

GEBCO 2™

Series Actuation



George E. Booth Co., Inc.

Engineered Products for Process Measurement and Control

www.gebooth.com

Quality *FREE* with every order!

When my father, George E. Booth established the George E. Booth Co., Inc. in 1963, he built his business on basic fundamentals - honesty and integrity. Today the solid foundation he laid remains as strong as it did years ago. In fact, it permeates the entire organization.

As your business expands and evolves, we want to grow and adapt with you. A family-owned company, George E. Booth Co., Inc. goes beyond typical customer care. We treat you like family - your problems are our problems. We go the extra mile to work with you to find customized, strategic solutions. Whether you're maintaining day-to-day operations or planning a project, we can help.

As one of the largest Midwest distributors, our highly trained and experienced staff utilizes state-of-the-art technology to offer you quality products and diversified services that are geared to your specific needs. Our organization will give you the support and satisfaction you deserve.



George E. Booth, Jr.
President, GEORGE E. BOOTH CO., INC.

Our People

- **Our Customer Service** group represents over 160 years of combined technical experience with **multiple engineering degrees** offering the credibility and reliability you can trust.
- **We're near you** - our **local**, multi-product experienced, technically competent outside sales representatives are in your facilities when you need us, not just when our schedule permits.
- **Small geographical territories** allow accessibility to both inside and outside representatives, maintenance and purchasing personnel.
- **We're available** - via email, phone or fax to assist you with requests for quotes, order placement, order tracking, product warranty and maintenance issues.
- **We're up-to-date** - our Sales Engineers receive continuing education to stay up-to-date with current technologies, application and process techniques - we speak your language.

Our Operations

- **99% order accuracy rating** in two stocking locations means you can trust us to process and ship your order on time, every time - usually the same day.
- **ISO 9001:2008 certified (IN/KY offices)**
- As a recipient of the **State of Indiana Quality Improvement Award**, we manage the details for you - and do it right the first time.
- **Expansive warehouse inventory** located in Indianapolis, IN and Calvert City, KY allows us to meet your needs quickly, providing shorter lead times and quicker delivery at a competitive price.
- **We're competent** to assist you in complying with the rigorous standards and regulations of the Life Sciences, Food and Beverage, Chemical and Specialized Process Industries, and provide required documentation to support our supply chain.
- **Full-time order expeditor** - We are the only process control company in our market areas that utilizes a full-time employee, working in concert with our suppliers to ensure you get the right product - **on time**.
- **Quality "free" with every order** - Quality doesn't stop after your order is delivered. Should you need order history, warranty information or simply need additional copies of documentation to submit for certification, our full-time on-site document manager is available to assist you.

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Capabilities

Valve assembly

Solenoids

Custom mounting brackets

Lock outs

Limit switches

Positioners

Valves (ball, butterfly, control, and more)

Custom tags/labels

Call
George E. Booth Co., Inc.
800-442-6684



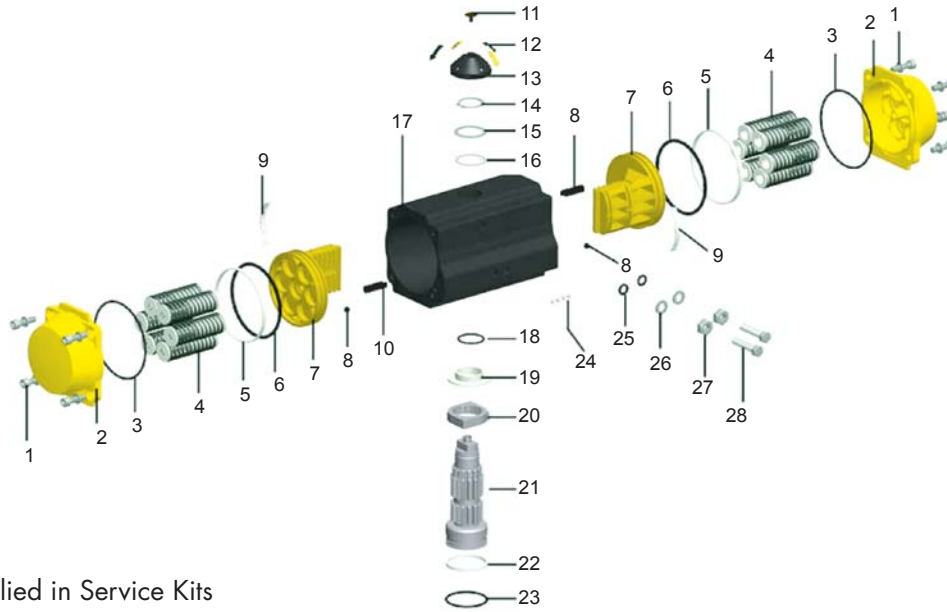
George E. Booth Co., Inc.

GEBCO 2™ Pneumatic Actuator



- Rack & pinion design
- The standard actuator configuration has hard anodized aluminum body and epoxy coated end caps
- Inside surface finish (Ra 0.4-0.6µm) to minimize friction and to maximize the life of the actuator.
- Standard applications for temperature ranges from -4°F to +180°F.
- Special options for extreme temperatures (upon request).
Low Temperature Actuator -40°F to 80°F
High Temperature Actuator +5°F to 300°F
- Piston bearing made of material with low friction coefficient to avoid metal on metal contact, easily replaceable for maintenance.
- Base drilling, for valve mounting, and centering, according to ISO 5211/DIN 3337 standards.
- The indicator is designed to remain on the actuator for continuous indication when limit switch is not being used. (Not available on GEBCO 2 032)
- Independent bidirectional travel stop adjustment +/- 5° ensuring precise positioning in all flow control services. (Not available on GEBCO 2 032)
- Direct mounted solenoid connections according to NAMUR standards.
- Same body and end caps for double acting and spring return.
- Air supply can be dry or lubricated filter compressed air. Pressure: 40 PSI to 120 PSI
- The lubrication carried out by the manufacturer qualifies for a minimum 1,000,000 operations.
- Epoxy coating is a deposit of powders on clean sandblasted pieces. The chemical process is easily kept under control and after coating, the pieces must be subjected to heat treatment. Epoxy painting of actuators is advised where environment is strongly aggressive. With the exception of certain solvents, epoxy coatings resist acids and alkali, and also has a good resistance to UV rays. In order to retain its properties, the coating must not be scratched.
- Multi-function position indicator with NAMUR slot to allow visual position indicator.
- The **GEBCO 2™** features inserts to allow easy conversion to many square and diamond stems. There are also double D inserts along with round bores with keyway inserts for the same actuators for butterfly applications. The pinion is drilled deeper than standard actuators. The **GEBCO 2™** series has mounting plates for the transition of the bolt circles of the actuator to be used with other industry standards for butterfly valves.
- For conditions or applications that demand the most from equipment, we offer our **GEBCO 2™** with chemical nickel plating. These actuators are designed to be a cost effective option in comparison to stainless steel actuators. The nickel plating is done through chemical impregnation to provide uniform coverage and protection. The bath is a mixture of nickel and phosphorous to provide excellent qualities in: hardness, wear resistance, appearance and its inherent ability to withstand many wash down applications that actuators with standard finishes cannot.

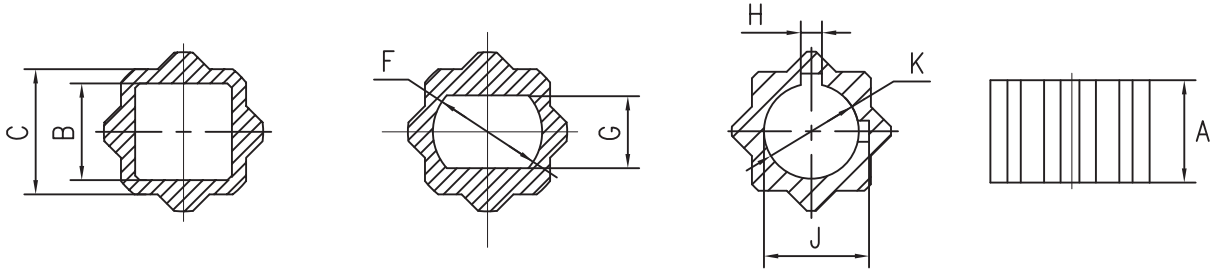
GEBCO 2™ Material List



* Parts Typically Supplied in Service Kits

Part No.	Qty	Part Description	Materials	Surface Treated	Optional Material
1	8	End Cap Bolts	Stainless Steel 304		
2	2	End Cap	Aluminum 380 Die-Casting Alloy	Hard Anodized & Polyester Coated	CF8/CF8M
3*	2	O-Ring (End Cap)	NBR Rubber		Viton/Silicone
4	5-12	Spring (Cartridge)	High Alloy Spring Steel	Polyester Coated	
5*	2	Bearing	Polyacetal		CF8/CF8M
6*	2	O-Ring (Pinion)**	NBR Rubber		Viton/Silicone
7	2	Piston	380 Die-Casting	Hard Anodized	
8*	2	Plug	NBR Rubber		Viton/Silicone
9*	2	Bearing (Piston Back)	Nylon		
10*	2	Piston Guide	Nylon		
11	2	Indicator Bolt	ABS		
12	4	Indicator Arrowhead	ABS		
13	2	Pinion Indicator	ABS		
14	2	Snap Ring	Stainless Steel 304		
15	1	Thrust Washer (Pinion)	Stainless Steel 304		
16*	1	Thrust Washer (Pinion)	Polyacetal		
17	1	Body	Aluminum 6063-T6	Hard Anodized & Polyester Coated	CF8/CF8M
18*	1	O-Ring (Pinion)**	NBR Rubber		Viton/Silicone
19*	1	Bearing (Pinion Top)	Polyacetal		
20	1	Stroke Adjustment Stop	C45 Steel	Nickel Plated	CF8/CF8M
21	1	Pinion	Alloy Steel	Nickel Plated	SUS304/SUS316
22*	1	Bearing (Pinion Bottom)	Polyacetal		
23*	1	O-Ring (Pinion Bottom)	NBR Rubber		Viton/Silicone
24*	2	Exhaust Plug	PVC		
25*	2	O-Ring (Stop Nut)	NBR Rubber		Viton/Silicone
26	2	Washer	Stainless Steel 304		
27	2	Stop Nut	Stainless Steel 304		
28	2	Stop Bolts	Stainless Steel 304		

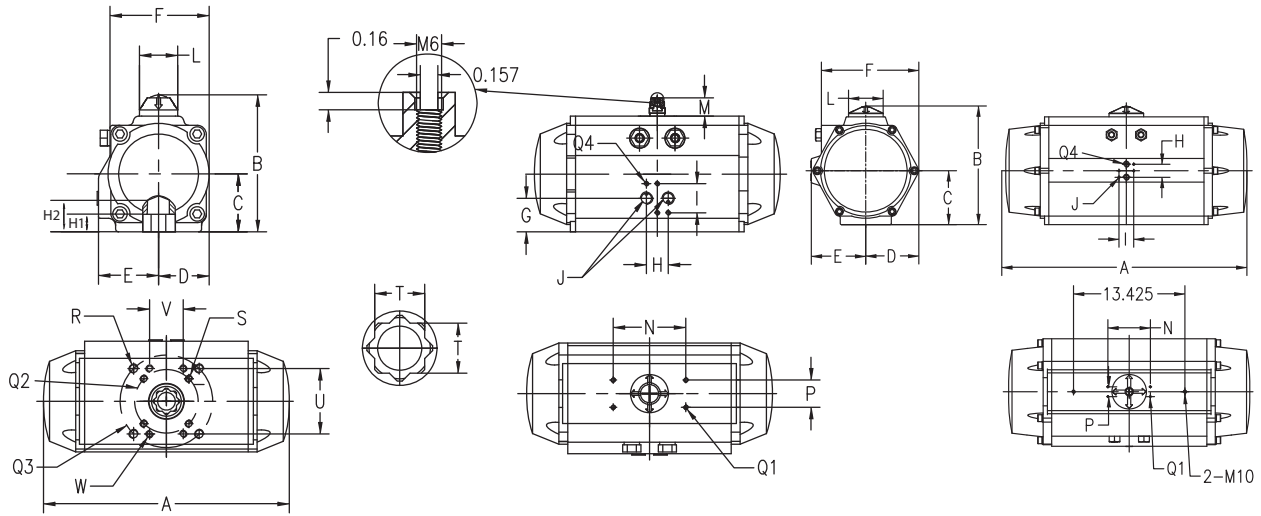
GEBCO 2™ Inserts Dimensions



Model	Insert Code	Insert Shape	Unit	Insert Size	A	B	C	F	G	H	J	K
050	A	Square	in	0.354	0.472	0.354	0.669					
			mm	9	12	9	17					
	B*	Square	in	0.433	0.472	0.433	0.669					
			mm	11	12	11	17					
C	Square	in	0.551	0.472	0.551	0.669						
		mm	14	12	14	17						
G	Flat	in	0.378	0.472	-	0.669	0.567	0.378				
		mm	10	12	-	17	14	10				
063	A	Square	in	0.354	0.630	0.354	0.669					
			mm	9	16	9	17					
	B*	Square	in	0.433	0.630	0.433	0.669					
			mm	11	16	11	17					
C	Square	in	0.551	0.630	0.551	0.669						
		mm	14	16	14	17						
G	Flat	in	0.378	0.630	-	0.669	0.567	0.378				
		mm	10	16	-	17	14	10				
075 & 085	A	Square	in	0.354	0.709	0.354	0.866					
			mm	9	18	9	22					
	B	Square	in	0.433	0.709	0.433	0.866					
			mm	11	18	11	22					
	C*	Square	in	0.551	0.709	0.551	0.866					
			mm	14	18	14	22					
	D	Square	in	0.669	0.709	0.669	0.866					
mm			17	18	17	22						
G	Flat	in	0.378	0.709	-	0.866	0.567	0.378				
		mm	10	18	-	22	14	10				
H	Flat	in	0.441	0.709	-	0.866	0.63	0.441				
		mm	11	18	-	22	16	11				
I	Flat	in	0.503	0.709	-	0.866	0.756	0.503				
		mm	13	18	-	22	19	13				
100 & 115	B	Square	in	0.433	0.906	0.433	0.866					
			mm	11	23	11	22					
	C	Square	in	0.551	0.906	0.551	0.866					
			mm	14	23	14	22					
	D*	Square	in	0.669	0.906	0.669	0.866					
			mm	17	23	17	22					
G	Flat	in	0.378	0.906	-	0.866	0.567	0.378				
		mm	10	23	-	22	14	10				
H	Flat	in	0.441	0.906	-	0.866	0.63	0.441				
		mm	11	23	-	22	16	11				
I	Flat	in	0.503	0.906	-	0.866	0.756	0.503				
		mm	13	23	-	22	19	13				
125, 145 & 160	C	Square	in	0.551	1.142	0.551	1.417					
			mm	14	29	14	36					
	D	Square	in	0.669	1.142	0.669	1.417					
			mm	17	29	17	36					
	E	Square	in	0.866	1.142	0.866	1.417					
			mm	22	29	22	36					
	F	Square	in	1.063	1.142	1.063	1.417					
			mm	27	29	27	36					
	G	Flat	in	0.378	1.142	-	1.417	0.563	0.378			
			mm	10	29	-	36	14	10			
H	Flat	in	0.441	1.142	-	1.417	0.63	0.441				
		mm	11	29	-	36	16	11				
I	Flat	in	0.503	1.142	-	1.417	0.756	0.503				
		mm	13	29	-	36	19	13				
J	Flat	in	0.628	1.142	-	1.417	0.882	0.628				
		mm	16	29	-	36	22	16				
K	Round	in	1.130	1.142	-	1.417			0.252	1.252	1.13	
		mm	29	29	-	36			6	32	29	
180 & 200	E	Square	in	0.866	1.654	0.866	1.417					
			mm	22	42	22	36					
	F*	Square	in	1.063	1.654	1.063	1.417					
			mm	27	42	27	36					
J	Flat	in	0.628	1.654	-	1.417	0.882	0.628				
		mm	16	42	-	36	22	16				
K	Round	in	1.130	1.654	-	1.417			0.252	1.252	1.13	
		mm	29	42	-	36			6	32	29	

* STANDARD INSERT

GEBCO 2™ Dimensions



Model	Unit	A	B	C	D	E	F	G	H	H1	H2	I	J	L
032	in	4.61	1.77	.88	.88	.88	1.77	.88	0.94	.39	-	1.25	1/8"	1.4
	mm	117	45	22	22	22	45	22	24	10		32		36
050	in	5.8	3.62	1.35	1.12	1.61	2.28	1.02	0.94	0.47	1.26	1.26	1/4"	1.65
	mm	147	92	34	28	41	58	26	24	12	32	32		42
063	in	6.26	4.25	1.67	1.42	1.14	2.83	1.18	0.94	0.63	1.34	1.26	1/4"	1.65
	mm	159	108	42	36	29	72	30	24	16	34	32		42
075	in	8.39	4.92	2.01	1.71	2.07	3.39	1.03	0.94	0.75	1.34	1.26	1/4"	1.65
	mm	213	125	51	43	53	86	26	24	19	34	32		42
085	in	9.8	5.43	2.27	1.91	2.22	3.8	1.26	0.94	0.75	1.34	1.26	1/4"	1.65
	mm	249	138	58	49	56	97	32	24	19	34	32		42
100	in	10.67	5.94	2.5	2.2	2.6	4.17	1.46	0.94	0.91	1.89	1.26	1/4"	1.65
	mm	271	151	64	56	66	106	37	24	23	48	32		42
115	in	12.40	6.89	2.85	2.52	3.03	5.00	1.67	0.94	0.91	1.89	1.26	1/4"	2.6
	mm	315	175	72	64	77	127	42	24	23	48	32		66
125	in	13.62	7.48	3.09	2.72	3.23	5.12	1.8	0.94	1.14	2.56	1.26	1/4"	2.6
	mm	346	190	78	69	82	130	46	24	29	65	32		66
145	in	16.22	8.25	3.46	3.15	3.54	5.85	2.17	0.94	1.14	2.56	1.26	1/4"	2.6
	mm	412	210	88	80	90	149	55	24	29	65	32		66
160	in	17.44	9.06	3.88	3.46	3.87	6.28	2.04	0.94	1.14	2.56	1.26	1/4"	2.6
	mm	443	230	99	88	98	160	52	24	29	65	32		66
180	in	19.37	9.96	4.29	3.88	4.15	7.07	2.37	0.94	1.65	3.62	1.26	1/4"	3.15
	mm	492	253	109	99	105	180	60	24	42	92	32		80
200	in	21.54	10.91	4.8	4.29	4.41	7.64	2.6	0.94	1.65	3.62	1.26	1/4"	3.15
	mm	547	277	122	109	112	194	66	24	42	92	32		80
240	in	24.17	13.7	5.75	5.14	5.16	9.09	2.76	1.57	1.97	3.27	1.77	3/8"	3.15
	mm	614	348	146	131	131	231	70	40	50	92	45		80
265	in	28.7	15.31	6.57	5.79	5.78	9.99	3.54	1.57	1.97	3.27	1.77	3/8"	3.15
	mm	729	389	167	147	147	254	90	40	50	92	45		80
300	in	33.03	16.14	6.99	6.38	6.81	11.42	3.35	1.57	1.97	3.27	1.77	1/2"	3.15
	mm	839	410	178	162	173	290	85	40	50	92	45		80

Model	Unit	M	N	P	Q1	Q2	Q3	Q4	R	S	T	U	V	W
032	in	0.79	1.97	1.18	M5	F03	-	M5	-	-	0.35	-	-	-
	mm	20	50	30							9			
050	in	0.79	3.15	1.18	M5	F04	-	M5	-	M5	0.67	-	-	-
	mm	20	80	30							17			
063	in	0.79	3.15	1.18	M5	F05	-	M5	-	M6	0.67	-	-	-
	mm	20	80	30							17			
075	in	0.79	3.15	1.18	M5	F05	F07	M5	M8	M6	0.87	-	-	-
	mm	20	80	30							22			
085	in	0.79	3.15	1.18	M5	F05	F07	M5	M8	M6	0.87	-	-	-
	mm	20	80	30							22			
100	in	0.79	3.15	1.18	M5	F07	F10	M5	M10	M8	0.87	2.83	1.46	M8
	mm	20	80	30							22	72	37	
115	in	1.18	3.15	1.18	M5	F10	F10	M5	-	M10	0.87	-	-	M8
	mm	30	80	30							22			
125	in	1.18	3.15	1.18	M5	F10	-	M5	-	M10	1.42	2.83	1.46	M8
	mm	30	80	30							36	72	37	
145	in	1.18	3.15	1.18	M5	F10	F12	M5	M12	M10	1.42	2.83	1.46	M8
	mm	30	80	30							36	72	37	
160	in	1.18	3.15	1.18	M5	F10	F12	M5	M12	M10	1.42	2.83	1.46	M8
	mm	30	80	30							36	72	37	
180	in	1.18	5.12	1.18	M5	F10	F14	M5	M16	M10	1.42	3.9	2.09	M10
	mm	30	130	30							36	99	53	
200	in	1.18	5.12	1.18	M5	F10	F14	M5	M16	M10	1.42	3.9	2.09	M10
	mm	30	130	30							36	99	53	
240	in	1.97	5.12	1.18	M5	F12	F16	M6	M20	M12	1.81	-	-	-
	mm	50	130	30							46			
265	in	1.97	5.12	1.18	M5	-	F16	M6	M20	-	1.81	-	-	-
	mm	50	130	30							46			
300	in	1.97	5.12	1.18	M5	-	F16	M6	M20	-	1.81	-	-	-
	mm	50	130	30							46			

GEBCO 2™ Spring Return Torques

Torque rating: in-lbs

Model	Spring Quantity	Air Supply														Spring Return	
		40 PSI		60 PSI		70 PSI		80 PSI		90 PSI		100 PSI		120 PSI			
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
050	05	51	36	93	78	111	96	133	118	159	144	179	164	221	206	45	27
	06	44	28	86	70	104	88	126	110	152	135	172	156	214	198	50	34
	07	38	19	80	61	98	79	120	101	146	127	166	147	208	189	59	40
	08			73	51	91	69	113	91	139	117	159	137	201	179	69	47
	09			67	43	85	61	107	83	133	109	153	129	195	171	77	53
	10					79	53	101	75	127	101	147	121	189	163	85	59
	11					72	43	94	65	120	91	140	111	182	153	95	66
	12					65	34	87	56	113	82	133	102	175	144	104	73
063	05	96	70	166	140	200	174	236	210	272	246	308	282	376	350	76	50
	06	86	54	156	124	190	158	226	194	262	230	298	266	366	334	92	60
	07	76	38	146	108	180	142	216	178	252	214	288	250	356	318	108	70
	08			135	94	169	128	205	164	241	200	277	236	345	304	122	81
	09			125	78	159	112	195	148	231	184	267	220	335	288	138	91
	10			114	62	148	96	184	132	220	168	256	204	324	272	154	102
	11					138	80	174	116	210	152	246	188	314	256	170	112
	12					129	65	165	101	201	137	237	173	305	241	185	121
075	05	174	117	316	259	386	329	456	399	546	489	612	555	742	685	159	102
	06	157	86	299	228	369	298	439	368	529	458	595	524	725	654	190	119
	07	137	55	279	197	349	267	419	337	509	427	575	493	705	623	221	139
	08			259	166	329	236	399	306	489	396	555	462	685	592	252	159
	09			240	135	310	205	380	275	470	365	536	431	666	561	283	178
	10			221	104	291	174	361	244	451	334	517	400	647	530	314	197
	11			201	73	271	143	341	213	431	303	497	369	627	499	345	217
	12					251	112	322	212	412	292	478	358	608	468	376	236
085	05	271	171	478	378	534	434	702	602	810	710	932	832	1154	1054	266	166
	06	238	120	445	327	501	383	669	551	777	659	899	781	1121	1003	317	199
	07	205	69	412	276	468	332	636	500	744	608	866	730	1088	952	368	232
	08			380	224	436	280	604	448	712	556	834	678	1056	900	420	264
	09			348	173	404	229	572	397	680	505	802	627	1024	849	471	296
	10			316	122	372	178	540	346	648	454	770	576	992	798	522	328
	11					339	126	507	294	615	402	737	524	959	746	574	361
	12					306	75	474	243	582	351	704	473	926	695	625	394
100	05	413	290	753	630	903	780	1050	927	1217	1094	1385	1262	1683	1560	345	222
	06	368	220	708	560	858	710	1005	857	1172	1024	1340	1192	1638	1490	415	267
	07	323	150	663	490	813	640	960	787	1127	954	1295	1122	1593	1420	485	312
	08			617	420	767	570	914	717	1081	884	1249	1052	1547	1350	555	358
	09			572	350	722	500	869	647	1036	814	1204	982	1502	1280	625	403
	10			528	281	678	431	825	578	992	745	1160	913	1458	1211	694	447
	11			483	211	633	361	780	508	947	675	1115	843	1413	1141	764	492
	12			437	141	587	291	734	438	901	605	1069	773	1367	1071	834	538
115	05	687	470	1211	994	1474	1257	1736	1519	1998	1781	2260	2044	2670	2410	580	363
	06	614	354	1139	878	1401	1141	1663	1403	1926	1665	2188	1928	2592	2291	969	435
	07	541	238	1066	762	1328	1025	1591	1287	1853	1549	2115	1812	2525	2153	812	508
	08			993	646	1256	909	1518	1171	1780	1433	2043	1696	2451	2038	928	581
	09			921	530	1183	793	1446	1055	1708	1317	1970	1580	2387	1942	1044	653
	10			848	414	1111	677	1373	939	1635	1201	1898	1464	2235	1724	1160	726
	11					1038	560	1300	823	1563	1085	1825	1348	2318	1840	1276	798
	12					965	444	1228	707	1490	969	1753	1232	2245	1724	1392	871
125	05	850	584	1539	1273	1919	1653	2277	2011	2557	2291	2967	2701	3650	3384	717	451
	06	757	434	1446	1123	1826	1503	2184	1861	2464	2141	2874	2551	3557	3234	867	544
	07	664	292	1353	981	1733	1361	2091	1719	2371	1999	2781	2409	3464	3092	1009	637
	08			1255	831	1635	1211	1993	1569	2273	1849	2683	2259	3366	2942	1159	735
	09			1162	680	1542	1060	1900	1418	2180	1698	2590	2108	3273	2791	1310	828
	10			1070	530	1450	910	1808	1268	2088	1548	2498	1954	3181	2641	1460	920
	11			977	388	1357	768	1715	1126	1995	1406	2405	1816	3088	2499	1602	1013
	12			879	238	1259	618	1617	976	1897	1256	2307	1666	2990	2349	1752	1111

GEBCO 2™ Double Acting Torques and Technical Information

Torque rating: in-lbs

GEBCO 2™ Double Acting Torque Ratings							
Model	40 PSI	60 PSI	70 PSI	80 PSI	90 PSI	100 PSI	120 PSI
032	38	45	53	61	69	76	84
050	78	120	138	160	186	206	248
063	146	216	250	286	322	358	426
075	276	418	488	558	648	714	844
085	437	644	700	868	946	1098	1320
100	635	975	1125	1272	1439	1607	1905
115	1049	1574	1836	2099	2361	2623	3116
125	1301	1990	2370	2728	3008	3418	4101
145	1970	3150	3690	4202	4700	5343	6305
160	2832	4159	4867	5575	6195	6903	8145
180	3665	5553	6650	7460	8480	9175	10710
200	5091	7712	9010	10480	11570	12881	15203
240	8720	13081	15268	17445	19639	21816	25478
265	12667	18987	22165	25321	28497	31655	36907
300	17872	26785	31469	35728	40182	44650	53569

GEBCO 2™ Air Consumption and Weights															
	Unit	050	063	075	085	100	115	125	145	160	180	200	240	265	300
Body Diameter	in	1.97	2.48	2.95	3.46	3.94	4.53	4.92	5.71	6.3	7.09	7.87	9.45	10.43	11.81
	mm	50	63	75	88	100	115	125	145	160	180	200	240	265	300
Air Consumption Per Stroke Actual in ³	CCW	4.9	9.2	18.3	30.5	45.8	72.6	94.6	146.5	195.3	262.4	358.2	610.2	884.8	1287.6
	CW	7.9	15.3	29.3	44.6	65.9	109.8	133.0	216.6	288.0	415.0	581.6	927.6	1305.9	1861.2
Opening Time DA	Sec.	0.2	0.2	0.2	0.3	0.4	0.7	0.8	1.3	1.6	2.0	2.7	3.5	4.0	8.8
Closing Time DA	Sec.	0.2	0.2	0.3	0.4	0.5	0.9	1.1	1.4	2.0	2.4	3.5	4.1	4.5	12.7
Approximate Weight - DA	Lb	2.40	3.40	6.10	8.30	11.70	18.50	21.90	31.10	40.50	55.10	77.20	119.05	178.57	299.39
	kg	1.09	1.54	2.77	3.76	5.31	8.39	9.93	14.10	18.37	24.99	35.01	53.99	80.98	135.80

GEBCO 2™ Technical and Ordering Information

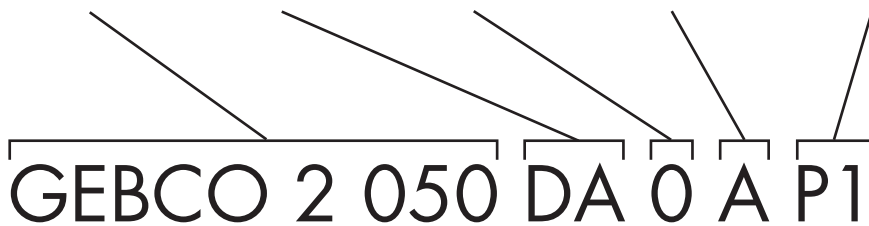
GEBCO 2™ Ordering Specification

Actuator shall be **GEBCO 2™** series with rack and pinion design. The body to be hard anodized, extruded aluminum. Powder coated body and epoxy coated end caps for corrosion protection. Internal parts to be dual aluminum pistons, with alloy steel blow out proof pinion. Bearings, bushings and O-rings are designed to maximize service life and prevent premature failure. Actuators will have dual travel stops, with adjustments for travel on both ends. All markings screened on body to easily identify threading on ports, ISO and NAMUR interfaces. Accessory bolt patterns and mounting areas to NAMUR VDI / VDE industry standards. Fasteners are to be stainless steel. Bottom drilling patterns are to ISO5211 to provide strong mounting to valves mounting kits when necessary.

Insert system for the pinion allows for flexible mounting combinations, with strong fits to actuator as well as valve stem or coupler. Pinion to have double bore to provide fitting to the valve stem or coupler as well as having extra depth to insert taller stems typical of butterfly valves.

Actuator to use cartridge style springs for easy identification of sizing designed to the same end caps and fasteners to be used whether for double acting or spring return applications. Inside surface finish minimize friction and maximize service life. Lubrication of actuator suitable for 1,000,000 operations. The visual indicator designed to be used with other top mounted devices.

Part Number Chart				
Actuator Model	Action* <small>*(No. of Springs = 0 on DA action)</small>	No. of Springs	Insert	Options
GEBCO 2 032	DA	0	A	P1 = High Temperature Actuator 300°F
GEBCO 2 050	SR	5	B	P2 = Low Temperature Actuator -40°F
GEBCO 2 063		6	C	P3 = Electroless Nickel Treatment
GEBCO 2 075		7	D	P4 = Epoxy Coating
GEBCO 2 085		8	E	P5 = Actuator Locking Device
GEBCO 2 100		9	F	P6 = Reverse Rotation
GEBCO 2 125		10	G	
GEBCO 2 145		11	H	
GEBCO 2 160		12	I	
GEBCO 2 180			J	
GEBCO 2 200			K	
GEBCO 2 240				
GEBCO 2 265				



GEBCO 2™ 4x4® Pneumatic Actuator

WHY SMALLER IS BETTER

The **GEBCO 2™** Pneumatic Actuator Series 4x4™ packs more than double the torque of conventional rack and pinion actuators due to its four pistons that generate torque around a centrally located pinion. With more pistons in the actuator, it allows their diameter to be smaller while generating higher torque. At the same time, it means the size of the actuator can be more compact.

WHY SMALLER IS FASTER

With four small cylinders each located on one of four sides of the unit and at a given air pressure, the 4x4™ produces the same torque output as double piston models using smaller diameter pistons and a narrower pinion. Thanks to the narrower pinion, the pistons travel shorter distances so that they can move faster from one position to the next.

WHY SMALLER REDUCES AIR CONSUMPTION

The cube shape coupled with pistons traveling shorter distances minimizes size requirements while maximizing torque output. At the same time, shorter piston travel and compact size greatly reduces pressure requirements compared to other designs and results in reduced energy expenditures.



WHY SMALLER MEANS LESS STRESS

Unlike other designs that produce an off-axis thrust, the 4x4™ design positions each piston around the cube so they develop thrust along their own axis. As a result, stressful piston side loading is minimized putting less stress on seals resulting in less wear.

WHY SMALLER IS A BETTER SOLUTION

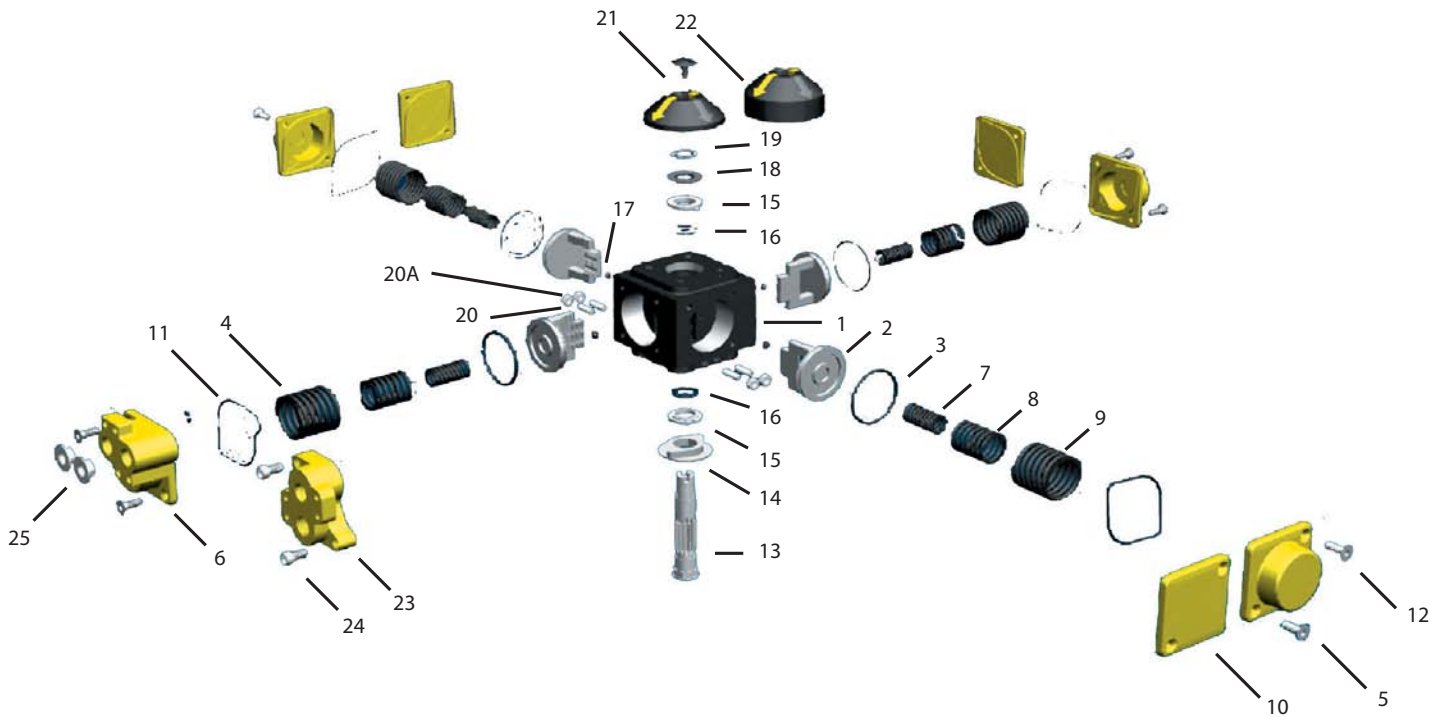
Because of the four-cylinder design, the 4x4™ has many more spring combination possibilities than double piston actuators, which allows multiple solutions for various air pressure applications. Each chamber can use up to three different spring sizes which nest between the covers and pistons and align by centering rings. Springs are wound in opposite directions to avoid tangles during operation.

WHY SMALLER IS STRONGER

For superior corrosion resistance, the body and covers are anodized internally and externally. They have an external epoxy base layer and a second polyurethane paint to further reduce corrosion in demanding applications. Extended spray wash downs do not create corrosion problems for the actuator.



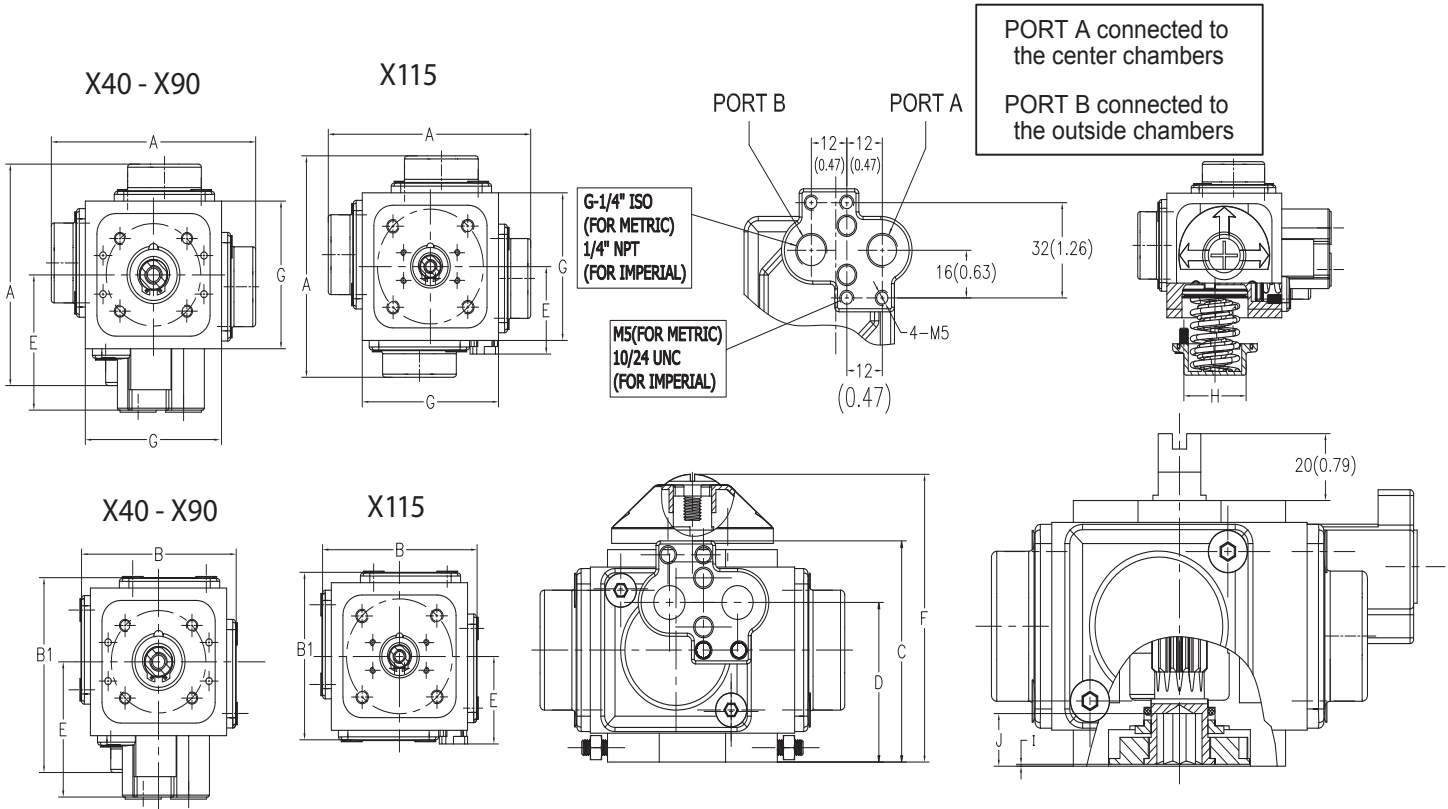
GEBCO 2™ 4x4® Material Listing



1	1	Body	Aluminum AL 356-T6
2	4	Piston	Carbon Steel S45C Nickel Plated
3*	4	Piston "O" Ring	BUNA / Viton / EPDM
4*	4	Cover "O" Ring	BUNA / Viton / EPDM
5	3	Spring Return Cover	Aluminum AL 380
6	1	NAMUR Cover	Aluminum AL 380
7	Max 4	Inner Spring	Painted Spring Steel
8	Max 4	Middle Spring	Painted Spring Steel
9	Max 4	Outer Spring	Painted Spring Steel
10	3	Double Acting Cover	Aluminum AL 380
11*	1	Air Supply "O" Ring	BUNA / Viton / EPDM
12	8	Cover Screw	Stainless Steel 304
13	1	Pinion	Steel
14	1	Stroke Adjustment Stop	Stainless Steel 304
15*	2	Thrust Washer	Acetal / NOVA
16*	2	Pinion "O" Ring	BUNA / Viton / EPDM
17*	4	Pad	Acetal
18*	1	Disc Bearing	Stainless Steel 304
19	1	Snap Ring	High Alloy Spring Steel
20	4	Stroke Adjustment Stud	Stainless Steel 304
20A	4	Nut	Stainless Steel 304
21	1	Indicator	ABS
22	1	Indicator Screw	ABS
23	1	NAMUR Insert (X115)	AL 380
24	2	Bolt (X115)	Stainless Steel 304
25	2	Plug	Plastic

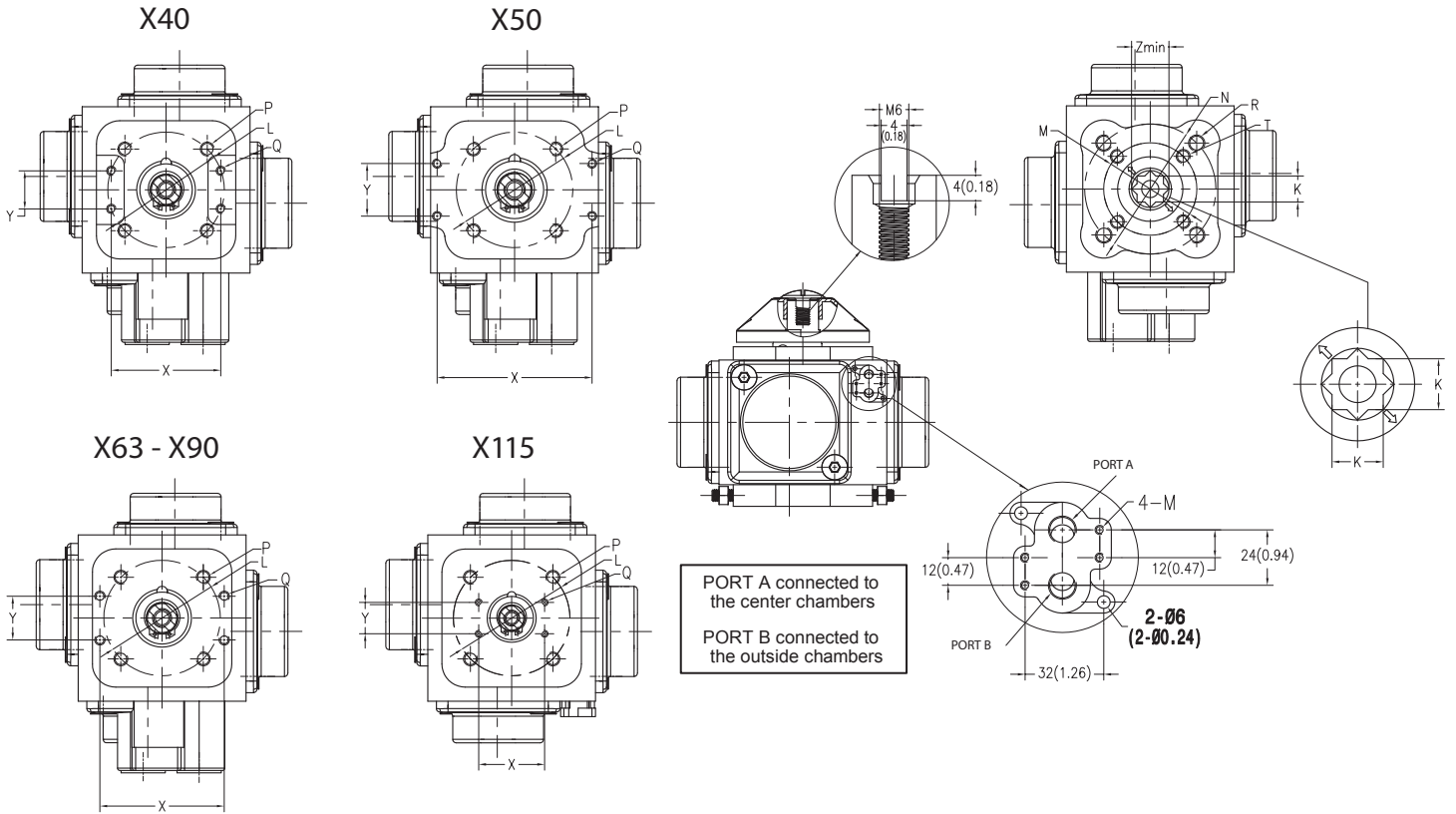
* Parts Typically Supplied in Service Kits

GEBCO 2™ 4x4® Dimensions



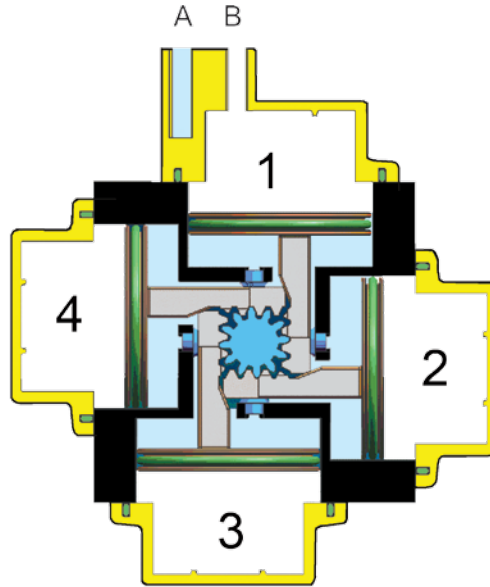
Size	Unit	A (S/R)	B (S/R)	B1 (D/A)	C	D	E	F	G	H	I	J
X40	in	4.26	3.31	3.78	2.73	2.04	2.60	3.65	2.84	1.61	0.02	0.55
	mm	108	84	96	69	52	66	92	72	40	0.5	14
X50	in	5.26	4.04	4.63	3.15	2.50	3.05	4.08	3.47	2.00	0.02	0.61
	mm	133	102	117	80	63	77	103	88	51	0.5	15
X60	in	6.38	5.20	5.79	3.86	3.02	3.53	4.73	4.26	2.50	0.02	0.77
	mm	162	132	147	98	77	89	120	108	63	0.5	20
X75	in	7.41	5.99	6.70	4.65	3.67	3.75	5.46	4.97	2.98	0.02	0.89
	mm	188	152	170	118	93	95	138	126	76	0.5	22
X90	in	8.75	7.17	7.96	5.36	4.04	4.49	6.17	5.91	3.59	0.02	1.04
	mm	222	182	202	136	102	114	156	150	91	0.5	26
X115	in	10.71	8.75	8.75	6.50	4.70	4.41	7.45	7.25	4.50	0.02	1.28
	mm	272	222	222	165	119	112	189	184	114	0.5	32

GEBCO 2™ 4x4® Dimensions



Size	Unit	K	L	M	N	P	Q	R	T	W	X	Y	Z (min)
X40	in	0.35	F05	-	F04	1/4	-	10-32 UNF	-	1.61	1.85	0.67	0.48
	mm	9				M6	M4	M5	-	40	47	17	12
X50	in	0.43	F05	F05	F07	1/4	10-24 UNC	5/16	1/4	2.00	3.15	1.18	0.56
	mm	11				M6	M5	M8	M6	51	80	30	14
X60	in	0.55	F07	F07	F10	5/16	10-24 UNC	3/8	5/16	2.50	3.15	1.18	0.72
	mm	14				M8	M5	M10	M8	63	80	30	18
X75	in	0.67	F07	F07	F10	5/16	10-24 UNC	3/8	5/16	2.98	3.15	1.18	0.87
	mm	17				M8	M5	M10	M8	76	80	30	22
X90	in	0.87	F10	-	F10	3/8	10-24 UNC	3/8	-	3.59	3.15	1.18	1.11
	mm	22				M10	M5	M10	-	91	80	30	28
X115	in	1.06	F12	-	F12	1/2	10-24 UNC	1/2	-	4.50	3.15	1.18	1.43
	mm	27				M12	M5	M12	-	114	80	30	36

GEBCO 2™ 4x4® Spring Arrangement



Spring Arrangement	Spring Position	Chamber			
		1	2	3	4
01	Inner	X	X	X	X
	Middle	-	-	-	-
	Outer	-	-	-	-
02	Inner				
	Middle	X	X	X	X
	Outer	-	-	-	-
03	Inner	X	-	X	-
	Middle	X	X	X	X
	Outer	-	-	-	-
04	Inner	X	X	X	X
	Middle	X	X	X	X
	Outer	-	-	-	-
05	Inner	X	X	X	X
	Middle	-	X	-	X
	Outer	X	-	X	-
06	Inner	X	X	X	X
	Middle	-	-	-	-
	Outer	X	X	X	X
07	Inner	X	X	X	X
	Middle	X	X	X	X
	Outer	X	-	X	-
08	Inner	-	-	-	-
	Middle	X	X	X	X
	Outer	X	X	X	X
09	Inner	X	-	X	-
	Middle	X	X	X	X
	Outer	X	X	X	X
10	Inner	X	X	X	X
	Middle	X	X	X	X
	Outer	X	X	X	X

GEBCO 2™ 4x4® Torques

Torque rating: in-lbs

Spring Return Torques																	
Model	Spring Quantity	Output of Springs														Spring Return	
		40 PSI		60 PSI		70 PSI		80 PSI		90 PSI		100 PSI		120 PSI		Start	End
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End		
X40	01	52	29	90	64	116	92	136	112	155	130	170	146	215	188	52	30
	02			73	39	100	68	120	87	138	104	154	121	196	159	78	46
	03					84	44	103	62	120	78	137	97	178	131	104	64
	04									104	52	122	72	159	105	130	82
X50	03	82	40	156	108	206	160	244	194	275	224	316	267	389	335	110	67
	04			140	86	193	139	230	173	260	200	303	246	376	313	132	81
	05			122	60	176	114	215	148	242	174	286	220	358	288	158	98
	06					160	89	195	122	226	150	269	196	340	262	185	116
	07					146	79	182	113	211	139	255	186	325	250	196	131
	08							170	89	199	114	243	163	313	226	219	144
	09									188	101	231	149	300	213	234	156
X60	03	204	119	347	249	439	343	519	417	590	485	672	570	818	723	205	118
	04			325	210	419	308	496	379	568	447	651	534	796	684	245	141
	05			305	177	400	275	476	346	547	413	632	502	777	650	279	161
	06					373	237	450	306	520	372	606	462	749	609	320	188
	07					350	193	425	260	495	325	583	418	724	561	368	214
	08							400	219	470	284	559	379	699	519	409	238
	09									452	231	542	229	683	466	461	256
X75	03	235	212	563	432	729	600	859	722	976	834	1126	986	1382	1255	305	189
	04	290	153	520	367	688	538	817	658	933	769	1085	924	1339	1189	370	232
	05			475	270	646	448	772	563	888	673	1042	832	1294	1091	466	277
	06			436	164	603	372	728	486	843	595	999	758	1249	1012	546	323
	07					569	313	693	424	807	531	966	697	1214	948	610	358
	08					552	216	657	348	772	454	931	624	1178	869	686	393
	09									725	368	888	542	1132	781	774	440
X90	03	656	405	1071	780	1346	1061	1559	1260	1748	1439	1995	1692	2428	2146	544	283
	04			1014	678	1291	965	1502	1159	1690	1337	1940	1594	2371	2042	648	340
	05			915	562	1198	855	1405	1045	1592	1221	1845	1484	2273	1925	963	439
	06					1122	703	1326	888	1511	1061	1769	1332	2192	1762	924	519
	07					1061	575	1263	754	1447	926	1708	1203	2129	1625	1065	582
	08							1193	613	1376	782	1640	1065	2059	1478	1206	653
	09									1298	579	1567	968	1980	1375	1309	730
X115	03	1196	645	2019	1437	2542	1975	2968	2370	3347	2732	3820	3218	4652	4087	1167	643
	04			1890	1206	2419	1756	2841	2143	3218	2500	3697	2997	4524	3852	1400	772
	05			1791	1027	2325	1586	2743	1967	3118	2322	3602	2827	4424	3670	1582	870
	06					2174	1318	2585	1687	2959	2038	3450	2558	4264	3382	1866	1030
	07					2051	1097	2458	1458	2828	1805	3325	2336	4136	3147	2100	1160
	08							2330	1230	2699	1574	3203	2115	4007	2910	2335	1289
	09									2573	1341	3083	1894	3881	2675	2568	1414
10									2444	1110	2960	1673	3754	2440	2800	1543	

Double Acting Torque Ratings - in-lbs							
Model	40 PSI	60 PSI	70 PSI	80 PSI	90 PSI	100 PSI	120 PSI
X40	79	119	137	178	192	218	238
X50	138	230	265	302	339	375	458
X60	315	470	550	657	725	799	959
X75	537	824	948	1074	1208	1340	1648
X90	920	1400	1666	2060	2130	2354	2893
X115	1953	2838	3322	3817	4302	4620	5401

GEBCO 2™ 4x4® Weights and Technical Information

4x4 Weights							
	Unit	X40	X50	X60	X75	X90	X115
Weight of Double Acting	Lb	2.38	3.86	6.81	10.69	16.42	28.66
	Kg	1.08	1.75	3.09	4.85	7.45	13.00
Weight of Double Acting with SR Cover (DS)	Lb	2.42	3.96	6.97	11.16	17.17	29.78
	Kg	1.10	1.80	3.16	5.06	7.79	13.51
Spring Return Arrangement	Weight of Spring Return Actuator						
01	Lb	2.51	x	x	x	x	x
	Kg	1.14	x	x	x	x	x
02	Lb	2.60	x	x	x	x	x
	Kg	1.18	x	x	x	x	x
03	Lb	2.67	4.17	7.50	12.19	18.92	33.27
	Kg	1.21	1.89	3.40	5.52	8.58	15.09
04	Lb	2.73	4.21	7.58	12.35	19.22	33.91
	Kg	1.24	1.91	3.44	5.60	8.72	15.38
05	Lb	x	4.30	7.76	12.63	19.69	34.55
	Kg	x	1.95	3.52	5.73	8.93	15.67
06	Lb	x	4.39	7.94	12.92	20.15	35.19
	Kg	x	1.99	3.60	5.86	9.14	15.96
07	Lb	x	4.43	7.98	13.07	20.39	35.98
	Kg	x	2.01	3.62	5.93	9.25	16.32
08	Lb	x	4.52	8.20	13.47	20.92	36.77
	Kg	x	2.05	3.72	6.11	9.49	16.68
09	Lb	x	4.56	8.29	13.62	21.25	37.41
	Kg	x	2.07	3.76	6.18	9.64	16.97
10	Lb	x	4.63	8.38	13.78	21.56	38.03
	Kg	x	2.10	3.80	6.25	9.78	17.25

4x4 Air Consumption & Opening and Closing Times							
	Unit	X40	X50	X60	X75	X90	X115
Air Consumption Per Stroke* Actual Volume - Liter	CCW	0.08	0.15	0.29	0.47	0.80	1.3
	CW	0.11	0.19	0.38	0.64	0.95	1.3
	Total	0.19	0.34	0.67	1.11	1.75	2.6
Air Consumption Per Stroke* Actual Volume - in ³	CCW	4.9	9.2	16.2	28.7	46.3	79.3
	CW	6.7	11.6	21.3	35.1	52.3	82.6
	Total	11.6	20.7	37.5	63.8	98.6	161.9
Opening Time DA**	Sec.	0.15	0.21	0.39	0.53	1.10	1.60
Closing Time DA**	Sec.	0.16	0.24	0.41	0.54	1.30	1.80

* If you plan to use the actuator with the spring return cover as double acting actuator; please consult your representative for the air consumption figures

** The above-indicated stroke times of the actuators are obtained in the following test conditions: (1) Room Temperature. (2) Actuator Stroke 90° (3) Solenoid Valve with orifice of 4mm and flow capacity Qn 400/L/min. (4) Inside pipe diameter 8mm, (5) Medium clean air, (6) Air supply pressure 5.5 bar (79, 75psi), (7) Actuator without external resistance load. Caution: on the field applications when one or more of the above parameters are different, the moving time will be different.

GEBCO 2™ 4x4® Ordering Specification

Actuator shall be **GEBCO 2™** series (4x4) with four piston design and function. Actuator will have epoxy coated end caps with hard anodized internally and externally extruded aluminum body. Internal parts to feature four carbon steel pistons for strength and have electroless nickel plating to inhibit corrosion. Actuator will have a higher torque output than other designs with comparable cylinder bores allowing for fitting of the smallest size possible.

With its smaller design air consumption will be reduced due to less open space in the actuator. Actuator will have four pistons supporting the pinion for less wear. With this design, torque output is maximized. With its design, travel is reduced leading to quicker response and less wear to moving parts.

Springs are nested and wound in opposite direction to prevent binding. Since there are four chambers many spring combinations are available to meet multiple air supply possibilities in the application. Independent travel stops allow adjustment +/- 5° in both opening and closing rotation.

All bottom bolting meets ISO 5211. Actuators to have NAMUR mount solenoid connections as well as other top mounted devices such as limit switches and positioners.

Lubrication to qualify for a minimum of 1,000,000 operations. Bearings, bushings and o-rings are designed to maximize service life and prevent premature failure.

GEBCO 2™ 4x4 Part Number Chart

Actuator Model	Action* <i>*(No. of Springs = 00 on DA action)</i>	No. of Springs	Threading	Options
GEBCO 2 X40	DA = Double Acting	00, 01, 02	I = Imperial	P1 = High Temp Viton Seals -4°F to 250°F
GEBCO 2 X50	SR = Spring Return	03, 04	M = Metric	P2 = Low Temp EPDM Actuator -40°F to 176°F
GEBCO 2 X60	DS = Double Acting with Spring Return Cover	05, 06		P3 = Actuator Locking Device
GEBCO 2 X75		07, 08		P4 = Reverse Rotation
GEBCO 2 X90		09, 10		
GEBCO 2 X115				

GEBCO 2 X40 DA 00 I P1

GEBCO 2™ Electric Actuator



Enclosure:

- IP 67: Waterproof and dust-proof enclosure
- NEMA 4X: Waterproof and dust-proof enclosure
- Material: Dry powder coating aluminum alloy

Motor:

- Standard extended duty cycle induction motor F insulation class for all models
- Built-in thermal protection (275°F) minimizes motor burn-out
- Standard Unit is 120 VAC
- Standard motors are 30% duty rated

Position Indicator:

- All models have continuous mechanical position indicator on the top of the actuator cover

Manual Override:

- Non-clutch design, the manual operation can be operated without any lever, clutch or brake upon power outage
- During electric motor operation, manual hand-wheel will not rotate for safety purposes

Gear Train:

- High alloy steel gear trains provide self-locking function to avoid valve back drive
- Gear trains supplied with high temperature lubricant

Working Conditions:

- Ambient temperature: -22°F to 149°F
- Humidity: 30% to 95%

Various Options:

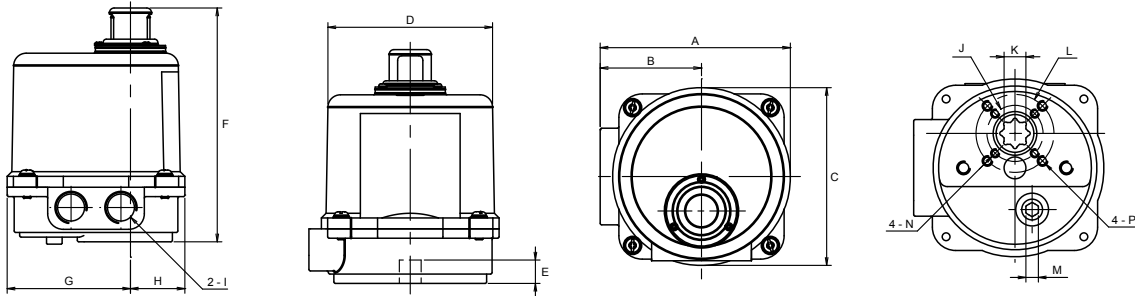
- Space Heater
- Additional limit switches (2 max)
- Potentiometer unit (1K Ohm or 5K Ohm)
- Local control unit (local/remote, on/off)
- Conduit entrance (1/2" PS, 3/4" PF, 1/2" NPT)
- Torque switches (2 units)
- Current position transmitter (output 4-20mA)
- Modulating controller (4-20mA, 0-5 VDC, 0-10 VDC)
- Various voltages
- Nylon enclosure material
- Thermostat
- 75% duty rating

Certifications:

- CE
- CSA (Conforming to the test standard for outdoor use)

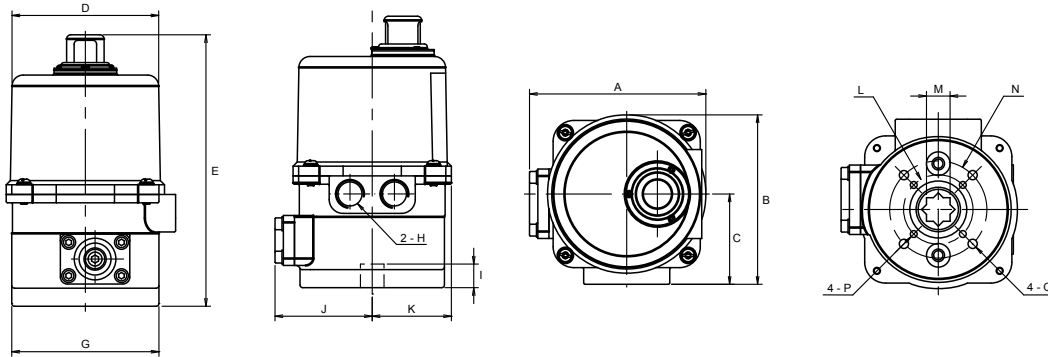
GEBCO 2™ Electric Actuator Dimensions

GEBCO 2 EA-3



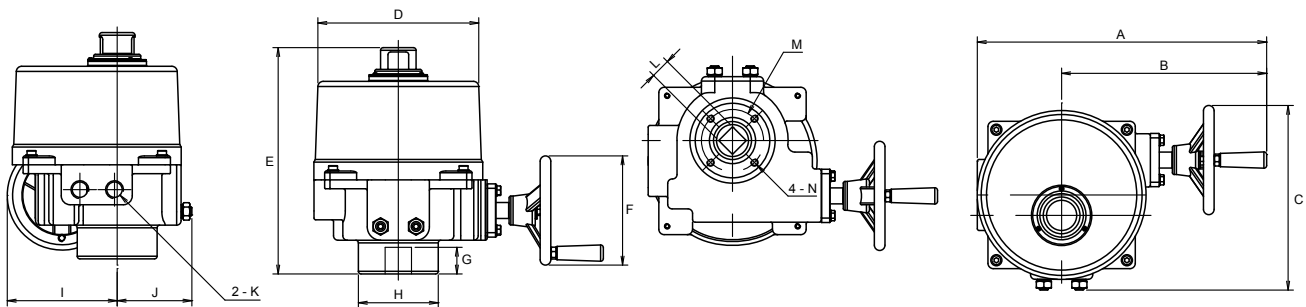
Unit	A	B	C	D	E	F	G	H	I	J	K Max	L	M	N	P	Flange Type
in	4.80	2.56	4.49	4.17	0.59	5.9	3.11	1.38	1/2 PS	1.42	0.551	1.97	0.2	M5x0.8	M6x1.0	F03 or F05
mm	122	65	144	106	15	150	79	35	1/2 PS	36	14	50	8	M5x0.8	M6x1.0	

GEBCO 2 EA-4



Unit	A	B	C	D	E	G	H	I	J	K	L	M	N	P	Q	Flange Type
in	4.49	4.8	2.56	4.17	7.71	4.17	1/2 PS	0.67	2.24	2.24	1.97	0.665	2.76	M6x1.0	M8x1.25	F05 or F07
mm	114	122	65	106	196	106	1/2 PS	17	57	57	50	17	70	M6x1.0	M8x1.25	

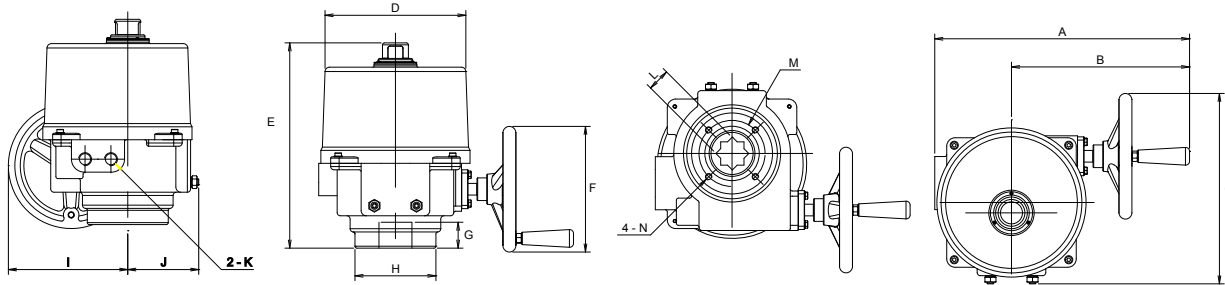
GEBCO 2 EA-8 AND GEBCO 2 EA-13



Unit	A	B	C	D	E	F	G	H	I	J	K	L Max	M	N	Flange Type
in	12.83	9.09	8.19	7.13	10.04	4.84	1.18	3.54	4.88	3.31	1/2 PS	0.867	2.76	M8x1.25	F07
mm	326	231	208	181	255	123	30	90	124	84	1/2 PS	22	70	M8x1.25	

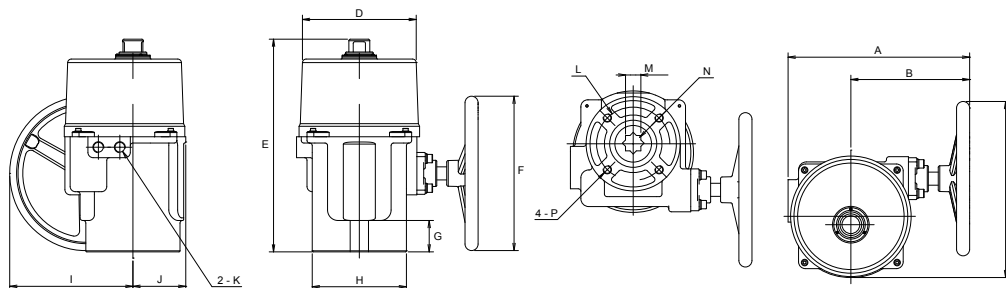
GEBCO 2™ EA Electric Actuator Dimensions Cont.

GEBCO 2 EA 35, GEBCO 2 EA 44 & GEBCO 2 EA 57



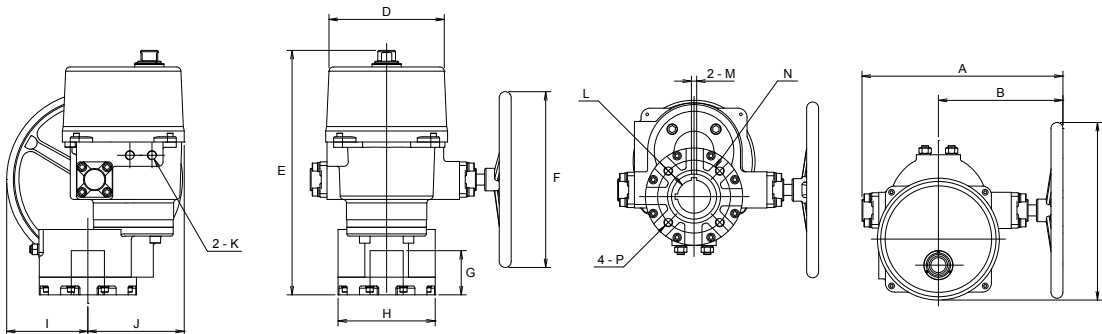
Unit	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Flange Type
in	15.51	10.82	11.57	8.54	12.48	7.63	1.57	4.97	7.24	4.33	1/2 PS	1.38	4.01	M10*1.5	F10
mm	394	275	294	217	317	194	40	125	184	110	1/2 PS	35	102	M10*1.5	

GEBCO 2 EA 88 & GEBCO 2 EA 132



Unit	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Flange Type
in	13.66	10.90	12.23	8.54	15.98	11.61	1.77	7.09	9.25	3.98	1/2 PS	4.92	1.38	1.38	M12*1.75	F12 or F14
mm	347	227	336	217	406	295	45	180	235	101	1/2 PS	125	35	35	M12*1.75	

GEBCO 2 EA 177, GEBCO 2 EA 221, GEBCO 2 EA 265 & GEBCO 2 EA 310



Unit	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Flange Type
in	17.91	11.10	15.83	10.27	21.81	15.67	3.94	8.66	7.24	8.58	1/2 PS	2.95	0.47	6.50	M20*2.5	F16
mm	455	282	402	261	554	398	100	220	184	218	1/2 PS	75	12	165	M20*2.5	

GEBCO 2™ EA Technical Information

Model	Power (watts)	Max Torque (In/lb)	Speed (Sec/90°)	Weight (lb)	Manual Override	Mounting Flange
GEBCO 2 EA 3	10W	310	12	4.4	Lever	F03 / F05
GEBCO 2 EA 4	10W	443	20	6.6	Lever	F05 / F07
GEBCO 2 EA 8	40W	797	12	24.2	Hand-wheel	F07
GEBCO 2 EA 13	40W	1328	15	24.2	Hand-wheel	F07
GEBCO 2 EA 35	120W	3540	16	44	Hand-wheel	F10
GEBCO 2 EA 44	120W	4425	22	44	Hand-wheel	F10
GEBCO 2 EA 57	120W	5750	28	44	Hand-wheel	F10
GEBCO 2 EA 88	180W	8850	46	71	Hand-wheel	F12 / F14
GEBCO 2 EA 132	220W	13275	46	71	Hand-wheel	F12 / F14
GEBCO 2 EA 177	180W	17700	58	132	Hand-wheel	F16
GEBCO 2 EA 221	220W	22125	58	132	Hand-wheel	F16
GEBCO 2 EA 265	250W	26550	58	135	Hand-wheel	F16
GEBCO 2 EA 310	300W	31000	58	135	Hand-wheel	F16

Part Number Chart (Standard 120VAC)	
EA Series	Options - Leave blank for 120VAC
GEBCO 2 EA 3	1 = 220VAC
GEBCO 2 EA 4	2 = 24VAC
GEBCO 2 EA 8	3 = 12VDC
GEBCO 2 EA 13	4 = 24VDC
GEBCO 2 EA 35	AS = Auxiliary Switches
GEBCO 2 EA 44	FP = Feedback Potentiometer
GEBCO 2 EA 57	CR = Control Relays
GEBCO 2 EA 88	HT = Heater & Thermostat
GEBCO 2 EA 132	BD = Breather & Drain
GEBCO 2 EA 177	PP = Proportional Positioner
GEBCO 2 EA 221	FT = Feedback Transmitter
GEBCO 2 EA 265	SC = Speed Control
GEBCO 2 EA 310	TR = Timers
	TS = Torque Sensor

GEBCO 2 EA 3 1

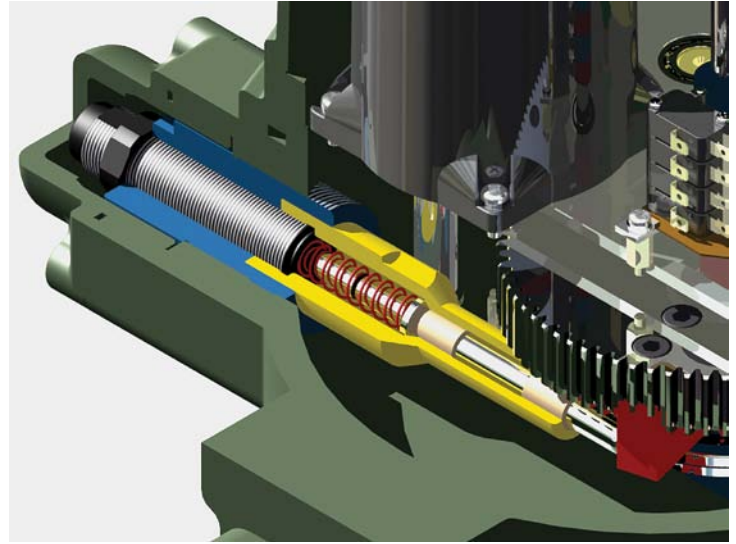
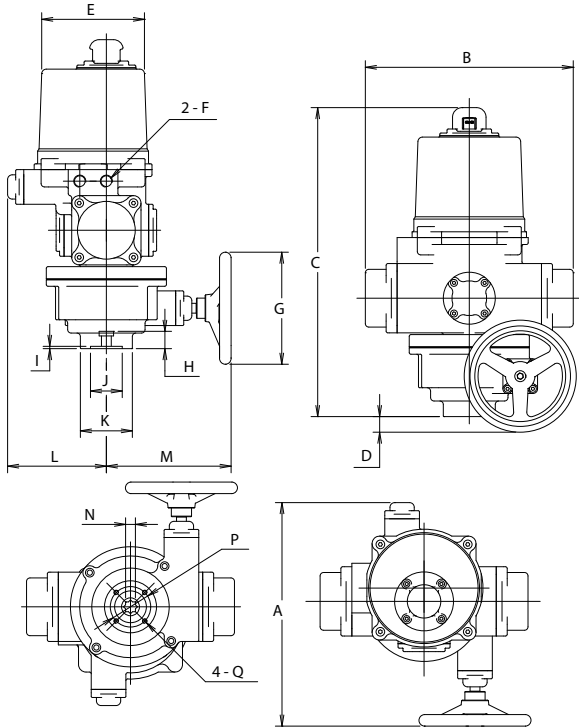
GEBCO 2™ EA Spring Return Electric Actuator



- Spring return models are designed to provide a fail-safe position. In the event of a power loss, a mechanical spring set is utilized to position the valve or damper to either the fully open or fully closed position without any external power source.
- A mechanical buffer system is employed at the end of the spring stroke to reduce the dynamic effect of the springs returning to the fail safe position.
- Standard unit fails clockwise, counter-clockwise rotation is available.
- A clutchless, leverless manual over-ride provides full-time manual capabilities.
- Patented in Taiwan, USA, Japan and China
- 50% duty rated
- Temperature range: -30F TO 149F with use of heater and thermostat
- Powder coated aluminum alloy enclosure
- NEMA 4
- Life-time gear train lubrication
- Visual indicator
- 120VAC - Standard
- Voltage options include: 24VAC, 24VDC, 440 VAC

Model	Power (watts)	Max Torque (In/lb)	Motor Speed (Sec/90°)	Speed Spring	Mounting Flange
GEBCO 2 EA-4-SR-MO	1.5A RUN / 2.8A LOCK	440	7-9 SECONDS	3 SECONDS	F07
GEBCO 2 EA-11-SR-MO	3.8A RUN / 11A LOCK	1100	7-9 SECONDS	8 SECONDS	F10
GEBCO 2 EA-17-SR-MO	3.8A RUN / 11.5A LOCK	1770	11-13 SECONDS	12 SECONDS	F12
GEBCO 2 EA-23-SR-MO	3.8A RUN / 11.5A LOCK	2300	14-17 SECONDS	12 SECONDS	F12

GEBCO 2™ Spring Return Electric Actuator Dimensions



SPRING BUFFER SYSTEM

Model	Unit	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	Flange Type
GEBCO 2 EA-4-SR-MO	in	15.09	14.04	20.87	1.05	6.94	1/2" NPT	7.57	1.17	0.16	2.15	3.51	6.67	8.42	0.66	2.73	M8 x 1.25	F07
	mm	387	360	535	27	178		194	30	4	55	90	171	216	17	70		
GEBCO 2 EA-11-SR-MO	in	18.84	18.02	25.08	2.26	10.22	1/2" NPT	11.54	1.52	0.20	2.73	4.88	9.63	9.20	0.86	3.98	M10 x 1.5	F10
	mm	483	462	643	58	262		296	39	5	70	125	247	236	22	102		
GEBCO 2 EA-17-SR-MO	in	22.97	23.40	28.78	3.90	11.86	1/2" NPT	15.60	1.76	0.20	3.32	5.85	11.90	11.08	1.05	4.88	M12 x 1.75	F12
	mm	589	600	738	100	304		400	45	5	85	150	305	284	27	125		
GEBCO 2 EA-23-SR-MO	in	22.97	23.40	28.78	3.90	11.86	1/2" NPT	15.60	1.76	0.20	3.32	5.85	11.90	11.08	1.05	4.88	M12 x 1.75	F12
	mm	589	600	738	100	304		400	45	5	85	150	305	284	27	125		

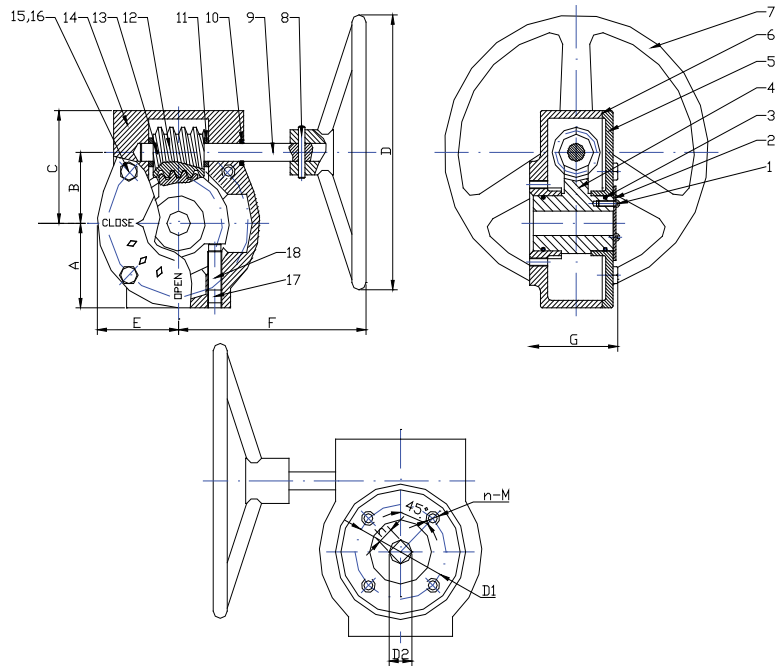
Electric Actuator Part Number Chart		
GEBCO 2™ EA Series	Options - Leave blank for 120VAC (standard)	
GEBCO 2 EA-3	1 =	220VAC
GEBCO 2 EA-4	2 =	24VAC
GEBCO 2 EA-8	3 =	12VDC
GEBCO 2 EA-13	4 =	24VDC
GEBCO 2 EA-35	AS =	Auxiliary Switches
GEBCO 2 EA-44	FP =	Feedback Potentiometer
GEBCO 2 EA-57	CR =	Control Relays
GEBCO 2 EA-88	HT =	Heater & Thermostat
GEBCO 2 EA-132	BD =	Breather & Drain
GEBCO 2 EA-177	PP =	Proportional Positioner
GEBCO 2 EA-221	FT =	Feedback Transmitter
GEBCO 2 EA-265	SC =	Speed Control
GEBCO 2 EA-310	TR =	Timers
	TS =	Torque Sensor

GEBCO 2 EA-3 2

GEBCO 2™ Gear Operator



Item	Quantity	Part Description	Material Code
1	2	Bolts	Steel
2	1	Indicator	Aluminum
3	2	"O" Ring	ASTM D2000 NBR
4	1	Worm Gear	ASTM A536 65-45-12
5	1	Cover	ASTM A126 Class B
6	1	Spacer Sheet	
7	1	Hand Wheel	ASTM A126 Class B
8	1	Taper Pin	AISI 1045
9	1	Shaft	AISI 1045
10	1	Ring	ASTM D2000 NBR
11	2	Baffle Ring	ASTM536 65-45-12
12	1	Worm	AISI 1045
13	1	Taper Pin	Steel
14	1	Housing	ASTM A126 Class B
15	4	Bolts	Steel
16	4	Spring Spacer	AISI 1566
17	1	Locking Screw	Steel
18	1	Adjusting Screw	Steel

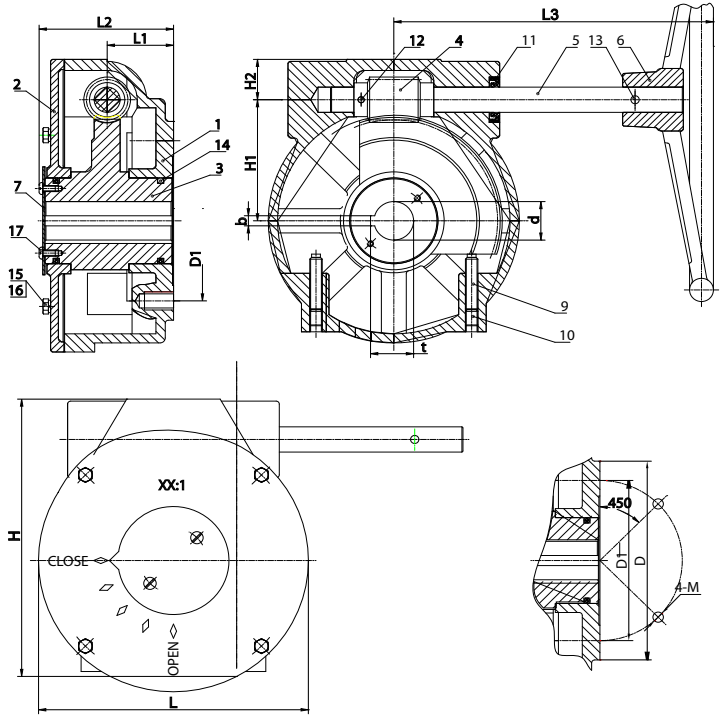


Model	Gear Ratio	Unit	A	B	C	D	D1	D2	E	F	G	h	M	n	Output Torque IN/LBS	Weight LBS/KG
SG-11	24:1	in	2.13	1.77	2.87	5.9	F05	0.496	2.05	6.1	2.95	0.354	M6	4	1504	10.1
		mm	54	45	73	150		13	52	155	75	9				102
SG-12	24:1	in	2.13	1.77	2.87	5.9	F07	0.62	2.05	6.1	2.95	0.433	M8	4	1504	10.1
		mm	54	45	73	150		16	52	155	75	11				102
SG-13	30:1	in	3.01	2.6	3.94	11.81	F10	1.12	3.03	8.74	3.35	0.867	M10	4	6195	18.7
		mm	76	66	100	300		28	77	222	85	22				102
SG-14	50:1	in	3.19	3.05	4.67	11.81	F10	1.24	3.19	8.39	3.39	0.867	M10	4	10621	24.64
		mm	81	77	119	300		31	81	213	86	22				102

GEBCO 2™ Gear Operator Cont.



Item	Quantity	Part Description	Material Code
1	1	Indicator	Steel
2	1	Big Worm Gear	Ductile Iron
3	1	Small Housing	ASTM A126 CL. B
4	1	Small Worm	Steel
5	1	Small End Cover	ASTM A126 CL. B
6	1	Hand Wheel	ASTM A126 CL. B
7	1	Left End Cover	ASTM A126 CL. B
8	1	Big Housing	ASTM A126 CL. B
9	1	Big Worm	Steel
10	1	Small Worm Gear	Ductile Iron
11	1	Small Cover	ASTM A126 CL. B



Model	Gear Ratio	Unit	D	D1	H	H1	H2	L	L1	L2	L3	M	b	d	t	Φ	Output Torque IN/LBS	Weight
SG-15	50:1	in	5.51	4.02	7.78	3.05	1.54	6.38	1.71	3.39	8.39	0.39	0.315	1.25	1.38	11.81	10621	24.64
		mm	140	102	198	77	39	162	43	86	213	10	8	32	35	300		11
SG-16	80:1	in	7.76	5.51	11.42	4.72	1.57	10.04	2.52	5.1	9.88	0.63	0.393	1.31	1.44	11.81	22128	73.7
		mm	197	140	290	120	40	255	64	130	251	16	10	33	37	300		33
SG-17	80:1	in	7.76	5.51	11.42	4.72	1.57	10.04	2.52	5.1	9.88	0.63	0.393	1.5	1.63	11.81	22128	73.7
		mm	197	140	290	120	40	255	64	130	251	16	10	38	41	300		33



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