

ACTUATORS & CONTROLS

THE PNEUMATIC SOLUTION

NIBCO NDA and NSR Series Rack and Pinion Pneumatic Actuators are specifically designed for quarter-turn applications - Ball, Butterfly, dampers and plug valves. NIBCO Pneumatic Actuators are manufactured in a wide range of output torques to fit the characteristics of the valve application, such as, Commercial/Mechanical Systems (HVAC), Chemical Processing, Pulp and Paper, Petroleum Refining and Production, and Marine.

STANDARD FEATURES

- Durable anodized extruded aluminum body
- Unique 3-point load bearing design for smooth operation
- Twin guide bars on pistons assure optimum engagement between rack and pinion
- One-piece solid steel shaft
- Patented spring design
- Epoxy coated end caps
- ISO5211 Mounting Dimensions
- Namur Mounting for Accessories
- UNC tappings standard on all actuator mounting holes
- "Star" shaped drive connection
- Individually Packaged

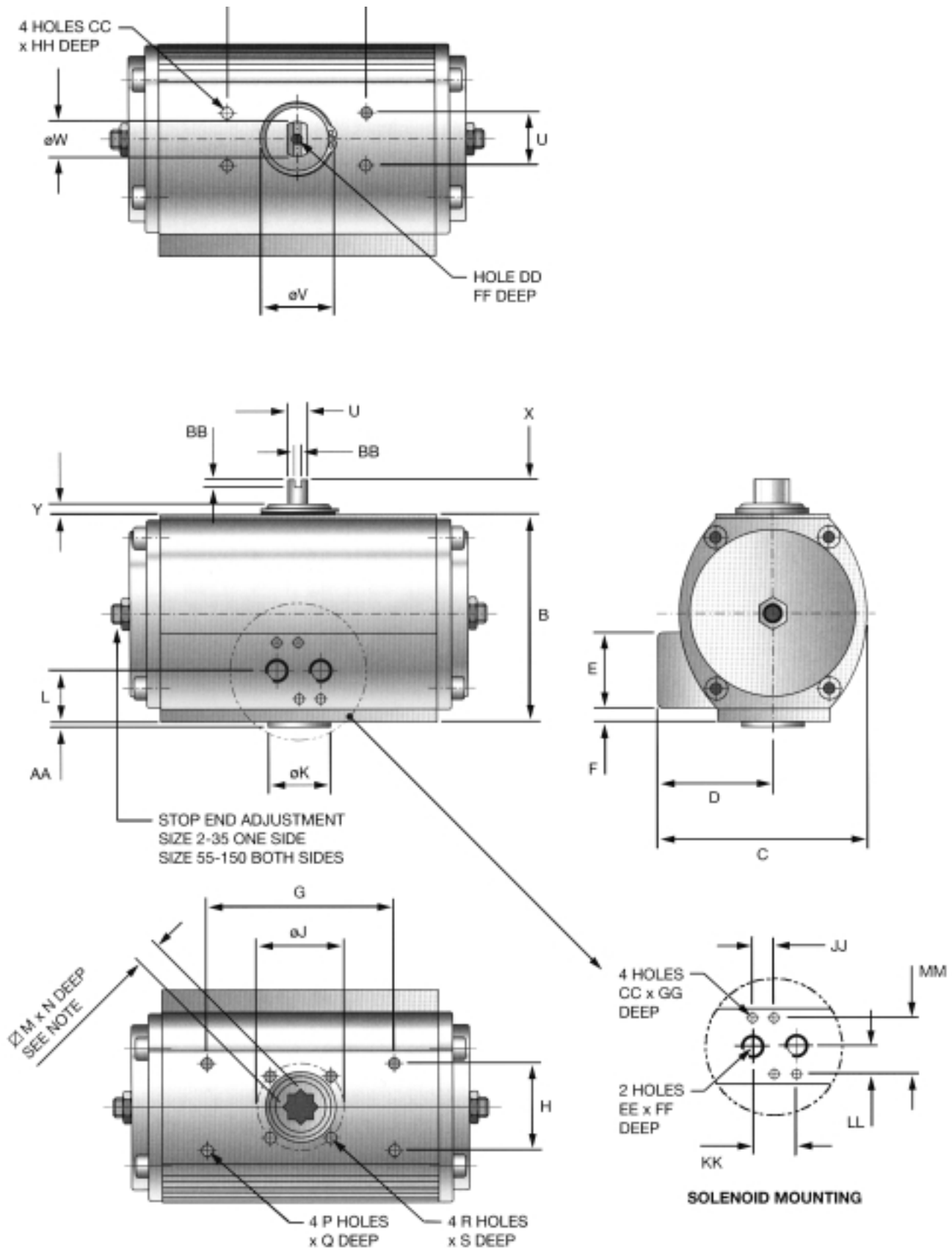
OPTIONAL FEATURES

- CNI (Chemical Nickel Impregnation) Finish
- Unique nickel impregnation of all internal and external surfaces.
- Superior corrosion resistance
- Will not peel crack or flake
- 300 Series Stainless Steel Bolting



Size 2 to 150 Double Acting and Spring Return

SPECIFICATIONS

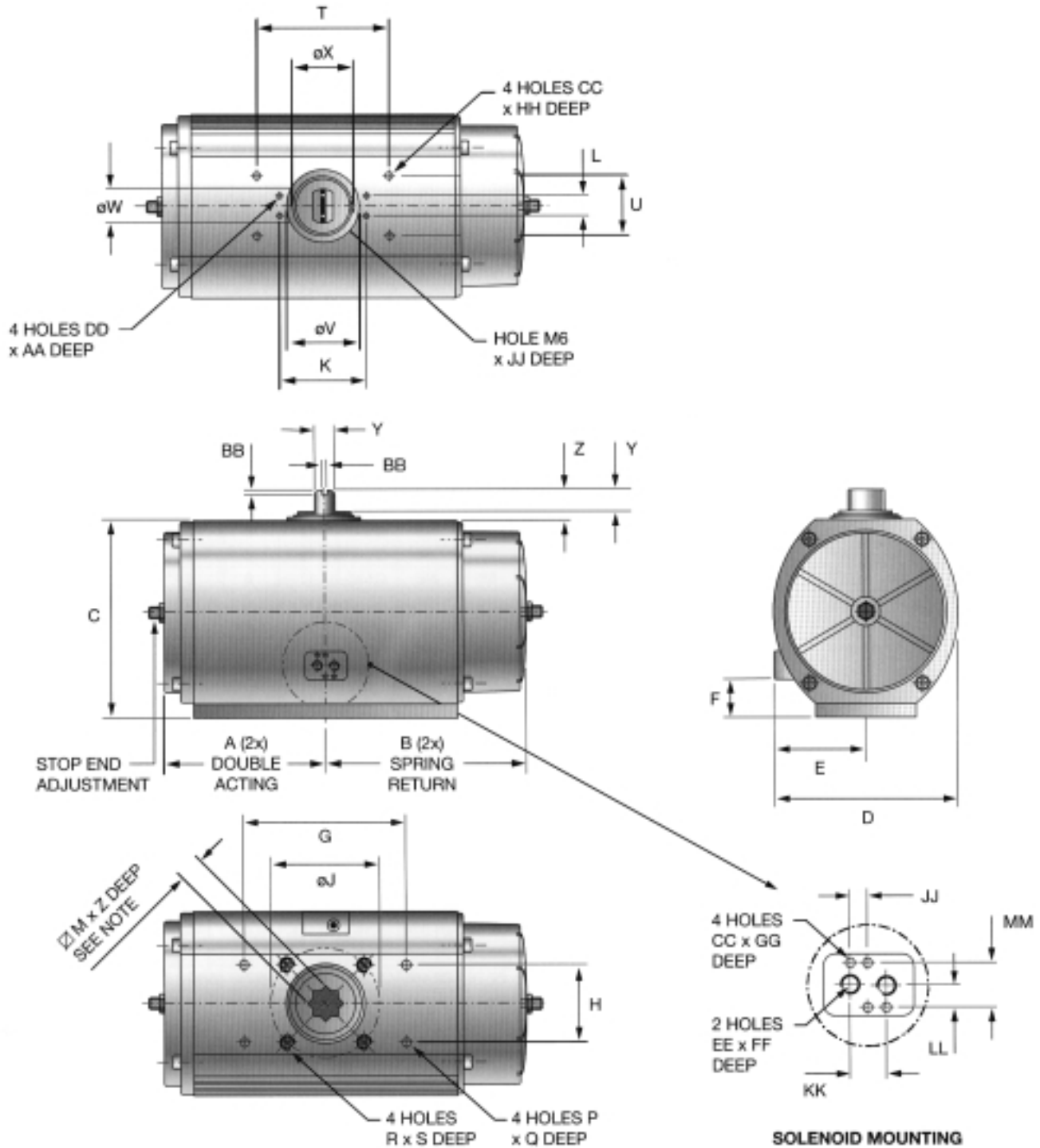


Spring Return Actuator Torque Data									
Model #	Number of Springs	SPRING STROKE Inch lbs.		ACTUATOR AIR STROKE					
		Start	End	40 PSI		60 PSI		80 PSI	
				Start	End	Start	End	Start	End
NSR2F03	1	23	12	72	60	113	102	154	143
	2	46	24	59	38	101	79	142	120
	3	69	36			89	56	130	97
	4	92	48			77	33	118	74
NSR4F04	1	51	28	141	118	225	202	309	286
	2	102	56	113	67	197	151	281	235
	3	153	84			169	100	252	184
	4	204	112			141	49	225	133
NSR8F05	1	96	52	246	203	396	352	545	501
	2	191	104	194	107	343	257	493	406
	3	287	157			291	161	440	310
	4	382	209					388	215
NSR12F07	1	172	76	421	325	669	574	918	822
	2	343	152	345	154	593	402	842	651
	3	515	228			517	230	766	479
	4	687	304					690	307
NSR20F07	1	273	136	683	546	1092	955	1502	1350
	2	547	273	546	272	956	682	1365	1091
	3	820	409			820	408	1229	818
	4	1094	545					1093	544
NSR35F10	1	414	250	1268	1104	2026	1862	2785	2621
	2	828	500	1018	690	1776	1448	2535	2207
	3	1242	750			1526	1034	2285	1793
	4	1656	1000			1276	620	2035	1379
NSR55F12	1	761	387	1984	1610	3170	2796	4355	3981
	2	1522	774	1597	849	2783	2035	3968	3220
	3	2283	1161			2396	1274	3581	2459
	4	3044	1548			2009	513	3194	1698
NSR70F12	1	1115	528	2817	2229	4489	3902	6161	5574
	2	2230	1055	2289	1114	3962	2786	5634	4459
	3	3346	1583			3434	1671	5106	3343
	4	4461	2110			2907	556	4579	2228
NSR100F14	1	1185	772	3781	3368	6057	5644	8333	7920
	2	2370	1544	3009	2183	5285	4459	7561	6735
	3	3555	2316			4513	3274	6789	5550
	4	4740	3088			3741	2089	6017	4365
NSR150F14	1	2055	1486	5227	4658	8583	8014	11939	11370
	2	4110	2972	3741	2603	7097	5959	10453	9315
	3	6165	4458			5611	3904	8967	7290
	4	8220	5944			4125	1849	7481	5205
NSR250F16	2	2764	1788	8952	7976	14322	13346	19692	18716
	4	5528	3576	7164	5212	12534	10582	17904	15952
	6	8292	5364	5376	2448	10746	7818	16116	13188
	8	11056	7152			8958	5054	14328	10424
	10	13820	8940					12540	7660
	12	16584	10728					10752	4896
NSR400F25	3	12887	8355	11130	6598	20873	16341	30616	26084
	6	16109	10444			18784	13119	28527	22862
	9	19331	12533			16695	9898	26438	19640
	12	22552	14622					24349	16419
	14	24163	15666					23305	14808
	16	25774	16711					22260	13197

Spring Return actuators are supplied for 80 psi air supply unless otherwise specified.
 Spring Return actuators are supplied in the fail closed position unless otherwise specified.

Size 250 Double Acting and Spring Return

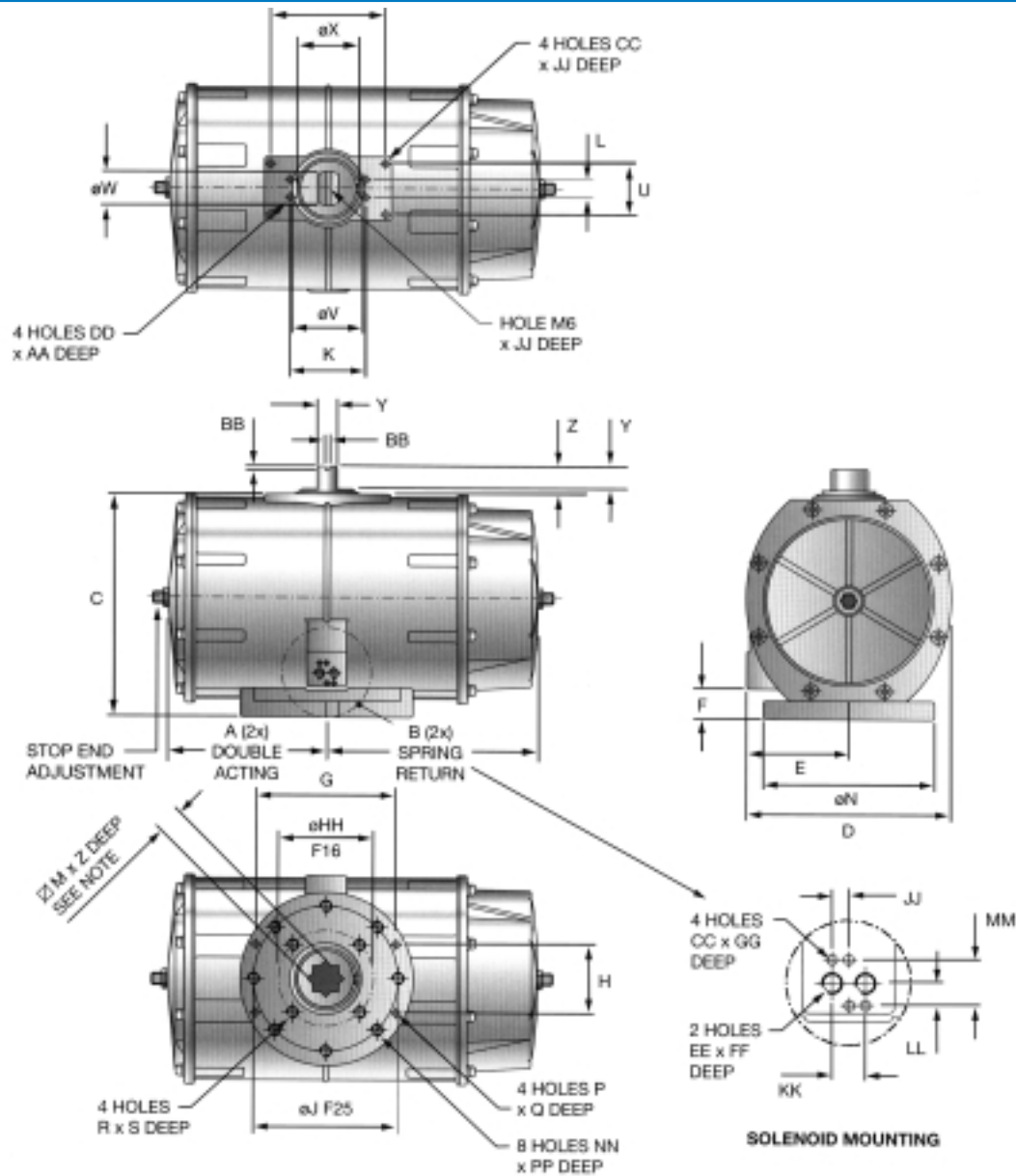
SPECIFICATIONS



Dimensions/Weight Table - Pounds and Inches

A	B	C	D	E	F	G	H	fiJ	K	L	∠M	P(UNC)	Q	R(UNC)	S	T
9.8	13.3	11.81	11.02	5.51	2.20	9.61	4.61	6.50	5.12	1.18	1.81	1/2-13	0.86	3/4-10	1.25	7.87
U	fiV	fiW	fiX	Y	Z	AA	BB	CC(UNC)	DD	EE	FF	GG	JJ	KK	LL	MM
3.54	4.72	2.36	4.37	1.42	1.97	0.25	0.16	5/6-18	10-24	NPT1/4	0.50	0.31	0.47	0.94	0.63	1.26

Size 400 Double Acting and Spring Return



Dimensions/Weight Table - Pounds and Inches

A	B	C	D	E	F	G	H	flJ	K	L	∠M	flN	P(UNC)	Q	R(UNC)	S	T	U	
11.3	14.6	15.16	14.2	7.1	2.1	9.61	4.61	10.0	5.12	1.18	1.81	11.81	1/2-13	0.86	3/4-11	1.38	7.87	3.54	
flV	flW	flX	Y	Z	AA	BB	CC(UNC)	DD	EE	FF	GG	flHH	JJ	KK	LL	MM	NN	PP	QQ
4.72	2.36	4.37	1.57	2.36	0.35	0.16	5/16-18	10-24	NPT1/4	0.50	0.31	6.5	0.47	0.94	0.63	1.26	5/8-11	1.00	1.42

Actuator Data

SPECIFICATIONS

Operation Time (Per Second, 80 psi)

Model and Type	2	4	8	12	20	35	55	70	100	150	250	400
Double Acting (Open & Close)	<1	<1	<1	1.5	2	2.5	3.5	4	4.5	5	7	12
Spring Return (Open)	<1	<1	<1	1.5	2	2.5	3.5	4	5.5	7	8	13
Spring Return (Closed)	<1	<1	<1	1	1.5	2	3	3	3	4	5	10

Air Consumption Ltr/Stroke (CC x 1000)

Model and Type	2	4	8	12	20	35	55	70	100	150	250	400
Port A (To Open)	0.09	0.18	0.34	0.49	0.90	1.69	2.80	3.05	5.52	7.60	8.50	13.60
Port B (To Close)	0.12	0.24	0.41	0.64	1.00	1.90	3.40	3.70	5.90	9.60	9.80	17.5

Actuator Weight (lbs.)

Model and Type	2	4	8	12	20	35	55	70	100	150	250	400
Double Acting (NDA)	2	4	6	9	14	23	40	45	62	89	130	235
Spring Return (NSR)	2	4	7	10	15	26	45	53	72	106	185	297

NDA - Double Acting

Air Port A - Air to Open, Counter Clockwise Rotation

Air Port B - Air to Close, Clockwise Rotation

NSR - Spring Return

Air Port A - Air to Open, Counter Clockwise Rotation (Compresses Springs)

Air Port B - Spring to Close, Clockwise Rotation

Drive Medium

Air (Dry or Lubricated), Non-Corrosive Gas, Light Hydraulic Fluid

Temperature

BUNA (Nitrile) O-ring Seals, -40 to +212 Fahrenheit (Standard)

Viton O-ring Seals, -13 to +482 Fahrenheit (Special Order Only)

WHAT IS CNI?

CNI is Chemical Nickel Impregnation. The CNI process is an Autocatalytic Nickel bath process. It is not an Electroless Nickel Plating. The process does not require electrical current or anodes as in electroplating.

What criteria was used for development?

- Corrosion Resistance
- Wear Resistance
- Hardness
- Lubricity
- Uniformity of deposit
- Non-magnetic properties of phosphorous nickel alloy
- No sparking properties
- Nickel density surface finish average: Ra 10

What is so unique about CNIDA and CNISR Actuators?

The nickel bath process makes it possible to impregnate all internal and external surfaces of the actuator. The uniformity of the deposit thickness is difficult if not impossible to achieve by any other method. Since all surfaces are wetted by the solution the deposit thickness is uniform and controlled to 1 micron.

Technical Certification Available:

Kesternick "Sulphur Dioxide" Test
 ISO 3768 Neutral Salt Spray (600 hrs.)
 SIRA Test and Certification - Frictional Sparking

Double Acting Actuator Torque Data

Model Number	Air Supply PSI			
	40psi	60psi	80psi	100psi
NDA2F03	83	125	166	208
NDA4F04	169	253	337	422
NDA8F05	298	447	597	746
NDA12F07	497	745	994	1,242
NDA20F07	819	1,229	1,638	2,048
NDA35F10	1,518	2,276	3,035	3,794
NDA55F12	2,371	3,557	4,742	5,928
NDA70F12	3,344	5,017	6,689	8,361
NDA100F14	4,554	6,831	9,108	11,385
NDA150F16	6,713	10,070	13,427	16,784
NDA250F16	10,741	16,111	21,481	26,852
NDA400F25	19,482	29,228	38,971	48,714

Torque = inch pounds

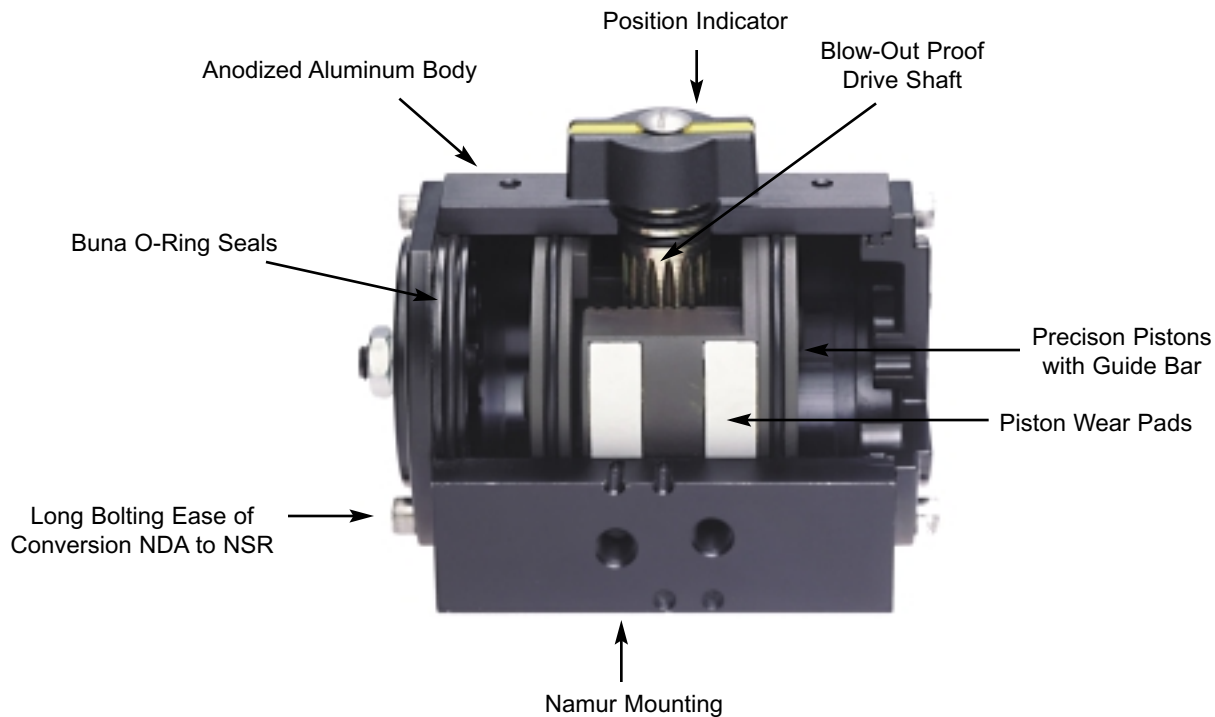
Torque is the effective rotary power required by a valve or delivered by an actuator (normally stated in inch pounds or foot pounds.)

Size 2-150 Double Acting and Spring Return

Dimensions/Weight Table - Pounds and Inches

SIZE	A	B	C	D	E	F	G	H	flJ	flK	L	±M	N min	P(UNC)	Q	R(UNC)	S	T
2 F03	4.51	2.87	2.97	1.71	1.61		2.87	1.26	1.42	0.984	0.81	0.354	0.39	10-24	0.31	10-24	0.31	3.15
4 F04	5.24	3.56	3.44	1.87	1.61		2.87	1.26	1.65	1.181	0.81	0.433	0.47	10-24	0.31	10-24	0.31	3.15
8 F05	6.38	4.29	4.13	2.24	1.65	0.30	2.87	1.26	1.97	1.378	1.12	0.551	0.63	1/4-20	0.39	1/4-20	0.39	3.15
12 F07	7.64	4.67	4.76	2.64	1.69	0.31	4.21	1.93	2.76	2.165	1.16	0.669	0.75	1/4-20	0.39	5/16-18	0.47	3.15
20 F07	8.58	5.53	5.37	2.83	1.69	0.31	4.21	1.93	2.76	2.165	1.16	0.669	0.75	5/16-18	0.39	5/16-18	0.51	3.15
35 F10	10.47	6.56	6.14	3.07	1.69	0.33	6.34	2.87	4.02	2.765	1.18	0.886	0.94	5/16-18	0.47	3/8-16	0.63	3.15
55 F12	12.28	8.17	7.52	3.76	1.69	0.81	6.34	2.87	4.92	3.346	1.65	1.063	1.14	5/16-18	0.59	1/2-13	0.79	5.12
70 F12	13.39	8.17	7.52	3.76	1.69	0.81	8.39	4.02	4.92	3.346	1.65	1.063	1.14	5/16-18	0.47	1/2-13	0.79	5.12
100 F14	14.21	9.84	8.94	4.47	1.69	1.56	8.39	4.02	5.51	3.937	2.40	1.417	1.50	3/8-16	0.59	5/8-11	0.98	5.12
150 F14	15.35	11.81	11.02	5.51	1.69	2.22	9.61	4.61	5.51	3.937	3.07	1.417	1.50	1/2-13	0.87	5/8-11	0.98	5.12

SIZE	U	flV	flW	X	Y	Z	AA	BB	CC(UNC)	DD	EE	FF	GG	HH	JJ	KK	LL	MM
2 F03	1.18	0.98	0.63	0.79	0.18	0.45	0.08	0.16	10-24	M6	NPT1/8	0.50	0.31	0.20	0.47	0.94	0.63	1.26
4 F04	1.18	1.22	0.79	0.79	0.18	0.45	0.08	0.16	10-24	M6	NPT1/8	0.50	0.31	0.20	0.47	0.94	0.63	1.26
8 F05	1.18	1.38	0.79	0.79	0.20	0.45	0.12	0.16	10-24	M6	NPT1/8	0.50	0.31	0.20	0.47	0.94	0.63	1.26
12 F07	1.18	1.81	0.79	0.79	0.22	0.45	0.12	0.16	10-24	M6	NPT1/4	0.50	0.31	0.20	0.47	0.94	0.63	1.26
20 F07	1.18	1.97	1.26	0.79	0.26	0.75	0.12	0.16	10-24	M6	NPT1/4	0.50	0.31	0.20	0.47	0.94	0.63	1.26
35 F10	1.18	2.40	1.26	0.79	0.28	0.75	0.12	0.16	10-24	M6	NPT1/4	0.50	0.31	0.20	0.47	0.94	0.63	1.26
55 F12	1.18	2.40	1.57	1.18	0.30	1.00	0.12	0.16	10-24	M6	NPT1/4	0.50	0.31	0.20	0.47	0.94	0.63	1.26
70 F12	1.18	2.83	1.57	1.18	0.28	1.00	0.12	0.16	10-24	M6	NPT1/4	0.50	0.31	0.20	0.47	0.94	0.63	1.26
100 F14	1.18	3.07	1.57	1.18	0.28	1.00	0.16	0.16	10-24	M6	NPT1/4	0.50	0.31	0.20	0.47	0.94	0.63	1.26
150 F14	1.18	3.07	1.57	1.18	0.25	1.00	0.16	0.16	10-24	M6	NPT1/4	0.50	0.31	0.20	0.47	0.94	0.63	1.26

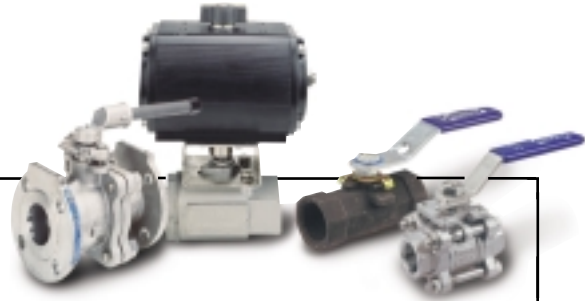


NIBCO. Single Source. Multiple Solutions.™



Butterfly Valves

- Full rated dead end service (no blind flange required)
- Durable ductile iron body - High tensile and yield strength
- Geometric stem/disc connection - no pins or bolts in waterway
- Threaded double seal stem collar bushing - blow-out proof stem design
- Complies with all primary industry specification requirements - MSS SP-67, API 609
- Economy line of cast iron body butterfly valves



Carbon & Stainless Ball Valves

- NIBCO's 1, 2, & 3-piece valves and flanged ball valves provide exceptional performance and value for industrial and general service applications
- Standard integral mounting pads for pneumatic or electric actuation
- Multiple handle configurations - locking lever, oval and oval locking handles for safety requirements
- Complies with all primary industry specification requirements - MSS SP-110, MSS SP-72, API 607 4th edition, API 598, ANSI/ASME B16.34
- 3-piece carbon and stainless ball valves available with threaded or socket weld ends
- Flange ball valves in ANSI Class 150, 300 and 600, Unibody or Split body full port design

NIBCO
AHEAD OF THE FLOW™

NIBCO INC.

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