



KP - KPM Series
Rack and pinion Actuators



Quifer Actuators, sl



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KP/KPM SERIES

General Description

Pneumatic rack and pinion actuators QUIFER are in the market for more than 40 years. These actuators are popular for their high resistance and durability and, in consequence, the reduction of the maintenance cost in the production lines. For that reason, our actuators are used in the most exigent markets and environments like oil and gas, offshore platforms or vessels.

The linking surfaces of the actuators are designed according ISO 5211 and VDI/VDE 3845.

Design of the actuator is constructed according ISO9001:2015, IEC 61508:2010, LOM 05ATEX6032 and European Pressure Equipments Directive 97/23/EC 3.10

Standar Actuator Scope

	Double Acting	Spring Return
Torques:	5000 Nm	1800 Nm
Working pressure:	1 to 10 bar	3 to 10 bar
Air supply:	Air or non corrosive gas	
Working temperature:	From -20 to +80°C	
Rotation:	90 degrees Anticlockwise in opening	
Adjustments:	+/- 2,5°C to open +/-2,5°C to close	
Lubrication:	Actuators lubricated for life	



Technical Data

- ✓ Linking surfaces according ISO 5211 and VDI/VDE 3845
- ✓ Air connections according VDI/VDE 3845
- ✓ Drive shaft with square ISO 5211
- ✓ All components have high resistance to corrosion
- ✓ All models have a double opening and closing regulation from the outside
- ✓ Multiple combination springs allow a wide range of torques for one model
- ✓ All springs have a preloader, increasing safety
- ✓ All models are easily convertible from spring return to double acting and vice versa

Options

- ✓ Low temperature versions up to -65°C
- ✓ High temperature up to +180°C
- ✓ Nickel plated actuators
- ✓ Stainless Steel drive shaft
- ✓ Fast closing time actuators
- ✓ Actuators driven with Natural Gas, Sour Gas, Oxygen, etc, etc...
- ✓ Adjustable travel stops from 0° to 90°
- ✓ 180°C rack and pinion actuators
- ✓ 180° 3 phase actuators
- ✓ 90° RPC actuators
- ✓ Special coating for high corrosive environments
- ✓ O-rings and spring repair kits
- ✓ Complete package with control valves, solenoid valves, air tanks and accessories

Advantages

- ✓ Inner cylinder has been completely honey treated to obtain 0,3 – 0,4 mic. rugosity
- ✓ Shaft and pistons are completely machined
- ✓ Body and pistons completely hard anodized
- ✓ Shaft has an anti-ejection retaining ring
- ✓ Double sealing at the top and bottom of the shaft
- ✓ Large PTFE sliding guide in the pistons
- ✓ Large thickness of the walls of actuator to increase durability
- ✓ Electrolytic nickel to the shaft
- ✓ Travel stop of the actuators located in the axis of the actuator

Manual Override

Quifer Actuators SL has its own gearboxes ready to work as a manual override.

RKS Gearboxes: Key-slot manual override for KPM Spring Return Actuators.

RKE Gearboxes: Declutchable manual override for KP Double Acting Actuators.

RKS-45: KPM-008, KPM-012, KPM-020, KPM-030, KPM-040, KPM-060,

RKS-75: KPM-100, KPM-140, KPM-200

RKS-125: KPM-250, KPM-370

RKS-400: KPM-500

RKE-45: KP-008, KP-012, KP-020, KP-030, KP-040, KP-060

RKE-75: KP-100, KP-140

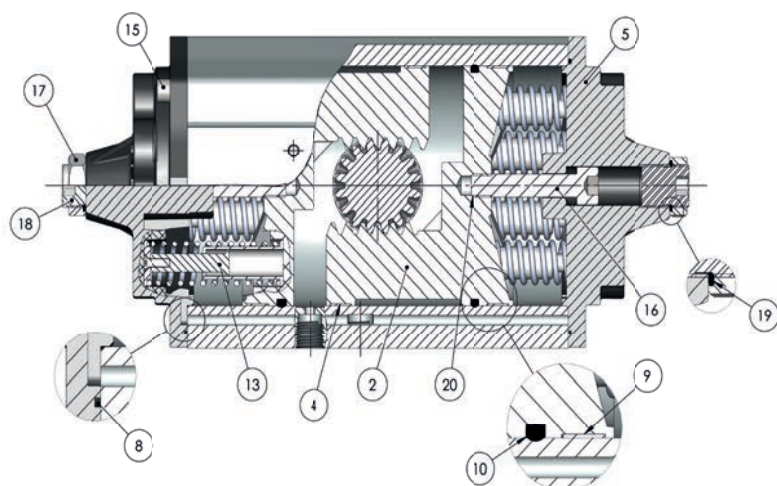
RKE-125: KP-200, KP-250, KP-370



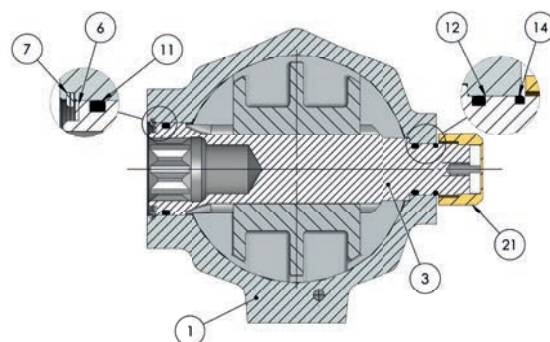


Materials

Front View

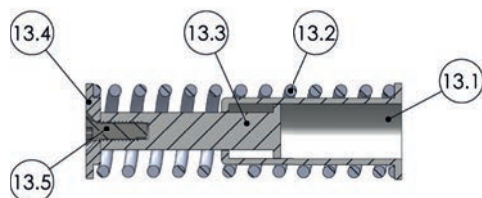


Side View



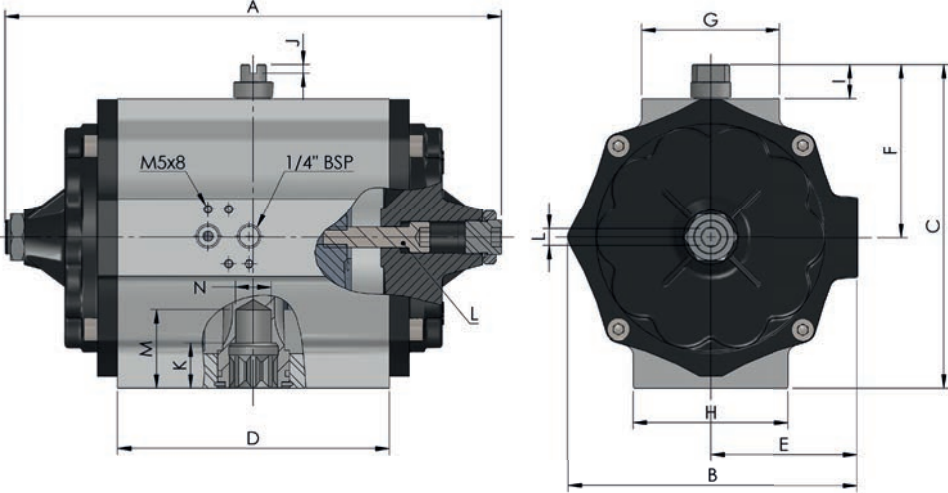
Item	Description	Material	Qty	Surface Finish
1	Body	AW-6063-T6 Al. Alloy	1	Hard Anodized
2	Piston	L-2653 T6 Al.	2	Hard Anodized
3	Drive Shaft	C-45E (F-1140)	1	Nickel Plated
4	Bearing Pad	DELFIN (Poli Oxi Metilene)	2 to 4	-
5	End Cap	L-2653-60 T6 Al. Alloy	2	Poliurethane Paint
6	Thrust Washer	DELFIN (Poli Oxi Metilene)	1	-
7	Retaining Ring	Stainless Steel AISI302	1	-
8	End Cap O-Ring	NBR 70Sh	2	-
9	Piston Bearing	P.T.F.E.	2 to 4	-
10	Piston O-Ring	NBR 70Sh	2	-
11	Bottom Drive Shaft O-Ring	NBR 70Sh	1	-
12	Top Drive Shaft O-Ring	NBR 70Sh	1	-
13	Spring set	See spring bill of mat.	12 to 44	See spring bill of m.
14	Double sealling O-Ring	NBR 70Sh	1	-
15	End Cap Bolts	DIN-912 A2	8 to 36	-
16	Inner Travel Stop	DIN-912 12.9	2	DACROMET 320
17	Travel Stop Nut	Stainless Steel AISI302	2	-
18	Outer Travel Stop	Stainless Steel AISI302	2	-
19	Travel Stop O-Ring	NBR 70Sh	2	-
20	Helicoil	Stainless Steel 18.10	2	-
21	Indicator	Polipropilene	1	-

Spring Set Detail (Item Nr. 13)

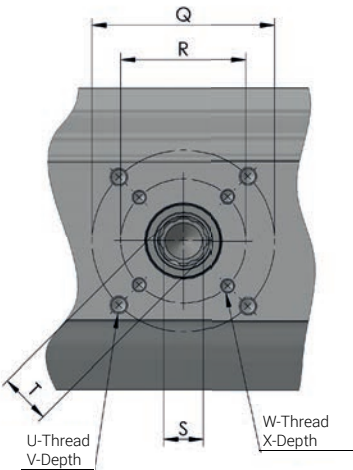


Item	Description	Material	Qty	Surface Finish
13.1	Preloader Body	NYLON + 30% fibreglass	1	-
13.2	Spring	CrSi Steel Alloy	1	DACROMET 320
13.3	Preloader Shaft	NYLON + 30% fibreglass	1	-
13.4	Preloader Washer	NYLON + 30% fibreglass	1	-
13.5	Preloader Bolt	Carbon Steel	1	Zinc Plated

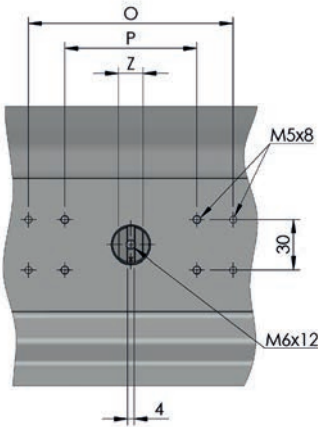
Dimensions



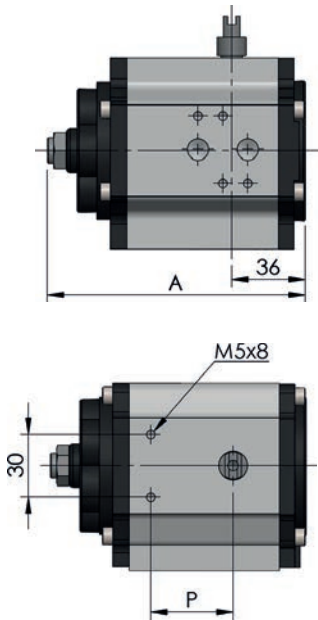
Bottom View



Top View



KP/KPM-3



	A	B	C	D	E	F	G	H	I	J	K	L*	M	N	O	P	Q	R	S	T	UxV	WxX	Z	ISO 5211
KP/KPM-3	124	89	111	73	49	64	46	48	20	4	16	5	16	-	-	40	50	36	11	14,2	M6 x 9	M5 x 8	8	F03 / F05
KP/KPM-5	180	89	111	101	49	64	46	48	20	4	16	5	16	-	-	80	50	36	11	14,2	M6 x 9	M5 x 8	8	F03 / F05
KP/KPM-8	233	112	131	126	57	73	46	72	20	4	18	6	31	15	-	80	70	50	17	22,2	M8 x 12	M6 x 9	10	F07 / F05
KP/KPM-12	280	112	131	170	57	73	46	72	20	4	20	6	33	16	-	80	70	50	19	25,2	M8 x 12	M6 x 9	10	F07 / F05
KP/KPM-20	294	133	151	178	70	84	50	72	20	4	25	8	45	22	-	80	70	-	22	28,2	M8 x 12	-	15	F07
KP/KPM-30	286	169	189	158	85	101	80	90	20	4	25	10	45	21	-	80	102	70	22	28,2	M10 x 15	M8 x 12	15	F10 / F07
KP/KPM-40	344	169	199	216	85	101	80	90	30	5	31	10	45	30	130	80	102	70	27	36,2	M10 x 15	M8 x 12	22	F10 / F07
KP/KPM-60	377	195	230	232	100	128	75	90	30	5	31	12	47	30	130	80	102	70	27	36,2	M10 x 15	M8 x 12	22	F10 / F07
KP/KPM-100	440	210	246	272	108	138	80	110	30	5	38	12	55	40	130	80	125	102	36	48,2	M12 x 18	M10 x 15	34	F12 / F10
KP/KPM-140	445	232	272	255	120	150	90	130	30	5	41	12	55	40	130	80	125	102	36	48,2	M12 x 18	M10 x 15	34	F12 / F10
KP/KPM-200	537	232	272	353	120	150	90	130	30	5	53	14	80	51	130	80	140	-	46	60,2	M16 x 24	-	34	F14
KP/KPM-250	460	305	340	317	151	182	100	156	30	5	51	14	55	40	130	80	140	-	36	48,2	M16 x 24	-	34	F14
KP/KPM-370	670	305	340	448	151	182	100	156	30	5	66	17	66	50	130	80	165	-	46	60,2	M20 x 30	-	34	F16
KP/KPM-500	794	406	450	500	207	235	135	180	30	5	79	22	127	60	130	80	165	-	55	72,2	M20 x 30	-	34	F16

All dimensions are in mm | Drawing not scaled



Double Acting Torques Chart (Nm.)

	40 PSI 2,7 Bar	50 PSI 4,1 Bar	60 PSI 5,5 Bar	72 PSI 6 Bar	80 PSI 6,9 Bar	88 PSI 6,9 Bar	100 PSI 6,9 Bar
KP-3	7,5	10	11	14	15	16,5	19
KP-5	12	19	23	28	30	33	38
KP-8	32	41	48	59	64	70	80
KP-12	48	62	72	89	96	105	119
KP-20	72	93	109	133	146	160	182
KP-30	99	128	150	183	201	219	250
KP-40	149	193	225	276	302	329	376
KP-60	227	294	348	420	469	512	588
KP-100	345	447	519	639	696	759	866
KP-140	435	564	663	806	889	970	1114
KP-200	603	782	909	1117	1219	1330	1516
KP-250	767	994	1151	1420	1550	1690	1928
KP-370	1343	1741	2014	2487	2713	2960	3374
KP-500	2150	2787	3265	3981	4380	4778	5495

25% Safety factor is recommended.

Air Volume And Operating Time

	Air Volume Per Stroke (Lt)		Operating Time at 6 Bar (sec)					Weight	
	Opening	Cosing	Double Acting	Spring Return				Kg	
				Opening		Clossing		KP	KPM
	0,107	0,100	< 1	1		< 1		1,25	1,3
KP/KPM-3	0,165	0,187	< 1	1		< 1		1,55	1,75
KP/KPM-5	0,359	0,451	< 1	1		< 1		2,7	3,1
KP/KPM-8	0,534	0,661	< 1	1		< 1		3,6	4,25
KP/KPM-12	0,807	0,909	< 1	1		< 1		4,75	5,75
KP/KPM-20	1,124	1,374	1 - 2	1,5		1		7,1	8,2
KP/KPM-30	1,720	1,902	1 - 2	1,5		1		9,5	11,5
KP/KPM-40	2,641	3,190	1,5 - 2,5	2		1 - 2		12,5	16
KP/KPM-60	3,935	4,410	2 - 3	3,5	<1*	2,5	<1*	18,5	20,5
KP/KPM-100	4,710	4,128	3,5 - 4,5	4	<1*	3,5	<1*	23,5	27
KP/KPM-140	6,292	8,052	4 - 5	5	<1*	4	<1*	34	40
KP/KPM-200	7,662	8,745	5 - 6	5,5	<1*	5	<1*	39,5	46
KP/KPM-250	14,150	17,490	5,5 - 6,5	7	1,5*	6	1*	60	77
KP/KPM-370	21,000	26,000	9 - 10	13- 14	3*	6 - 7	1*	114	140
KP/KPM-500									

These times are approximate (the test was made with a supply pressure of 6 bar, an ambient temperature of 20°, with electric valve of 680 l/min., tubing of provide of electric-valve of 8mm. of diameter and the actuator without load). If any of these parameters are modified, the times can be different.

Spring Return Torques Chart (Nm.)

	N° Springs	Spring Torques (Nm)		PNEUMATIC STROKE TORQUES (Nm) AT OPERATING PRESSURE													
		0°	90°	40 PSI / 2,7 Bar		50 PSI / 3,5 Bar		60 PSI / 4,1 Bar		72 PSI / 5 Bar		80 PSI / 5,5 Bar		88 PSI / 6 Bar		100 PSI / 6,9 Bar	
				0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
KPM-3	2	2.3	4.1	5.1	3.3	7.4	5.7	8.9	7.2	11.6	9.8						
	3	3.5	6.1	3.9	1.3	6.2	3.6	7.8	5.2	10.4	7.8						
	4	4.7	8.2					6.6	3.1	9.2	5.7	10.2	6.7	11.7	8.2	14.3	10.8
	5	5.9	10.3									9	4.7	10.5	6.2	13	8.7
KPM-5	6	7.1	12.4									7.85	2.6	9.3	4.1	11.8	6.6
	4	4.7	8.2	10.3	6.8	14.7	11.2	17.8	14.4	23.	19.6						
	6	7.1	12.3	7.9	2.7	12.3	7.1	15.5	10.2	20.7	15.5						
	8	9.5	16.5					13.1	6.1	18.3	11.3	20.5	13.5	23.5	16.5		
	10	11.9	20.6									18.1	9.4	21.1	12.4	26.1	17.4
KPM-8	12	14.3	24.8									15.7	5.2	18.7	8.2	23.7	13.2
	4	10.8	17.6	21.2	14.4	30.7	23.9	37	30	48	42	53	46	59	52		
	6	16.2	26.4	15.8	5.6	25.3	15.1	32	21	43	33	48	38	54	44	64	54
	8	21.6	35.2					26	13	38	24	42	29	48	35	58	45
	10	27	44									32	15	37	20	53	36
KPM-12	12	32	53									32	12	37	17	48	27
	4	16	29	32	19.2	45.8	33.4	55	43	72	60	80	67	89	76		
	6	25	43	23	5	37.6	19.0	47	29	64	46	71	53	80	62		
	8	33	58					39	14	56	31	63	38	72	47	86	61
	10	41	72									55	24	64	33	78	47
KPM-20	12	49	86													72	35
	8	31	55	41.5	17.5	62.8	38.8	79	55	103	79						
	10	38	68	33.9	3.9	55.2	25.2	71	41	95	65	108	78	122	92		
	12	46	82					64	28	88	52	100	64	114	78		
	14	53	95					56	14	80	38	93	51	107	65	129	87
KPM-30	16	61	109									85	37	99	51	121	73
	10	45	71	54	28	83	57	105	79	138	112						
	12	54	85	45	13.8	74	43	96	64	129	98	147	116	165	134		
	14	63	99					87	50	120	84	138	102	156	120		
	16	72	114					78	36	111	70	129	87	147	105	178	136
	18	81	128					69	22	102	56	120	73	138	91	169	122
KPM-40	20	90	142									111	59	129	77	160	108
	10	62	110	87.5	39.5	132	84	163	115	214	166						
	12	74	131	75.2	17.6	119	62	151	93	202	145	228	171	255	198		
	14	86	153					139	72	190	123	216	149	243	176		
	16	98	175					126	50	178	101	204	127	231	154	278	201
	18	111	197					114	28	165	79	191	105	218	132	265	179
KPM-60	20	123	219									179	83	206	110	253	157
	10	93	153	135	75	202	142	256	196	328	268						
	12	111	183	116	44	183	111	237	165	309	237	358	286	401	329		
	14	130	214					219	135	291	207	340	256	383	299		
	16	148	244					200	104	272	176	321	225	364	268	440	344
	18	167	275					182	74	254	146	303	195	346	238	422	314
KPM-100	20	185	305									284	164	327	207	403	283
	10	135	240	210	105	312	207	384	279	504	399						
	12	162	288	183	57	285	159	357	231	477	351	534	408	597	471	704	578
	14	189	336					330	183	450	303	507	360	570	423	677	530
	16	216	384					303	135	423	255	480	312	543	375	650	482
	18	243	432					276	87	396	207	453	264	516	327	623	434
	20	270	480									426	216	489	279	596	386

25% Safety factor is recommended.



Spring Return Torques Chart (Nm.)

	N° Springs	SPRING TORQUES (Nm)		PNEUMATIC STROKE TORQUES (Nm) AT OPERATING PRESSURE															
		0°	90°	40 PSI / 2,7 Bar		50 PSI / 3,5 Bar		60 PSI / 4,1 Bar		72 PSI / 5 Bar		80 PSI / 5,5 Bar		88 PSI / 6 Bar		100 PSI / 6,9 Bar			
				0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°		
KPM-140	14	188	329	224	83	375	235	474	334	617	477								
	16	215	376	197	36	349	188	448	287	590	430	674	513	755	594				
	18	242	423			322	141	421	240	563	383	647	466	728	547				
	20	269	470					394	193	536	336	620	419	701	500	845	644		
	22	296	517					367	146	509	289	593	372	674	453	818	597		
KPM-200	24	323	564							483	242	566	325	647	406	791	550		
	10	221	377	383	227	561	405	688	532	896	740								
	12	265	452	338	151	517	330	644	457	852	665	954	767	1065	878				
	14	309	527			473	255	600	382	808	590	910	692	1021	803				
	16	353	602			429	179	556	306	764	514	866	617	977	728	1163	914		
	18	397	678					512	231	720	439	822	541	933	652	1119	838		
KPM-250	20	441	753							676	364	778	466	889	577	1075	763		
	20	268	465	495	298	727	529	887	690	1153	956								
	24	321	558	442	205	673	437	834	597	1099	863	1229	992						
	28	375	651			620	344	780	504	1046	770	1175	899	1315	1039				
	32	428	744			566	251	727	411	992	677	1122	806	1262	946	1500	1184		
	36	482	837					687	318	939	584	1068	713	1208	853	1446	1091		
KPM-370	40	535	930							885	491	1015	621	1155	761	1393	999		
	10	468	888	876	455	1273	853	1555	1135	2020	1599								
	12	561	1066	782	277	1180	675	1462	957	1926	1421	2152	1647	2399	1894	2813	2308		
	14	655	1243	689	100	1086	498	1368	779	1833	1244	2059	1470	2306	1717	2720	2131		
	16	748	1421			993	320	1275	602	1739	1066	1965	1292	2212	1539	2626	1953		
	18	842	1598					1181	424	1646	889	1872	1115	2119	1362	2533	1776		
KPM-500	20	935	1776							1552	711	1778	937	2025	1184	2439	1598		
	16	727	1371	1423	779	2060	1416	2,538	1,894	3254	2610								
	20	908	1714	1242	436	1879	1073	2,357	1,551	3073	2267	3472	2666	3870	3064				
	24	1090	2057	1060	93	1697	730	2,175	1,208	2891	1924	3290	2323	3688	2721				
	28	1272	2400			1515	387	1,993	865	2709	1581	3108	1980	3506	2378	4223	3095		
	32	1453	2743					1,812	522	2528	1238	2927	1637	3325	2035	4042	2752		
	36	1635	3086							2346	895	2745	1294	3143	1692	3860	2409		
	40	1817	3429									2563	951	2961	1349	3678	2066		

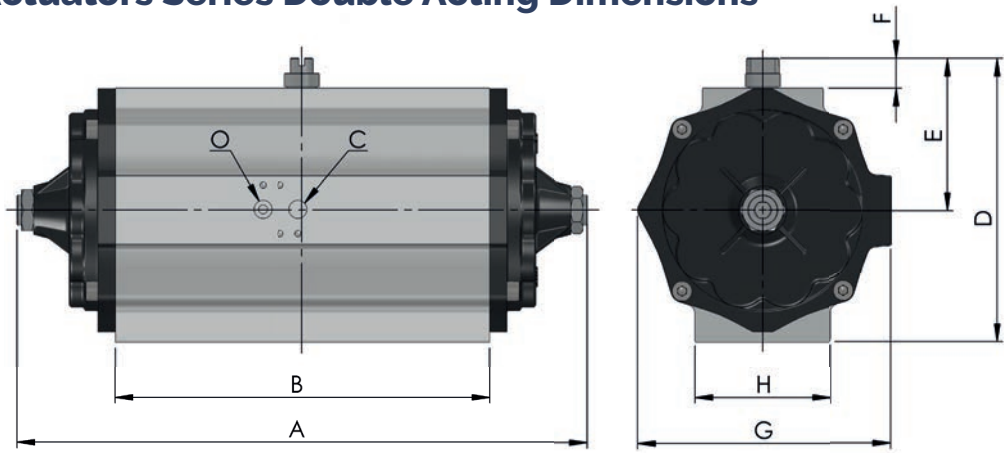
25% Safety factor is recommended.

How to use Spring Return Torques Chart

- Dark blue hightlited models are provided as standard
- Light blue hightlited models are **ONLY provided under request**

Bold values are optimus working condition for each model

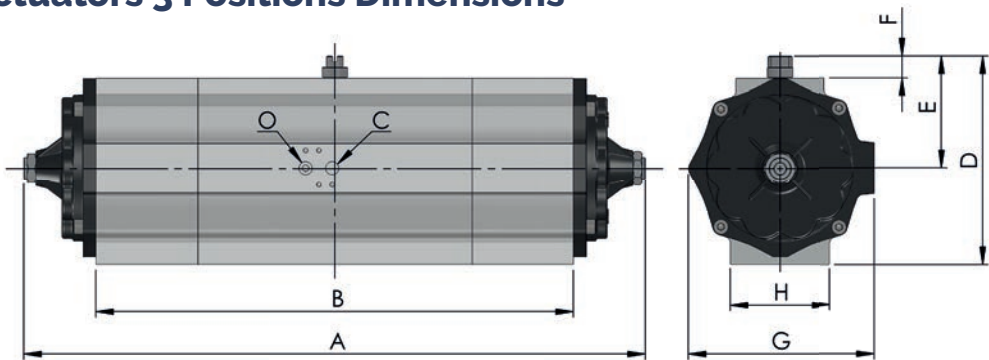
180° Actuators Series Double Acting Dimensions



	A	B	D	E	F	G	H
KP-5-180	225	115	111	64.2	20	89	48
KP-12-180	316	205	159	83.5	20	133	72
KP-30-180	377	248	189	101	20	169	90
KP-60-180	490	339	230	128	30	195	90
KP-140-180	601	428	272	150	30	232	130

Those actuators turn 180° by putting pressure either in the "O" inlet or in the "C" inlet. Torques and rest of the dimensions are the same as their respective standard models.

180° Actuators 3 Positions Dimensions



	A	B	D	E	F	G	H
KP-5-180-RPC	225	115	111	64.2	20	89	48
KP-12-180-RPC	316	205	159	83.5	20	133	72
KP-30-180-RPC	377	248	189	101	20	169	90
KP-60-180-RPC	490	339	230	128	30	195	90
KP-140-180-RPC	601	428	272	150	30	232	130

Those actuators have 3 positions. The central position is reached by spring force, then in order to move 90° clockwise or anticlockwise is necessary to put pressures either in "O" inlet or "C" inlet. Torques and rest of the dimensions are the same as their respective standard models.



Quifer Actuators, SL.
is Spanish producer
of pneumatic and hydraulic actuators since 1975. Quifer Actuators has a big experience manufacturing, rack and pinion aluminum pneumatic actuators, rotary ductile Iron pneumatic actuators, scotch yoke pneumatic actuators, scotch yoke hydraulic actuators, electro-hydraulics actuators, manual gearboxes, declutch-able gearboxes limit switches, couplings and accessories for any a quarter turn valves as plug valves, ball vales or butterfly valves. Quifer Actuators has a design technician department with extensive experience and has over 30 years creating its own products and evolving existing products

