30	80	30	41.5	72	65	20	F03	F05	M5x8	M6x10	11	14	147	40	45°	1/4"	G, NPT
4A-063	30	80	36	47	87.5	72	20	F05	F07	M6x10	M8x13	14	18	168	40	45°	1/4"	G, NPT
4A-075	30	80	42	53	99.5	81	20	F05	F07	M6x10	M8x13	14	18	185	40	45°	1/4"	G, NPT
4A-083	30	80	46	57	108.8	88	20	F05	F07	M6x10	M8x13	17	21	211	40	45°	1/4"	G, NPT
4A-092	30	80	50	61	116.5	98	20	F05	F07	M6x10	M8x13	17	21	262	40	45°	1/4"	G, NPT
4A-105	30	80	57.5	64	133	109.5	20	F07	F10	M8x13	M10x16	22	26	270	40	45°	1/4"	G, NPT
4A-125	30	80	67.5	74.5	155	127.5	20	F07	F10	M8x13	M10x16	22	26	303	55	45°	1/4"	G, NPT
4A-140	30	80	75	77	172	137.5	20	F10	F12	M10x16	M12x20	27	31	394	55	45°	1/4"	G, NPT
4A-160	30	80	87	87	197	158	20	F10	F12	M10x16	M12x20	27	31	458	55	45°	1/4"	G, NPT
4A-190	30	130	103	103	230	189	30		F14		M16x25	36	40	528	80	45°	1/4"	G, NPT
4A- 210	30	130	114	114	255	211	30		F14		M16x25	36	40	532	80	45°	1/4"	G, NPT

4A-240 ~ 300

STANDARD: METRIC

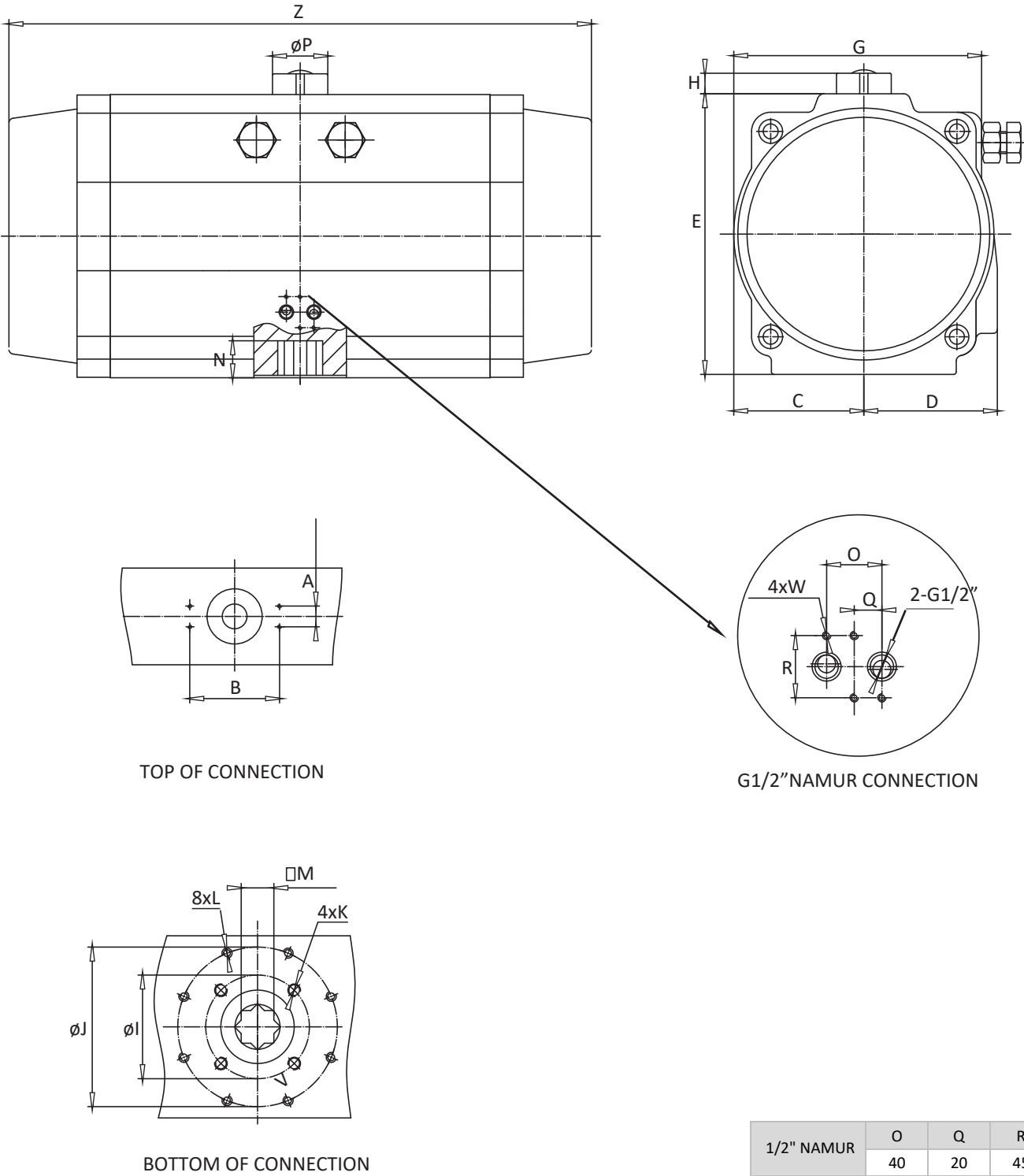


UNIT: mm

MODEL	A	B	C	D	E	G	H	I	J	K	L	M	N	Z	ØP	V	AIR PORT	TYPE
4A-240	30	130	130	130	289	241	30		F16		M20x25	46	50	602	80	45°	1/4"	G, NPT
4A-270	30	130	147	147	326	272	30		F16		M20x25	46	50	722	80	45°	1/2"	G, NPT
4A-300	30	130	165	170	350	315	30	F16		M20x25		46	60	760	80	45°	1/2"	G, NPT

4A-350

STANDARD: METRIC

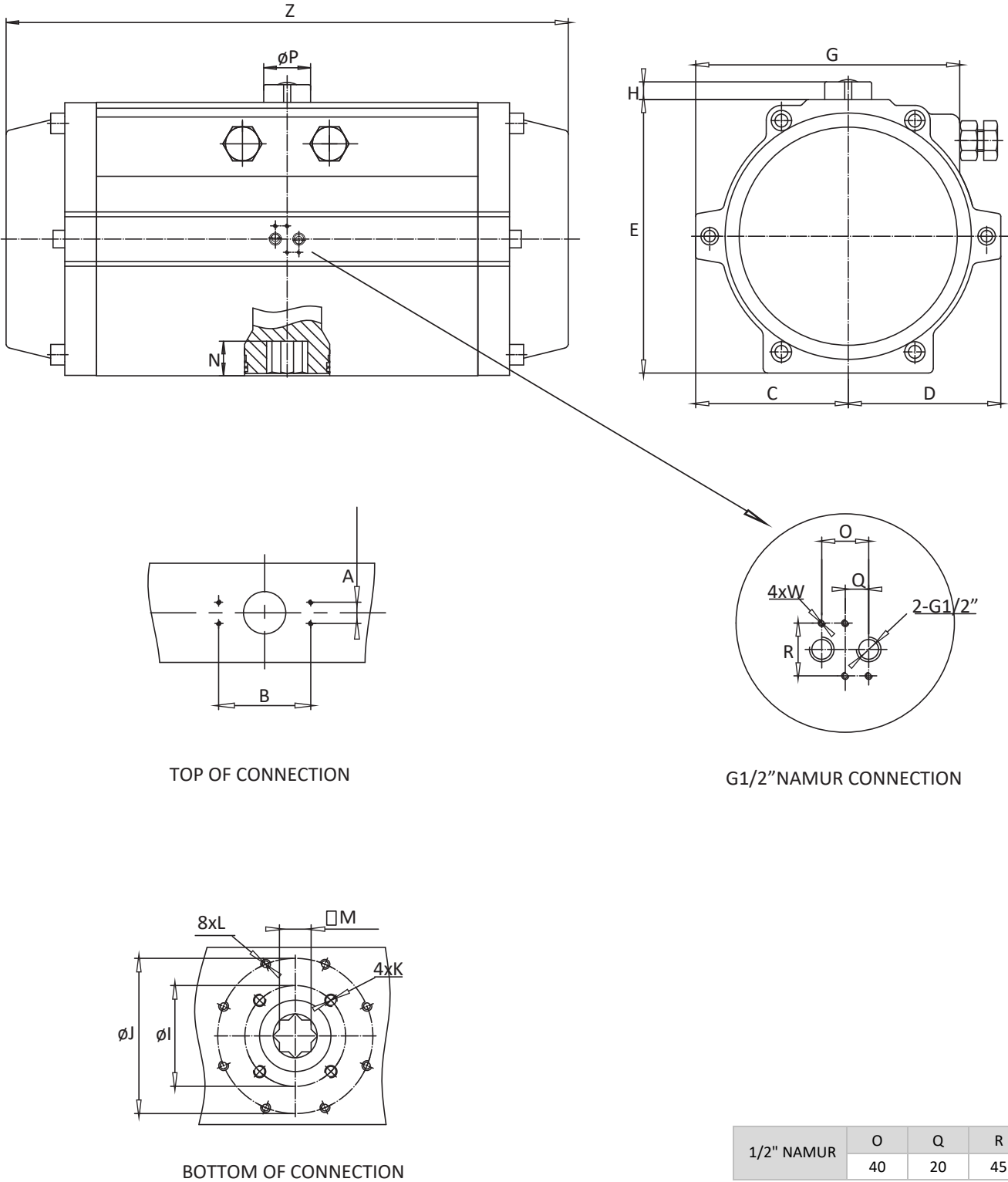


UNIT: mm				
1/2" NAMUR	O	Q	R	W
	40	20	45	M6x10

UNIT: mm																	
MODEL	A	B	C	D	E	G	H	I	J	K	L	M	N	Z	ØP	AIR PORT	TYPE
4A-350	30	130	190	195	410	362	30	165	254	M20x25	M16x30	46	60	920	80	1/2"	G, NPT

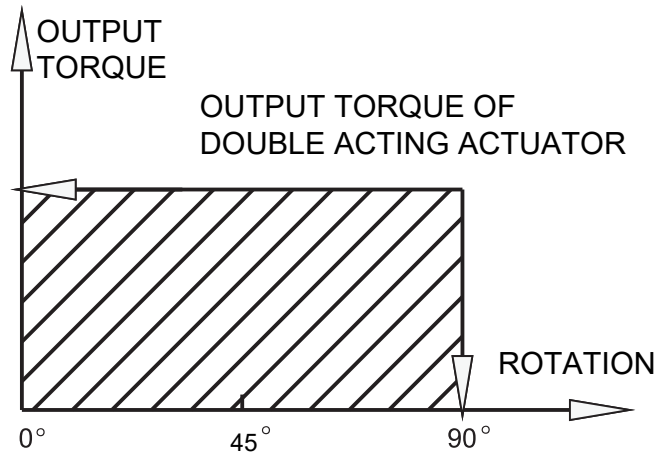
4A-400

STANDARD: METRIC



TORQUES OF DOUBLE ACTING

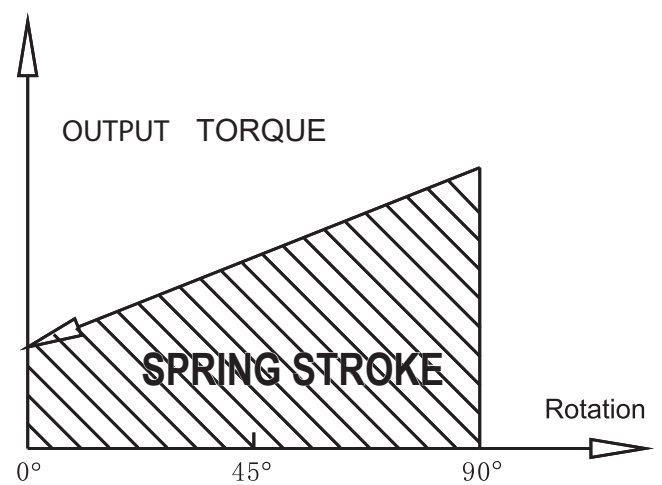
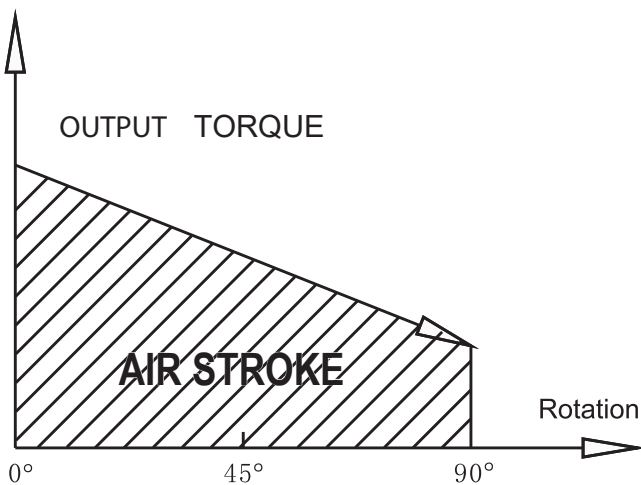
STANDARD: IMPERIAL



OUTPUT TORQUE OF 4A SERIES PNEUMATIC ACTUATOR WITH DOUBLE ACTING											(UNIT: lbf-ft)
MODEL	AIR PRESSURE(PSI)										
	30	37.5	45	52.5	60	67.5	75	82.5	90	105	120
4AD032	2	3	3	4	4	5	6	6	7	8	9
4AD040	4	4	5	6	7	8	9	10	11	12	14
4AD052	6	7	9	10	12	13	15	16	18	21	24
4AD063	11	13	16	19	22	24	27	30	32	38	43
4AD075	15	19	22	26	30	33	37	41	44	52	59
4AD083	23	29	35	40	46	52	58	64	69	81	92
4AD092	33	42	50	58	67	75	83	92	100	117	133
4AD105	49	61	73	85	98	110	122	134	146	171	195
4AD125	74	92	111	130	148	166	185	204	222	259	296
4AD140	126	158	189	221	252	284	315	347	378	441	505
4AD160	196	245	294	343	392	441	491	540	589	687	785
4AD190	314	392	471	549	628	706	785	863	942	1099	1256
4AD210	392	491	589	687	785	883	981	1079	1177	1373	1570
4AD240	568	709	851	993	1135	1277	1419	1561	1703	1987	2270
4AD270	863	1078	1294	1510	1725	1941	2157	2372	2588	3020	3451
4AD300	1126	1407	1688	1970	2251	2533	2814	3096	3377	3940	4502
4AD350	1685	2107	2528	2949	3371	3792	4213	4634	5056	5899	6741
4AD400	2402	3002	3602	4203	4803	5404	6004	6604	7205	8406	9607

TORQUES OF SPRING RETURN

STANDARD: IMPERIAL



OUTPUT TORQUE



OUTPUT TORQUE OF 4A SERIES PNEUMATIC ACTUATOR WITH SPRING RETURN																	(UNIT: lbf-ft)	
MODEL	AIR PRESSURE (PSI)																SPRINGS OUTPUT	
	37.5		45		60		75		90		105		120		0°	90°		
	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END		
4AS052	5	4	3	6	4											5	3	
	6	4	2	5	3	8	6									5	4	
	7	3	1	4	2	7	5	10	8							6	4	
	8			4	1	7	4	10	7	13	10					7	5	
	9			3	1	6	4	9	6	12	9	15	12			8	6	
	10					5	3	8	5	11	9	14	12			9	6	
	11					5	2	8	4	11	8	14	11	17	13	10	7	
	12							7	3	10	7	13	9	16	13	11	8	
4AS063	5	8	6	11	8	16	11									8	5	
	6	7	4	10	7	15	12	21	18							9	6	
	7	6	3	9	5	14	11	20	16							11	7	
	8			8	4	13	9	19	15	24	20	30	25			12	8	
	9					12	8	18	13	23	18	29	24			14	9	
	10					11	6	17	12	22	17	28	22	33	28	15	10	
	11							16	10	21	15	27	21	32	26	17	11	
	12							15	8	20	14	26	19	31	25	18	12	
4AS075	5	11	8	14	11	22	19									11	8	
	6	9	6	13	9	20	17	28	24							13	9	
	7	8	4	11	7	19	15	26	22							15	11	
	8			10	5	17	12	25	20	32	27	39	35			17	12	
	9					15	10	23	18	30	25	38	33			19	14	
	10					14	8	21	16	29	23	36	30	44	38	21	16	
	11							20	13	27	21	35	28	42	36	24	17	
	12							18	11	26	19	33	26	40	33	26	19	
4AS083	5	17	12	23	18	35	28									17	12	
	6	15	8	21	14	32	26	44	37							20	14	
	7	13	5	18	11	30	22	41	34							24	16	
	8			16	7	28	19	39	31	51	42	62	54			27	19	
	9					25	16	37	27	48	39	60	50			31	21	
	10					23	12	34	24	46	35	58	47	69	58	34	23	
	11							32	20	44	32	55	44	67	55	37	26	
	12							30	17	41	29	53	40	64	52	41	28	
4AS092	5	24	16	33	24	49	41									25	17	
	6	21	11	29	19	46	36	63	53							30	21	
	7	18	6	26	14	42	31	59	48							35	24	
	8			23	9	39	26	56	43	72	59	89	76			41	28	
	9					36	21	52	38	69	54	86	71			46	31	
	10					32	16	49	33	65	49	82	66	99	82	51	34	
	11							45	27	62	44	79	61	95	77	56	38	
	12							42	22	59	39	75	56	92	72	61	41	
4AS105	5	38	25	50	37	74	61									36	23	
	6	33	17	45	30	69	54	94	78							44	28	
	7	28	10	40	22	65	47	89	71							51	33	
	8			36	15	60	39	85	64	109	88	133	113			58	37	
	9					56	32	80	57	104	81	129	105			65	42	
	10					51	25	75	49	100	73	124	98	148	122	73	47	
	11							71	42	95	66	119	91	144	115	80	51	
	12							66	35	90	59	115	84	139	108	87	56	
4AS125	5	54	35	72	53	109	90									58	38	
	6	46	23	65	41	102	79	139	116							69	46	
	7	38	11	57	30	94	66	131	104							81	54	
	8			49	18	86	55	123	92	160	130	198	167			92	62	
	9					79	44	116	80	153	117	190	155			104	69	
	10					71	32	108	69	145	106	182	143	219	181	116	77	
	11							100	58	137	94	174	131	211	168	128	85	
	12							92	46	130	83	167	120	204	157	139	92	

OUTPUT TORQUE



OUTPUT TORQUE OF 4A SERIES PNEUMATIC ACTUATOR WITH SPRING RETURN																	(UNIT: lbf-ft)	
MODEL	AIR PRESSURE (PSI)																SPRINGS OUTPUT	
		37.5		45		60		75		90		105		120		0°	90°	
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°			
		START	END	START	END	START	END	START	END	START	END	START	END	START	END	START	END	
4AS140	5	94	63	126	94	189	157									95	63	
	6	82	44	114	75	176	138	240	201							114	76	
	7	69	24	101	56	164	119	227	182							134	89	
	8			89	37	151	100	215	163	277	226	341	289			152	101	
	9					138	81	201	145	264	207	327	271			171	114	
	10					125	62	189	125	252	188	315	251	378	314	190	127	
	11							176	105	239	169	302	232	365	295	209	139	
	12							163	87	226	150	289	213	353	276	229	152	
4AS160	5	142	91	191	141	289	239									153	103	
	6	122	61	171	110	269	208	367	306							184	124	
	7	101	30	150	79	248	177	346	275							215	145	
	8			130	49	228	147	326	245	424	343	522	441			246	164	
	9					207	116	305	214	403	312	501	410			277	185	
	10					187	85	285	183	383	281	481	379	579	477	308	206	
	11							264	153	362	251	460	349	558	447	338	226	
	12							243	122	342	220	440	318	538	416	369	247	
4AS190	5	245	164	323	243	480	400									228	148	
	6	215	119	294	197	451	354	608	511							274	177	
	7	186	73	264	151	421	308	578	465							319	207	
	8			235	105	392	263	549	420	706	577	862	734			365	236	
	9					362	218	519	374	676	531	833	688			411	266	
	10					333	172	490	329	647	485	804	642	960	800	456	295	
	11							460	283	617	440	774	597	932	754	502	325	
	12						431	238	588	395	745	552	902	708	547	354		
4AS210	5	288	210	386	308	582	505									280	203	
	6	247	154	345	252	541	448	738	645							336	243	
	7	207	98	305	196	501	392	697	589							392	284	
	8			264	140	460	336	656	533	853	729	1049	925			448	325	
	9					420	280	616	476	812	673	1008	869			505	365	
	10					379	224	575	420	772	617	968	813	1164	1009	561	406	
	11							535	364	731	561	927	757	1123	953	617	446	
	12						494	308	690	505	887	701	1083	897	673	487		
4AS240	5	407	302	549	443	833	727									409	302	
	6	347	219	488	361	772	645	1056	929							491	361	
	7	286	138	428	280	711	564	995	848							572	424	
	8			367	198	651	482	935	765	1219	1049	1502	1333			654	484	
	9					590	400	874	683	1157	967	1441	1251			736	545	
	10					530	318	814	602	1098	886	1381	1170	1665	1453	817	606	
	11							753	520	1037	804	1321	1085	1605	1371	899	666	
	12						693	438	976	722	1260	1005	1544	1289	981	727		
4AS270	5	666	498	881	714	1312	1145									580	413	
	6	583	383	799	598	1230	1030	1661	1461							696	496	
	7	501	266	717	482	1148	913	1579	1345							812	578	
	8			634	367	1065	797	1497	1229	1928	1661	2360	2092			928	660	
	9					982	681	1414	1113	1845	1545	2277	1975			1044	743	
	10					900	566	1331	997	1763	1429	2194	1859	2626	2292	1160	825	
	11							1249	883	1680	1312	2111	1744	2543	2175	1276	908	
	12						1167	765	1598	1197	2029	1628	2461	2059	1392	990		
4AS300	5	809	538													783	538	
	6	690	364	971	645											939	646	
	7	569	190	850	471	1413	1034									1095	754	
	8			731	297	1294	860	1857	1423							1252	862	
	9					1174	686	1722	1249	2300	1812					1408	969	
	10					1055	513	1618	1075	2180	1638	2743	2201	3306	2764	1565	1077	
	11							1497	901	2060	1464	2623	2027	3186	2590	1722	1185	
	12						1378	727	1941	1290	2503	1853	3066	2416	1878	1292		

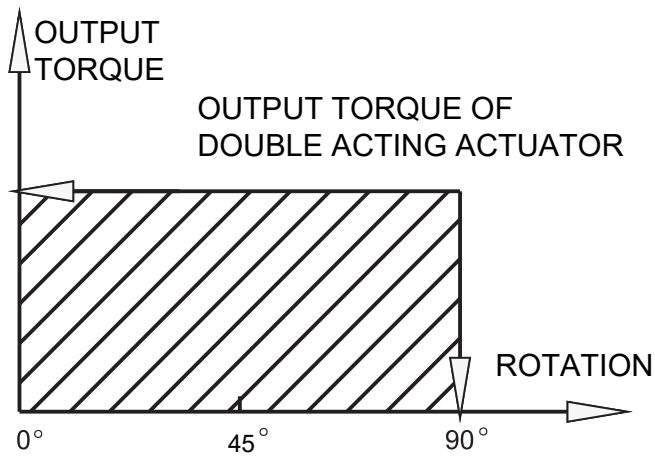
OUTPUT TORQUE



OUTPUT TORQUE OF 4A SERIES PNEUMATIC ACTUATOR WITH SPRING RETURN															(UNIT: lbf-ft)		
MODEL	AIR PRESSURE (PSI)															SPRINGS OUTPUT	
	SPRING QTY	37.5		45		60		75		90		105		120			
		0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END
4AS350	5	1145	711													1255	865
	6	953	432	1374	853											1507	1039
	7	760	153	1182	575	2025	1418									1758	1210
	8			989	296	1832	1139	2675	1981							2009	1384
	9					1640	859	2483	1702	3325	2544					2260	1558
	10					1448	580	2290	1423	3133	2265	3976	3108	4818	3951	2512	1730
	11							2098	1144	2940	1986	3783	2829	4625	3672	2762	1904
	12							1906	864	2748	1707	3591	2550	4434	3392	3014	2077
4AS400	7	1496	641													2124	1382
	8	1280	303	1881	904											2428	1549
	9			1666	566	2867	1767									2731	1742
	10			1451	229	2652	1430	3852	2631							3035	1935
	11					2436	1093	3637	2294	4838	3495					3338	2129
	12					2222	756	3422	1957	4623	3158	5823	4358	7024	5559	3642	2323
	13							3207	1619	4408	2820	5608	4020	6809	5221	3945	2517
	14							2992	1282	4193	2483	5393	3683	6594	4884	4249	2710
	15							2777	945	3978	2146	5178	3346	6379	4547	4552	2904
	16									3762	1809	4963	3009	6163	4209	4856	3097

TORQUES OF DOUBLE ACTING

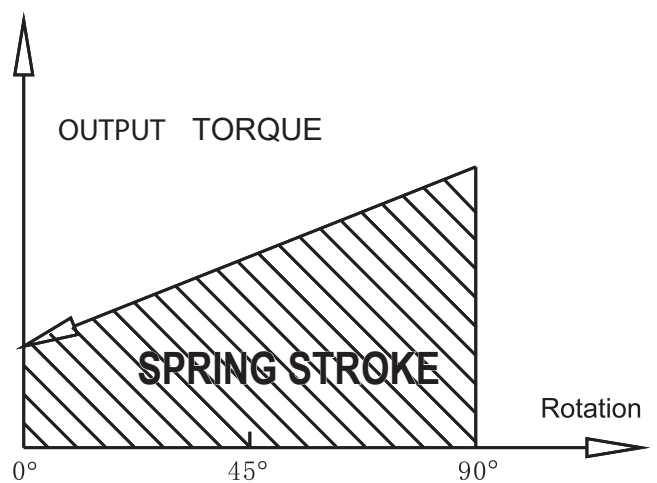
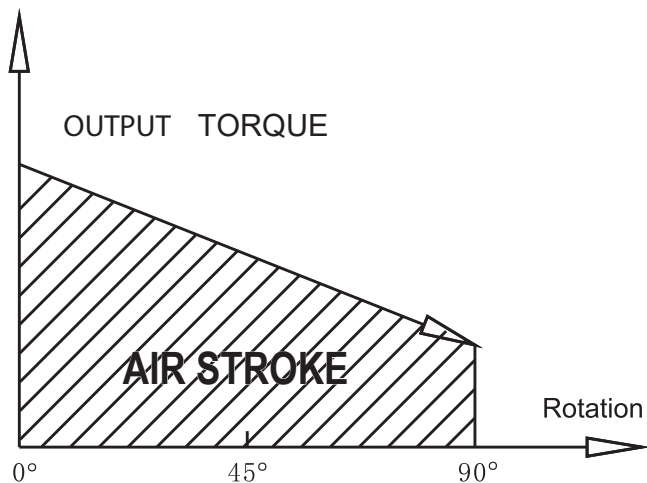
STANDARD: METRIC



OUTPUT TORQUE OF 4A SERIES PNEUMATIC ACTUATOR WITH DOUBLE ACTING											(UNIT: Nm)
MODEL	AIR PRESSURE(BAR)										
	2	2.5	3	3.5	4	4.5	5	5.5	6	7	8
4AD032	3	4	5	5	6	7	8	8	9	11	12
4AD040	5	6	7	8	10	11	12	13	14	17	19
4AD052	8	10	12	14	16	18	20	22	24	28	32
4AD063	15	18	22	26	29	33	37	40	44	51	58
4AD075	20	25	30	35	40	45	50	55	60	70	80
4AD083	31	39	47	55	63	71	78	86	94	110	125
4AD092	45	56	68	79	90	102	113	124	135	158	181
4AD105	66	83	99	116	132	149	165	182	198	231	265
4AD125	100	125	151	176	201	226	251	276	301	351	401
4AD140	171	214	257	299	342	385	428	470	513	599	684
4AD160	266	333	399	466	532	599	665	732	798	931	1064
4AD190	426	532	638	745	851	958	1064	1170	1277	1490	1702
4AD210	532	665	798	931	1064	1197	1330	1463	1596	1862	2128
4AD240	770	962	1154	1347	1539	1731	1924	2116	2309	2693	3078
4AD270	1170	1462	1755	2047	2339	2632	2924	3217	3509	4094	4679
4AD300	1526	1908	2289	2671	3052	3434	3815	4197	4578	5341	6104
4AD350	2285	2856	3427	3998	4570	5141	5712	6283	6854	7997	9139
4AD400	3256	4070	4884	5698	6512	7326	8140	8954	9768	11396	13024

TORQUES OF SPRING RETURN

STANDARD: METRIC



OUTPUT TORQUE



OUTPUT TORQUE OF 4A SERIES PNEUMATIC ACTUATOR WITH SPRING RETURN																(UNIT: Nm)	
MODEL	SPRING QTY	AIR PRESSURE(BAR)														SPRINGS OUTPUT	
		2.5		3		4		5		6		7		8			
		0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END	0° START	90° END
4AS052	5	6	4	8	6											6	4
	6	5	3	7	5	11	9									7	5
	7	4	1	6	3	10	7	14	10							9	6
	8			5	2	9	6	13	9	17	14					10	7
	9			4	1	8	5	12	8	16	13	20	17			11	8
	10					7	4	12	7	16	12	20	16			12	9
	11					7	2	11	5	15	10	19	14	23	18	14	9
4AS063	12							10	4	14	9	18	12	22	17	15	10
	5	11	8	15	11	22	15									10	7
	6	10	6	14	9	21	17	28	24							13	8
	7	9	4	13	7	20	15	27	22							15	10
	8			11	5	18	12	26	20	33	27	40	34			17	11
	9					17	10	24	18	31	25	39	32			19	12
	10					16	8	23	16	30	23	37	30	45	37	21	14
4AS075	11							22	14	29	21	36	28	43	35	23	15
	12							20	11	27	19	35	26	42	33	25	16
	5	15	11	19	16	30	26									15	11
	6	12	8	17	13	27	23	38	33							17	13
	7	10	5	15	10	25	20	35	30							20	15
	8			13	7	23	17	33	27	43	37	53	47			23	17
	9					21	14	31	24	41	34	51	44			26	19
4AS083	10					19	11	29	21	39	31	49	41	59	51	29	21
	11							27	18	37	28	47	38	57	48	32	23
	12							25	15	35	25	45	35	55	45	35	25
	5	24	16	31	24	47	38									23	16
	6	20	12	28	19	44	35	59	51							28	19
	7	17	7	25	15	41	31	56	46							32	22
	8			22	10	37	26	53	42	69	57	85	73			37	25
4AS092	9					34	21	50	37	66	53	81	68			41	29
	10					31	17	47	32	62	48	78	64	94	79	46	32
	11							44	28	59	43	75	59	91	75	51	35
	12							40	23	56	39	72	55	87	70	55	38
	5	33	22	44	33	67	56									34	23
	6	28	15	40	26	62	49	85	72							41	28
	7	24	8	35	19	58	42	80	65							48	33
4AS105	8			31	13	53	35	76	58	98	81	121	103			55	37
	9					48	28	71	51	94	74	116	96			62	42
	10					44	22	66	44	89	67	111	89	134	112	69	47
	11							62	37	84	60	107	82	129	105	76	51
	12							57	30	79	53	102	76	125	98	83	56
	5	51	33	68	50	101	83									49	32
	6	45	24	61	40	94	73	127	106							59	38
4AS125	7	38	14	55	30	88	63	121	96							69	44
	8			49	20	82	54	115	87	148	120	181	153			79	51
	9					75	44	108	77	142	110	175	143			89	57
	10					69	33	102	67	135	100	168	133	201	166	98	63
	11							96	57	129	90	162	123	195	156	108	70
	12							89	48	123	81	156	114	189	147	118	76
	5	73	47	98	72	148	122									79	52
4AS125	6	63	31	88	56	138	107	188	157							94	63
	7	52	15	77	40	127	90	178	141							110	73
	8			67	25	117	75	167	125	217	176	268	226			125	84
	9					107	59	157	109	207	159	257	210			141	94
	10					96	44	146	94	196	144	247	194	297	245	157	105
	11							136	78	186	128	236	178	286	228	173	115
	12							125	63	176	113	226	163	276	213	188	125

OUTPUT TORQUE



OUTPUT TORQUE OF 4A SERIES PNEUMATIC ACTUATOR WITH SPRING RETURN																	(UNIT: Nm)	
MODEL	SPRING QTY	AIR PRESSURE(BAR)														SPRINGS OUTPUT		
		2.5		3		4		5		6		7		8		0°	90°	
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°			
		START	END	START	END	START	END	START	END	START	END	START	END	START	END	START	END	
4AS140	5	128	85	171	127	256	213									129	86	
	6	111	59	154	102	239	187	325	273							155	103	
	7	94	33	137	76	222	162	308	247							181	120	
	8			120	50	205	136	291	221	376	307	462	392			206	137	
	9					187	110	273	196	358	281	444	367			232	155	
	10					170	84	256	169	341	255	427	340	512	426	258	172	
	11							238	143	324	229	409	314	495	400	284	189	
	12							221	118	307	203	392	289	478	374	310	206	
4AS160	5	193	124	259	191	392	324									208	140	
	6	165	83	232	149	365	282	498	415							250	168	
	7	137	41	203	107	336	240	469	373							292	196	
	8			176	66	309	199	442	332	575	465	708	598			333	223	
	9					280	157	413	290	546	423	679	556			375	251	
	10					253	115	386	248	519	381	652	514	785	647	417	279	
	11							358	207	491	340	624	473	757	606	458	307	
	12							330	165	463	298	596	431	729	564	500	335	
4AS190	5	332	222	438	329	651	542									309	200	
	6	292	161	398	267	611	480	824	693							371	240	
	7	252	99	358	205	571	418	784	631							433	280	
	8			318	143	531	356	744	569	957	782	1169	995			495	320	
	9					491	295	704	507	917	720	1130	933			557	360	
	10					451	233	664	446	877	658	1090	871	1302	1084	618	400	
	11							624	384	837	597	1050	809	1263	1022	680	440	
	12							584	322	797	535	1010	748	1223	960	742	480	
4AS210	5	390	285	523	418	789	684									380	275	
	6	335	209	468	342	734	608	1000	874							456	330	
	7	280	133	413	266	679	532	945	798							532	385	
	8			358	190	624	456	890	722	1156	988	1422	1254			608	440	
	9					569	380	835	646	1101	912	1367	1178			684	495	
	10					514	304	780	570	1046	836	1312	1102	1578	1368	760	550	
	11							725	494	991	760	1257	1026	1523	1292	836	605	
	12							670	418	936	684	1202	950	1468	1216	912	660	
4AS240	5	552	409	744	600	1129	985									554	410	
	6	470	297	662	489	1047	874	1432	1259							665	490	
	7	388	187	580	379	964	764	1349	1149							775	575	
	8			498	268	883	653	1267	1037	1652	1422	2037	1807			886	656	
	9					800	542	1185	926	1569	1311	1954	1696			998	739	
	10					718	431	1103	816	1488	1201	1872	1586	2257	1970	1108	821	
	11							1021	705	1406	1090	1791	1471	2176	1859	1219	903	
	12							939	594	1323	979	1708	1363	2093	1748	1330	985	
4AS270	5	903	675	1195	968	1779	1552									787	560	
	6	790	519	1083	811	1667	1396	2252	1981							943	672	
	7	679	361	972	654	1556	1238	2141	1823							1101	783	
	8			860	497	1444	1081	2029	1666	2614	2252	3199	2836			1258	895	
	9					1332	923	1917	1509	2502	2094	3087	2678			1416	1007	
	10					1220	767	1805	1352	2390	1937	2974	2521	3560	3107	1572	1119	
	11							1693	1197	2278	1779	2862	2364	3448	2949	1730	1231	
	12							1582	1037	2167	1623	2751	2207	3336	2792	1887	1342	
4AS300	5	1097	729													1061	730	
	6	935	494	1316	875											1273	876	
	7	772	258	1153	639	1916	1402									1485	1022	
	8			991	403	1754	1166	2517	1929							1697	1168	
	9					1592	930	2335	1693	3118	2456					1909	1314	
	10					1430	695	2193	1458	2956	2221	3719	2984	4482	3747	2122	1460	
	11							2030	1222	2793	1985	3556	2748	4319	3511	2334	1606	
	12							1868	986	2631	1749	3394	2512	4157	3275	2546	1752	

SIZING INFORMATION AND SELECTION MODEL

OUTPUT TORQUE OF 4A SERIES PNEUMATIC ACTUATOR WITH SPRING RETURN																(UNIT: Nm)	
MODEL	SPRING QTY	AIR PRESSURE(BAR)														SPRINGS OUTPUT	
		2.5		3		4		5		6		7		8			
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
		START	END	START	END	START	END	START	END	START	END	START	END	START	END	START	END
4AS350	5	1553	964													1702	1173
	6	1292	586	1863	1157											2043	1408
	7	1031	208	1602	779	2745	1922									2383	1640
	8			1341	401	2484	1544	3626	2686							2724	1877
	9					2224	1165	3366	2307	4508	3449					3064	2112
	10					1963	787	3105	1929	4247	3071	5390	4214	6532	5356	3405	2346
	11							2844	1551	3986	2693	5129	3836	6271	4978	3745	2581
	12							2584	1172	3726	2314	4869	3457	6011	4599	4086	2816
4AS400	7	2028	869													2880	1873
	8	1736	411	2550	1225											3292	2100
	9			2259	768	3887	2396									3703	2362
	10			1967	311	3595	1939	5223	3567							4115	2624
	11					3303	1482	4931	3110	6559	4738					4526	2887
	12					3012	1025	4640	2653	6268	4281	7895	5908	9523	7536	4938	3149
	13							4348	2195	5976	3823	7603	5450	9231	7078	5349	3412
	14							4057	1738	5685	3366	7312	4993	8940	6621	5761	3674
	15							3765	1281	5393	2909	7020	4536	8648	6164	6172	3937
	16									5101	2452	6728	4079	8356	5707	6584	4199

SIZING AND THE TORQUE SAFETY FACTOR

- SIZING: DOUBLE ACTING ACTUATORS
- THE SUGGESTED SAFETY FACTOR FOR DOUBLE ACTING ACTUATORS UNDER NORMAL WORKING CONDITIONS IS 20%-30%.
- EXAMPLE:
THE TORQUE NEEDED BY VALVE = 74 lbf-ft (100 Nm)
THE TORQUE CONSIDERED SAFETY FACTOR
 - $(1+30\%) = 96 \text{ lbf-ft (130 Nm)}$
 - AIR SUPPLY = 75 PSI (5 Bar)
- ACCORDING TO THE ABOVE TABLE, WE CAN CHOOSE THE MINIMUM MODEL 4A-105DA (OUTPUT TORQUE IS 122 PSI (165.3 Nm) AT 75 PSI (5 Bar))
- SIZING: SPRING RETURN ACTUATORS
- THE SUGGESTED SAFETY FACTOR FOR SPRING RETURN ACTUATOR UNDER NORMAL WORKING CONDITIONS IS 30%-50%
- EXAMPLE: THE TORQUE NEEDED BY VALVE = 59 lbf-ft (80 Nm)
THE TORQUE CONSIDERS SAFETY FACTOR $(1+30\%) = 77 \text{ lbf-ft (104 Nm)}$
 - AIR SUPPLY = 75 PSI (5 Bar)
- ACCORDING TO THE TABLE OF SPRING RETURN ACTUATORS OUTPUT, WE FIND OUTPUT TORQUE OF 4AS14007 IS:
 - AIR STROKE 0° = 227 lbf-ft (308 Nm)
 - AIR STROKE 90° = 182 lbf-ft (247 Nm)
 - SPRING STROKE 90° = 133 lbf-ft (181 Nm)
 - SPRING STROKE 0° = 89 lbf-ft (120 Nm)
- ALL THE OUTPUT TORQUE IS LARGER THAN WE NEEDED

ATTENTION:

DURING THE RESTORATION, THE SPRING RETURN ACTUATORS' OUTPUT TORQUE WILL NOT BE AFFECTED BY THE INPUT AIR FROM PORT B. ON THE CONTRARY, IT WILL HELP WITH THE RESTORATION OF SPRINGS.

OPERATING CONDITIONS:

- 1. OPERATING MEDIA**
DRY OR LUBRICATED AIR, OR THE NON-CORROSIVE GAS. THE MAXIMUM PARTICLE DIAMETER MUST BE LESS THAN 30µm.
- 2. AIR SUPPLY PRESSURE**
THE MINIMUM SUPPLY PRESSURE IS 2 BAR. THE MAXIMUM SUPPLY PRESSURE IS 8 BAR.

SIZING INFORMATION AND SELECTION MODEL

3. OPERATING TEMPERATURE

STANDARD (NBR O-RING): -4°F~176°F (-20°C~80°C)

LOW TEMPERATURE (L NBR O-RING): -40°F~176°F (-40°C~80°C)

HIGH TEMPERATURE (VITON O-RING): 54°F~302°F (-15°C~+150°C)

4. TRAVEL ADJUSTMENT

ADJUSTMENT RANGE OF ± 5° FOR THE ROTATION AT 0° AND 90°

5. APPLICATION:

SUITABLE FOR INDOOR/OUTDOOR USE, WITH COATING AVAILABLE FOR HARSH, CORROSIVE ENVIRONMENT.

AIR CONSUMPTION

STANDARD: IMPERIAL

UNIT: gal

MODEL	AIR VOLUME OPENING	AIR VOLUME CLOSING	MODEL	AIR VOLUME OPENING	AIR VOLUME CLOSING
4A-032	0.01	0.01	4A-140	0.65	0.82
4A-040	0.02	0.02	4A-160	1.00	1.28
4A-052	0.03	0.04	4A-190	1.60	1.98
4A-063	0.06	0.06	4A-210	2.00	2.48
4A-075	0.08	0.10	4A-240	2.93	3.76
4A-083	0.11	0.14	4A-270	4.14	5.71
4A-092	0.17	0.24	4A-300	6.46	7.59
4A-105	0.26	0.31	4A-350	9.75	12.33
4A-125	0.40	0.46	4A-400	15.34	14.57

AIR CONSUMPTION DEPENDS ON AIR SUPPLY. AIR VOLUME AND ACTION CYCLE TIMES, THE CALCULATING AS FOLLOWS:

$$\text{gal/Min} = \text{Air volume (Air volume Opening + Air volume closing)} \times \left[\frac{\text{Air Supply (Kpa)} + 101.3}{101.3} \right] \times \text{Action cycle times (/min)} \times 0.264172$$

AIR CONSUMPTION

STANDARD: METRIC

UNIT: L

MODEL	AIR VOLUME OPENING	AIR VOLUME CLOSING	MODEL	AIR VOLUME OPENING	AIR VOLUME CLOSING
4A-032	0.04	0.04	4A-140	2.47	3.10
4A-040	0.06	0.07	4A-160	3.78	4.83
4A-052	0.12	0.15	4A-190	6.06	7.49
4A-063	0.21	0.23	4A-210	7.57	9.37
4A-075	0.30	0.36	4A-240	11.10	14.25
4A-083	0.43	0.53	4A-270	15.67	21.63
4A-092	0.65	0.89	4A-300	24.44	28.73
4A-105	0.97	1.16	4A-350	36.89	46.66
4A-125	1.53	1.75	4A-400	58.05	55.14

AIR CONSUMPTION DEPENDS ON AIR SUPPLY. AIR VOLUME AND ACTION CYCLE TIMES, THE CALCULATING AS FOLLOWS:

$$\text{L/Min} = \text{Air volume (Air volume Opening + Air volume closing)} \times \left[\frac{\text{Air Supply (Kpa)} + 101.3}{101.3} \right] \times \text{Action cycle times (/min)}$$



weight:

standard: imperial

unit: lbs

model	double acting	single acting
4A-032	1.54	-
4A-040	2.20	-
4A-052	3.09	3.31
4A-063	4.41	4.63
4A-075	5.95	6.39
4A-083	6.83	7.94
4A-092	10.14	11.46
4A-105	14.99	15.21
4A-125	19.62	22.27

model	double acting	single acting
4A-140	28.66	33.07
4A-160	44.09	52.91
4A-190	68.34	77.16
4A-210	103.62	121.25
4A-240	147.71	176.37
4A-270	213.85	260.15
4A-300	242.51	286.60
4A-350	410.06	515.88
4A-400	637.14	793.66

weight:

standard: metric

unit: kg

model	double acting	single acting
4A-032	0.7	-
4A-040	1	-
4A-052	1.4	1.5
4A-063	2	2.1
4A-075	2.7	2.9
4A-083	3.1	3.6
4A-092	4.6	5.2
4A-105	6.8	6.9
4A-125	8.9	10.1

model	double acting	single acting
4A-140	13	15
4A-160	20	24
4A-190	31	35
4A-210	47	55
4A-240	67	80
4A-270	97	118
4A-300	110	130
4A-350	186	234
4A-400	289	360

stroke time:

time: second

			SPRING RETURN																
SIZE	0°-90°	0°-90°	SIZE																
				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°		
4AD032	0.5	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
4AD040	0.5	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
4AD052	0.6	0.53	S052	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		
4AD063	0.66	0.58	S063	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		
4AD075	0.72	0.64	S075	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		
4AD083	0.83	0.73	S083	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		
4AD092	1	0.86	S092	2.89	0.86	2.91	0.84	2.93	0.82	2.95	0.8	2.97	0.78	3.24	0.76	3.01	0.74		
4AD105	1.35	1.3	S105	3.14	0.91	3.16	0.89	3.18	0.87	3.2	0.85	3.22	0.83	4.34	0.81	3.26	0.79		
4AD125	2.4	1.79	S125	4.24	1.2	4.26	1.18	4.28	1.16	4.3	1.14	4.32	1.12	4.68	1.10	4.36	1.08		
4AD140	2.5	2.1	S140	4.4	1.35	4.4	1.33	4.62	1.31	4.64	1.29	4.66	1.27	4.82	1.25	4.68	1.22		
4AD160	3.93	2.6	S160	4.74	1.77	4.76	1.75	4.78	1.73	4.8	1.71	4.82	1.69	5.8	1.67	4.84	1.65		
4AD190	4.55	3.45	S190	5.75	3.7	5.77	3.5	5.75	3.48	5.77	3.46	5.79	3.44	8.48	3.42	5.83	3.4		
4AD210	5.5	4.35	S210	8.25	4.8	8.4	4.6	8.42	4.58	8.44	4.56	8.46	4.54	16.8	4.52	8.5	4.5		
4AD240	8.4	8.33	S240	16.2	5.14	16.4	5.12	16.42	5.1	16.44	4.9	16.6	4.98	18.2	4.86	17	4.84		
4AD270	10.9	8.53	S270	17.6	6.28	17.8	6.26	17.6	6.24	17.8	6.2	18	6.18	24.7	6.16	18.4	6.14		
4AD300	15	14.9	S300	24	13.2	24.5	13	24.4	12.8	24.3	12.6	24.5	12.58	31.4	12.56	24.9	12.54		
4AD350	23.7	18.6	S350	31	17.3	31.5	17	31.3	16.8	31	16.6	31.2	16.58	51.9	16.56	31.6	16.54		
4AD400	31	29	S400	45	27	51	27	51.3	26.8	51.5	26.8	51.7	26.6	2.56	26.4	52.1	26.2		

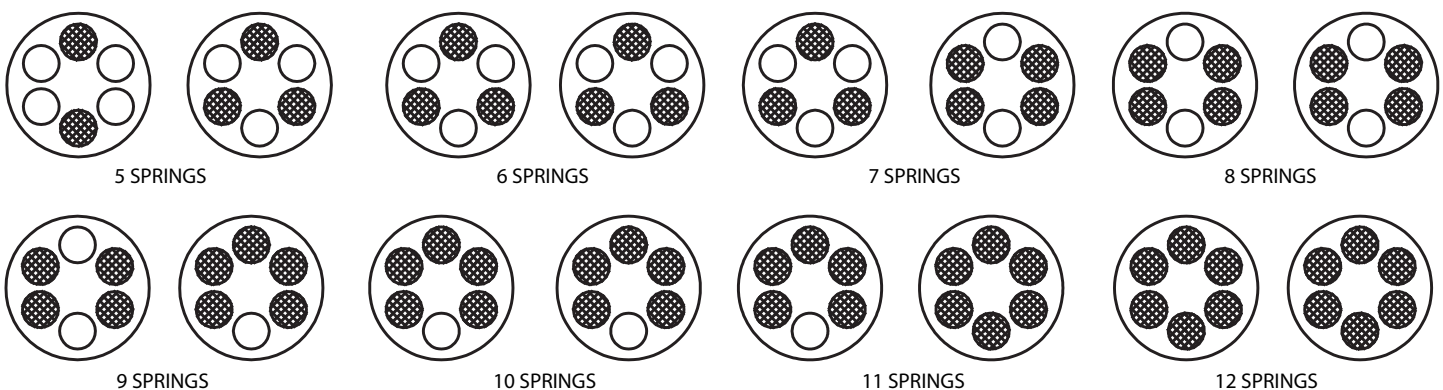
air pressure: 75 PSI (5 BAR)

INSTALLATION PRECAUTIONS

1. REMOVE ANY MANUAL OPENING DEVICE FROM THE VALVE, LEAVING THE VALVE STEM CLEAR.
2. MAKE SURE THAT THE SHAPE OF THE STEM FITS THE ACTUATOR OUTPUT, AND THAT THE ROTATION IS NOT HINDERED IN ANY WAY.
3. MOUNT THE ACTUATOR ONTO THE VALVE, CERTAINING IT WELL ON THE STEM. MAKE SURE THAT THE ROTATION DIRECTION IS CORRECT, IN ANY CASE DO NOT INSERT YOUR HANDS INSIDE THE VALVE.
4. WE STRONGLY SUGGEST CHECKING THE CLEANNES OF THE AIR-SUPPLY PIPES, ESPECIALLY WHEN THE PLANT IS NOT PROVIDED WITH FILTERS.
5. A SPACER BETWEEN ACTUATOR AND VALVE WILL BE NECESSARY WITH FLUIDS AT HIGH TEMPERATURE.

SPRING CONFIGURATION

4A SERIES PNEUMATIC ACTUATORS ARE AVAILABLE TO OFFER SPRING RETURN ACTING FOR EMERGENCY SHUTDOWN AND FAIL-SAFE OPERATION. BELOW THE SPRING CONFIGURATIONS FOR SELECTION ACCORDINGLY.



MAINTENANCES

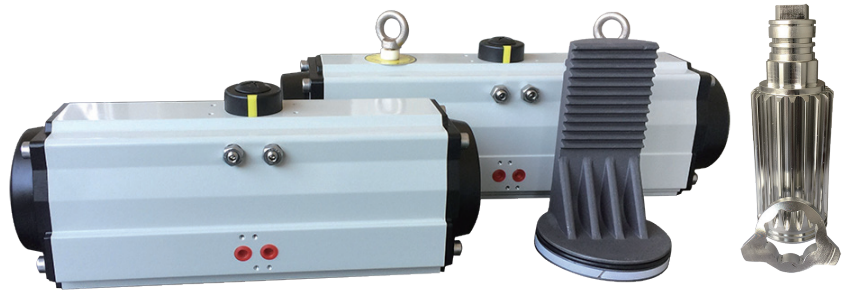
1. IT IS RECOMMENDED THAT PERIODIC CHECKS BE PERFORMED TO MAKE SURE THAT ALL FASTENERS REMAIN TIGHT.
2. THE ACTUATOR IS SUPPLIED READY-LUBRICATED NO FURTHER LUBRICATION IS REQUIRED. IF LUBRICATION IS DEEMED NECESSARY, USE EP-1 GREASE.
3. UNDER CERTAIN WORKING CONDITIONS (HEAVY DUTY, NON-COMPATIBLE OPERATING MEDIA OR ABNORMAL OPERATING CONDITIONS) INTERNAL SEALS SHOULD BE CHECKED PERIODICALLY AND REPLACED WHEN NECESSARY.
3. ON SPRING RETURN ACTUATORS, SPRING FAILURE MAY SET IN REQUIRING THE REPLACEMENT OF SPRINGS. SPRING SHOULD ALWAYS BE REPLACED IN FULL SETS.

NOTE

1. 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.
2. SHOULD IT BE NECESSARY TO REPLACE ITS SEALS, WE SUGGEST TURNING TO OUR COMPANY WHERE THE PRODUCT WILL BE OVERHAULED FIRST, AND THEN TESTED.
3. ON REQUEST, OUR COMPANY WILL BE WILLING TO PROVIDE ITS CUSTOMERS WITH KITS AND INSTRUCTIONS.

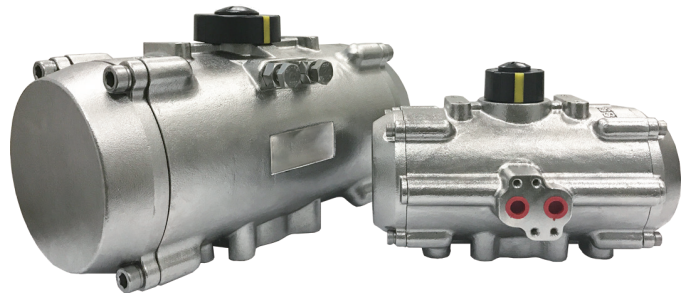
SPECIAL STROKE ACTUATOR

- IT IS AVAILABLE TO OFFER SPECIAL STROKE ACTUATORS BY US, SUCH AS 120°, 130°, 150° AND 180°. THE ACTUATOR WITH STAINLESS STEEL PINION AND PISTONS ARE ALSO AVAILABLE BY US AS OPTION.



STAINLESS STEEL BODY

- TOTALLY STAINLESS STEEL (304 OR 316) ACTUATORS HAVE SUPPLIED BY US SINCE 1998. UP TO NOW, WE HAVE 10 DIFFERENT SIZE (SPECIFICATIONS) ACTUATORS FOR CHOICE. THE OUTPUT TORQUE RANGE VARIES FROM 15 NM TO 3815 NM AT 5 BAR.



SPECIAL COAT

- CARBON STEEL ACTUATOR WITH THREE COATS OF PAINT APPLY TO SEVERE WEATHER, OFFSHORE PLATFORM, CHEMICAL AND PETROLEUM ENVIRONMENTS. THE SIZE IS FROM 75, 92, 105, 125, 140, 160, 190, 210 AND 240.





MANUFACTURER



4MATIC

176 DETROIT ST # 1
CARY IL 60013 USA

business@4matic.com
4matic.com

P: 1 773 856 3555

