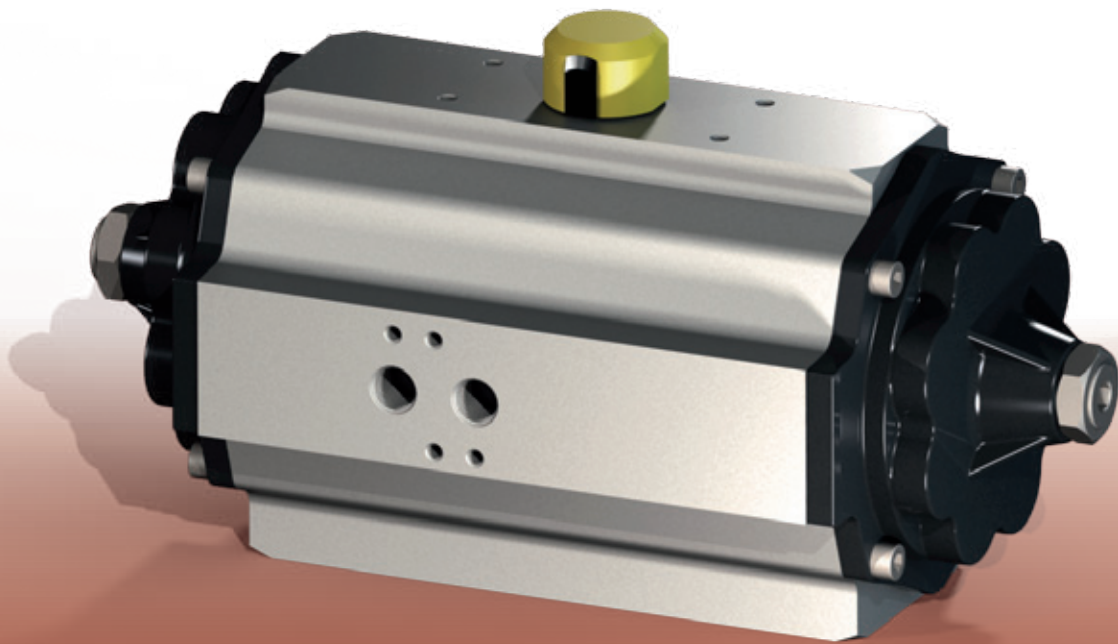


5th EVOLUTION



QUIFER ACTUATORS

PNEUMATIC ACTUATORS



**KP / KPM SERIES
TECHNICAL CATALOGUE**

COMPANY PROFILE

The commitment of **QUIFER ACTUATORS S.L.** with the quality, our efficient manufacturing system and our continuous improvement program are the factors that make **QUIFER ACTUATORS S.L.** among the most reliable pneumatic actuators manufacturers in today's market, with one of the best quality and life cycle ratios around. Quifer pneumatics actuators are manufacture in 14 different sizes, in both double acting and spring return types. Rack and pinion pneumatic actuators double acting with torque figures up to 4478 Nm, rack and pinion single acting pneumatic actuators with torque figures up to 1817 Nm. Projects are one of strengths of Quifer, where it is delivering complete packages according costumers requirements.

TECHNICAL SPECIFICATIONS

- **According to:** ISO9001:2008, IEC 61508:2010 (SIL3), LOM 05ATEX6032 X and European Pressure Equipment Directive 97/23/CE point 3.10.
- **Working Pressure:** From 1 to 8 Bar for double acting actuators. From 3 to 8 Bar for single acting actuators.
- **Air supply:** Air or no corrosive gas.
- **Working temperatures:** From -20°C to 80°C.
- **Lubrication:** All actuators are supplied lubricated for their normal working life.
- **Rotation:** Anticlockwise in opening. To reverse actuator rotation, invert pistons.
- **Movement:** Rotation of 0° +2,5° and 0° -2,5° / Rotation of 90° +2,5° and 90° -2,5°.

DESIGNATION

KP-XXX : Double acting actuator
KPM-XXX-YY : Spring return actuator

Where: XXX: designates the actuator
YY: designates the number of spring

CERTIFICATES AND APPROVALS



OPTIONS

The following options are available under request:

- Low temperature versions up to -65°C.
- High temperature versions up to +180°C.
- Nickel Plate.
- Stainless steel drive shaft.
- Special coatings for very high corrosive environments.
- Actuators are easily fitted on declutchable gearboxes as manual override.
- O-ring and spring repair kits.
- Some sizes are available with 180° rotation in double acting and in RPC.
- Complete package with control panels, solenoid valves, air tanks and accessories.

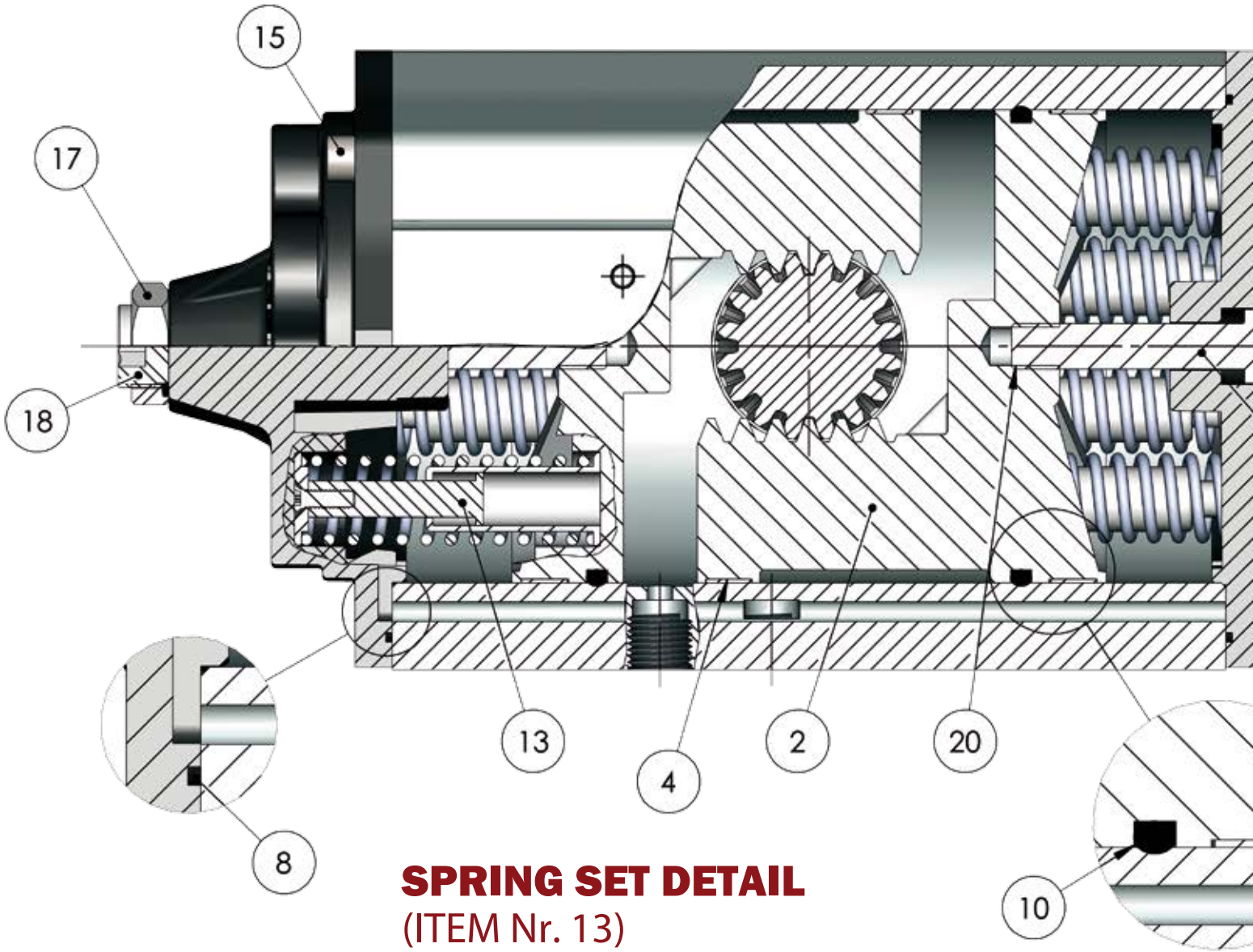


ADVANTAGES

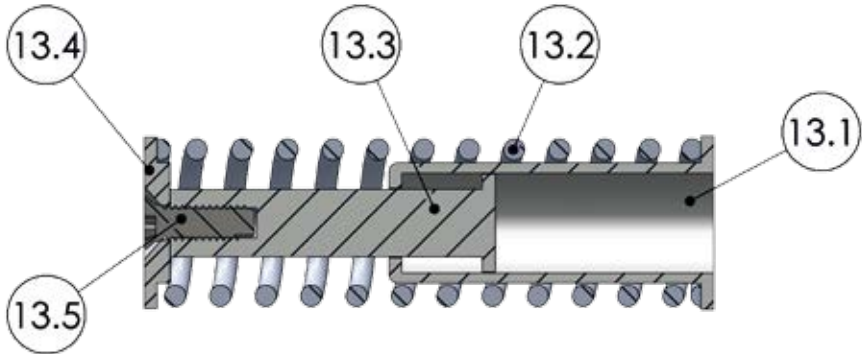
- Linking surfaces according to ISO 5211 and VDI/VDE 3845.
- Air connections according to VDI/VDE 3845.
- Drive Shaft whit square ISO 5211.
- All components have high resistance to corrosion.
- All models have a double opening and closing regulation from the outside.
- Multiple combination springs allow 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 or vice versa.
- Inner cylinder has been completely honey treated.
- Shaft and pistons are completely mechanized.
- Shaft has an anti-ejection retaining ring.
- Double sealing at the top and bottom of the shaft.

QUIFER ACTUATORS

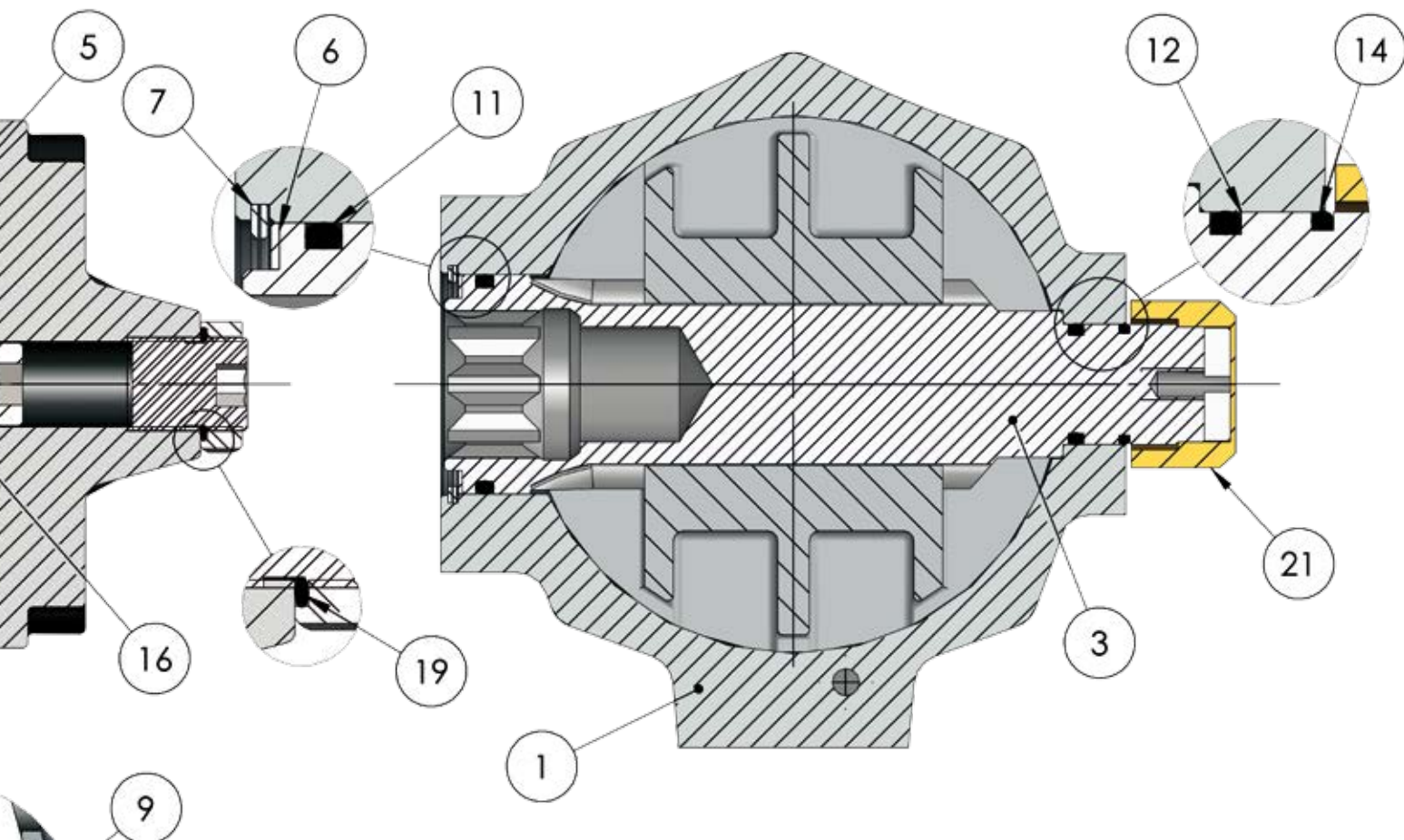




SPRING SET DETAIL
(ITEM Nr. 13)



SPRING SET BILL OF MATERIALS (ITEM N° 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



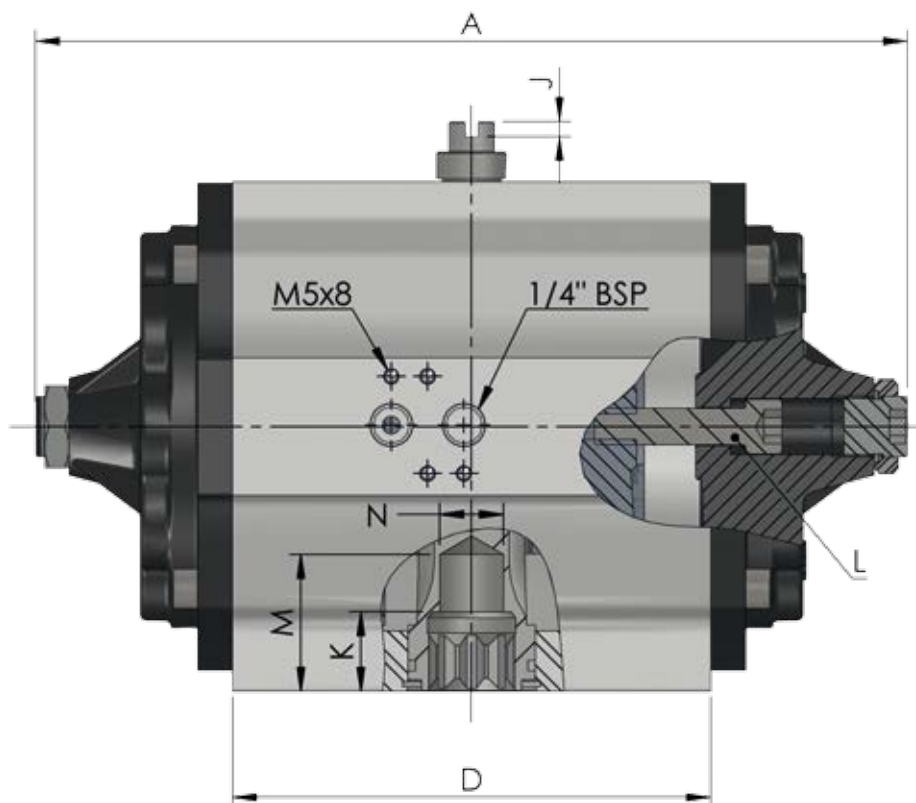
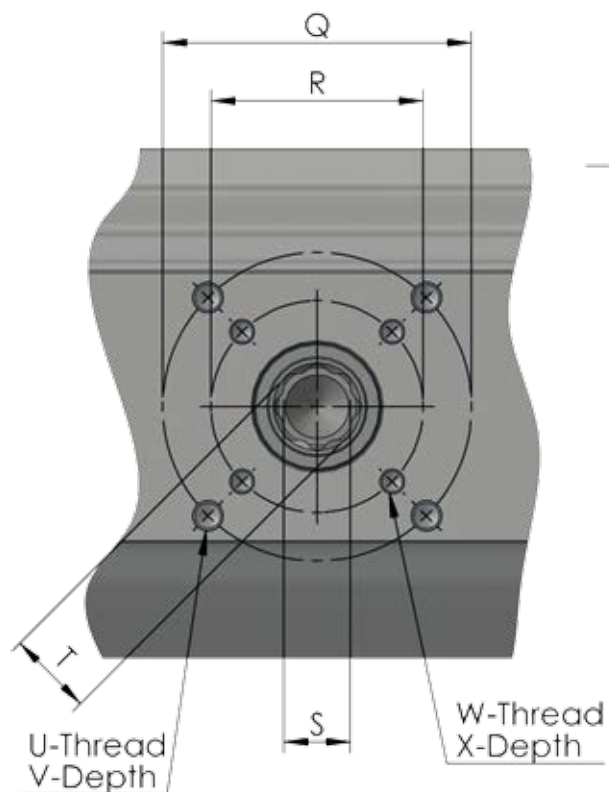
Item	Description	Material	Qty.	Surface finish
1	Body	AW-6063-T6 Al. Alloy	1	Hard Anodized
2	Piston	L-2653 T6 Al.	2	Hard Anodized
3	Drive Shaft	C-45E (F-1140)	1	Nickel Plated
4	Bearing Pad	DELFIN (Poli Oxi Metilene)	2 to 4	-
5	End Cap	L-2653-60 T6 Al. Alloy	2	Poliurethane Paint
6	Thrust Washer	DELFIN (Poli Oxi Metilene)	1	-
7	Retaining Ring	Stainless Steel AISI 302	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 AISI 302	2	-
18	Outer Travel Stop	Stainless Steel AISI 302	2	-
19	Travel Stop O-Ring	NBR 70Sh	2	-
20	Helicoil	Stainless Steel 18.10	2	-
21	Indicator	Polipropilene	1	-

QUIFER ACTUATORS



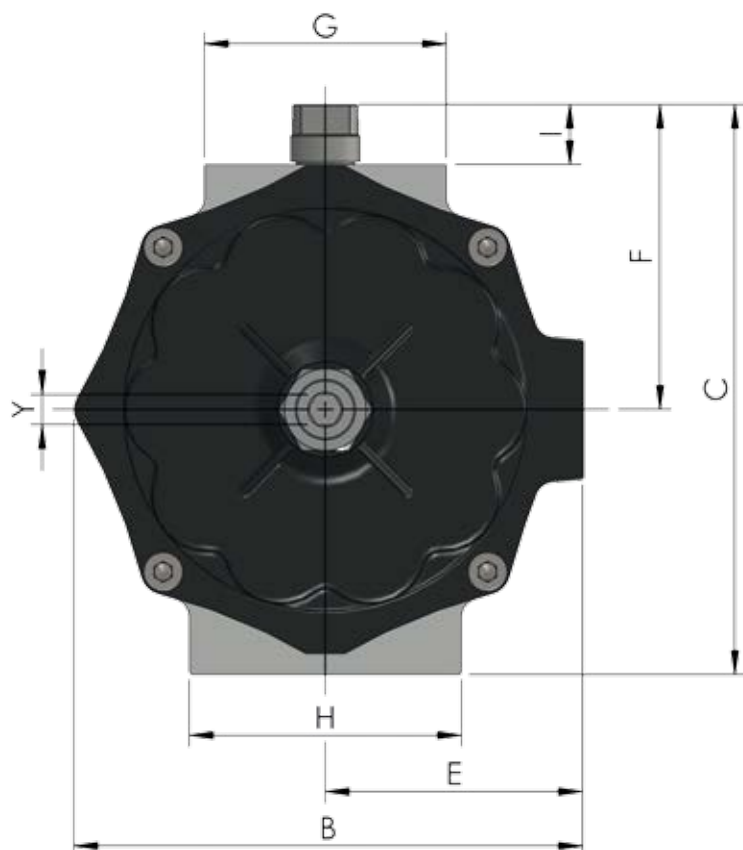
DIMENSIONS

BOTTOM VIEW

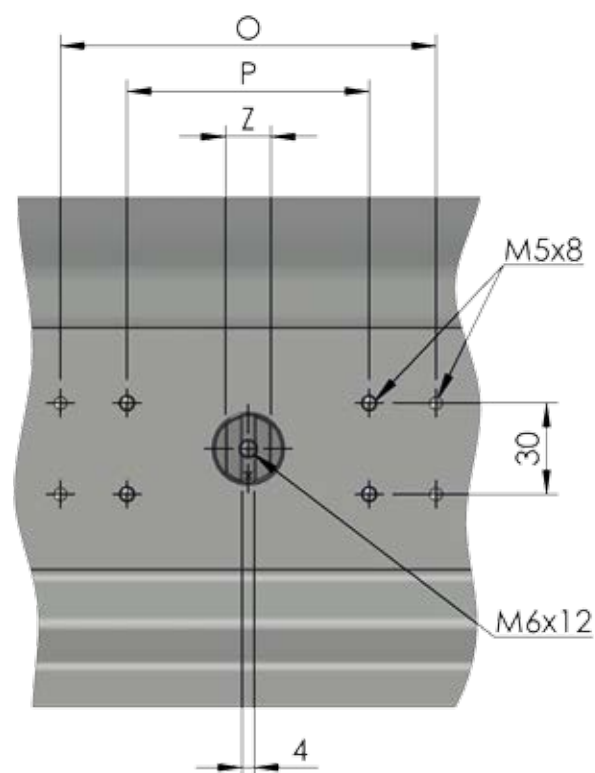


Actuator	A	B	C	D	E	F	G	H	I	J	K	L(1)
KP/KPM-5	180	89	111	101	49	64	46	48	20	4	16	5
KP/KPM-8	233	112	131	126	57	73	46	72	20	4	18	6
KP/KPM-12	280	112	131	170	57	73	46	72	20	4	20	6
KP/KPM-20	294	133	151	178	70	84	50	72	20	4	25	8
KP/KPM-30	286	169	189	158	85	101	80	90	20	4	25	10
KP/KPM-40	344	169	199	216	85	101	80	90	30	5	31	10
KP/KPM-60	377	195	230	232	100	128	75	90	30	5	31	12
KP/KPM-100	440	210	246	272	108	138	80	110	30	5	38	12
KP/KPM-140	445	232	272	255	120	150	90	130	30	5	41	12
KP/KPM-200	537	232	272	353	120	150	90	130	30	5	53	14
KP/KPM-250	460	305	340	317	151	182	100	156	30	5	51	14
KP/KPM-370	670	305	340	448	151	182	100	156	30	5	66	17
KP/KPM-500	794	406	450	500	207	235	135	180	30	5	79	22

(1) Dimension of the ALLEN key hexagon to untighten the inner travel stop.



TOP VIEW



M	N	O	P	Q	R	S	T	U x V	W x X	Z	ISO-5211
16	-	-	80	50	36	11	14,2	M6 x 9	M5 x 8	8	F03 / F05
31	15	-	80	70	50	17	22,2	M8 x 12	M6 x 9	10	F07 / F05
33	16	-	80	70	5	19	25,2	M8 x 12	M6 x 9	10	F07 / F05
45	22	-	80	70	-	22	28,2	M8 x 12	-	15	F07
45	21	-	80	102	70	22	28,2	M10 x 15	M8 x 12	15	F10 / F07
45	30	130	80	102	70	27	36,2	M10 x 15	M8 x 12	22	F10 / F07
47	30	130	80	102	70	27	36,2	M10 x 15	M8 x 12	22	F10 / F07
55	40	130	80	125	102	36	48,2	M12 x 18	M10 x 15	34	F12 / F10
55	40	130	80	125	102	36	48,2	M12 x 18	M10 x15	34	F12 / F10
80	51	130	80	140	-	46	60,2	M16 x 24	-	34	F14
55	40	130	80	10	-	36	48,2	M16 x 24	-	34	F14
66	5	130	80	165	-	46	60,2	M20 x 30	-	34	F16
127	60	130	80	165	-	55	72,2	M20 x 30	-	34	F16

Units in millimeters

QUIFER ACTUATORS



TORQUES

AIR VOLUME AND OPERATING TIME

ACTUATOR SIZE	AIR VOLUME PER STROKE (Lt.)		Operating Time at 6 Bar (Sec.)		
			DOUBLE ACTING	SPRING RETURN	
	Opening	Closing		Opening	Closing
KP 03 - KPM 03	0,107	0,1	< 1	1	< 1
KP 05 - KPM 05	0,165	0,187	< 1	1	< 1
KP 08 - KPM 08	0,359	0,451	< 1	1	< 1
KP 12 - KPM 12	0,534	0,661	< 1	1	< 1
KP 20 - KPM 20	0,807	0,909	< 1	1	< 1
KP 30 - KPM 30	1,124	1,374	1 - 2	1,5	1
KP 40 - KPM 40	1,72	1,902	1 - 2	1,5	1
KP 60 - KPM 60	2,641	3,19	1,5 - 2,5	2	1 - 2
KP 100 - KPM 100	3,935	4,41	2 - 3	3,5	2,5
KP 140 - KPM 140	4,71	4,128	3,5 - 4,5	4	3,5
KP 200 - KPM 200	6,292	8,052	4 - 5	5	4
KP 250 - KPM 250	7,662	8,745	5 - 6	5,5	5
KP 370 - KPM 370	14,15	17,49	5,5 - 6,5	7	6
KP 500 - KPM 500	21	26	9 - 10	13 - 14	6 - 7

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 8 mm. of diameter and the actuator without load)
If you modifies any parameter, the times can be different.

DOUBLE ACTING TORQUES CHART (Nm.)

ACTUADOR SIZE	40 PSI 2,7 Bar	60 PSI 4,1 Bar	80 PSI 5,5 Bar	88 PSI 6 Bar	100 PSI 6,9 Bar
KP 3	7,5	11	15	16,5	19
KP 5	15	23	30	33	38
KP 8	32	48	64	70	80
KP 12	48	72	96	105	119
KP 20	72	109	146	160	182
KP 30	99	150	201	219	250
KP 40	149	225	302	329	376
KP 60	227	348	469	512	588
KP 100	345	519	696	759	866
KP 140	435	663	889	970	1114
KP 200	603	909	1219	1330	1516
KP 250	767	1151	1550	1690	1928
KP 370	1343	2014	2713	2960	3374
KP 500	2150	3265	4380	4778	5495

25% Safety factor is recommended.

SPRING RETURN TORQUES CHART (Nm.)

ACTUADOR SIZE	N° SPRINGS	SPRING TORQUES (Nm)		PNEUMATIC STROKE TORQUES (Nm) AT OPERATING PRESSURE									
				40 PSI / 2,7 Bar		60 PSI / 4,1 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°
KPM 3	2	2,3	4,1	5,1	3,3	8,9	7,2						
	3	3,5	6,1	3,9	1,3	7,8	5,2						
	4	4,7	8,2			6,6	3,1	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
	6	7,1	12,4					7,85	2,6	9,3	4,1	11,8	6,6
KPM 5	4	4,7	8,2	10,3	6,8	17,8	14,4						
	6	7,1	12,3	7,9	2,7	15,5	10,3						
	8	9,5	16,5			13,1	6,1	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
	12	14,3	24,8					15,7	5,2	18,7	8,2	23,7	13,2
KPM 8	4	10,8	17,6	21,2	14,4	37	30	53	46	59	52		
	6	16,2	26,4	15,8	5,6	32	21	48	38	54	44	64	54
	8	21,6	35,2			26	13	42	29	48	35	58	45
	10	27	44					37	20	43	26	53	36
	12	32	53					32	11	38	17	48	27
KPM 12	4	16	29	32	19,2	55	43	80	67	89	76		
	6	25	43	23	5	47	29	71	53	80	62		
	8	33	58			39	14	63	38	72	47	86	61
	10	41	72					55	24	64	33	78	47
	12	49	86					47	10	56	19	70	33
KPM 20	8	31	55	41,5	17,5	79	55						
	10	38	68	33,9	3,9	71	41	108	78	122	92		
	12	46	82			64	28	100	64	114	78		
	14	53	95			56	14	93	51	107	65	129	87
	16	61	109					85	37	99	51	121	73
KPM 30	10	45	71	54	28	105	79						
	12	54	85	45	13,8	96	64	147	116	165	134		
	14	63	99			87	50	138	102	156	120		
	16	72	114			78	36	129	87	147	105	178	136
	18	81	128			69	22	120	73	138	91	169	122
KPM 40	20	90	142			111	59	111	59	129	77	160	108
	10	62	110	87,5	39,5	163	115						
	12	74	131	75,2	17,6	151	93	228	171	255	198		
	14	86	153			139	72	216	149	243	176		
	16	98	175			126	50	204	127	231	154	278	201
KPM 60	18	111	197			114	28	191	105	218	132	265	179
	20	123	219					179	83	206	110	253	157
	10	93	153	135	75	256	196						
	12	111	183	116	44	237	165	358	286	401	329		
	14	130	214			219	135	340	256	383	299		
KPM 100	16	148	244			200	104	321	225	364	268	440	344
	18	167	275			182	74	303	195	346	238	422	314
	20	185	305					284	164	327	207	403	283
	10	135	240	210	105	384	279						
	12	162	288	183	57	357	231	534	408	597	471	704	578
KPM 140	14	189	336			330	183	507	360	570	423	677	530
	16	216	384			303	135	480	312	543	375	650	482
	18	243	432			276	87	453	264	516	327	623	434
	20	270	480					426	216	489	279	596	386
	14	188	329	224	83	474	334						
KPM 200	16	215	376	197	36	448	287	674	513	755	594		
	18	242	423			421	240	647	466	728	547		
	20	269	470			394	193	620	419	701	500	845	644
	22	296	517			367	146	593	372	674	453	818	597
	24	323	564					566	325	647	406	791	550
KPM 250	10	221	377	383	227	688	532						
	12	265	452	338	151	644	457	954	767	1065	878		
	14	309	527			600	382	910	692	1021	803		
	16	353	602			556	306	866	617	977	728	1163	914
	18	397	678			512	231	822	541	933	652	1119	838
KPM 370	20	441	753					778	466	889	577	1075	763
	20	268	465	495	298	887	690						
	24	321	558	442	205	834	597	1229	992				
	28	375	651			780	504	1175	899	1315	1039		
	32	428	744			727	411	1122	806	1262	946	1500	1184
KPM 500	36	482	837			687	318	1068	713	1208	853	1446	1091
	40	535	930					1015	621	1155	761	1393	999
	10	468	888	876	455	1555	1135						
	12	561	1066	782	277	1462	957	2152	1647	2399	1894	2813	2308
	14	655	1243	689	100	1368	779	2059	1470	2306	1717	2720	2131

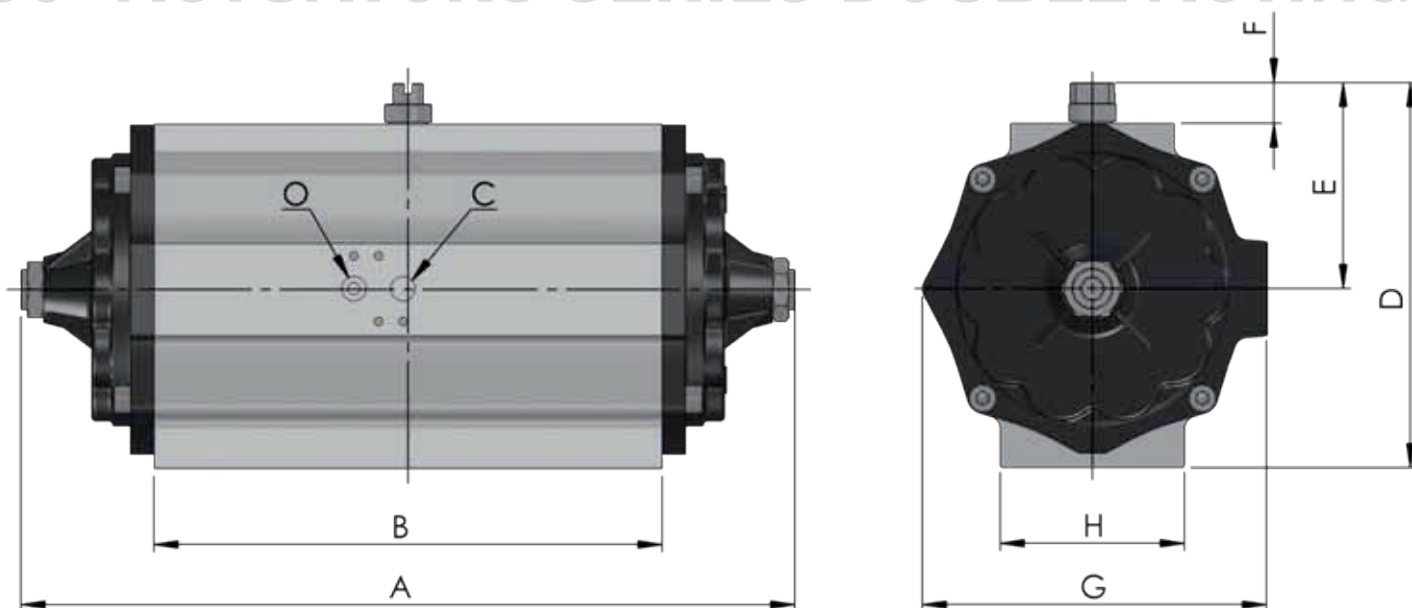
25% Safety factor is recommended.

QUIFER ACTUATORS



180° AND RPC MODELS

180° ACTUATORS SERIES DOUBLE ACTING



Actuator	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

NOTE: Rest of dimensions are the same than the standard actuator.

TORQUES

Torques are the same than their respective standard model.

Example: Torque KP 5 - 180 : Torque KP 005 Double acting

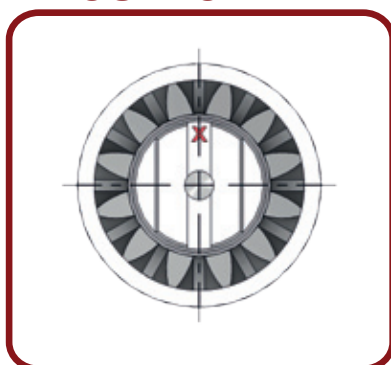
HOW IT WORKS

This Actuator has 2 positions and a career of 180°.

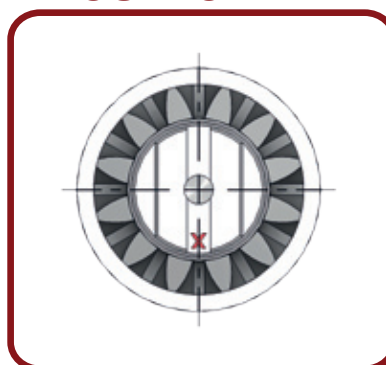
- Position 1 - When there's some pressure in the input C
- Position 2 - When there's some pressure in the input O

Drive shaft goes from Position 1 to Position 2 to anticlockwise direction.

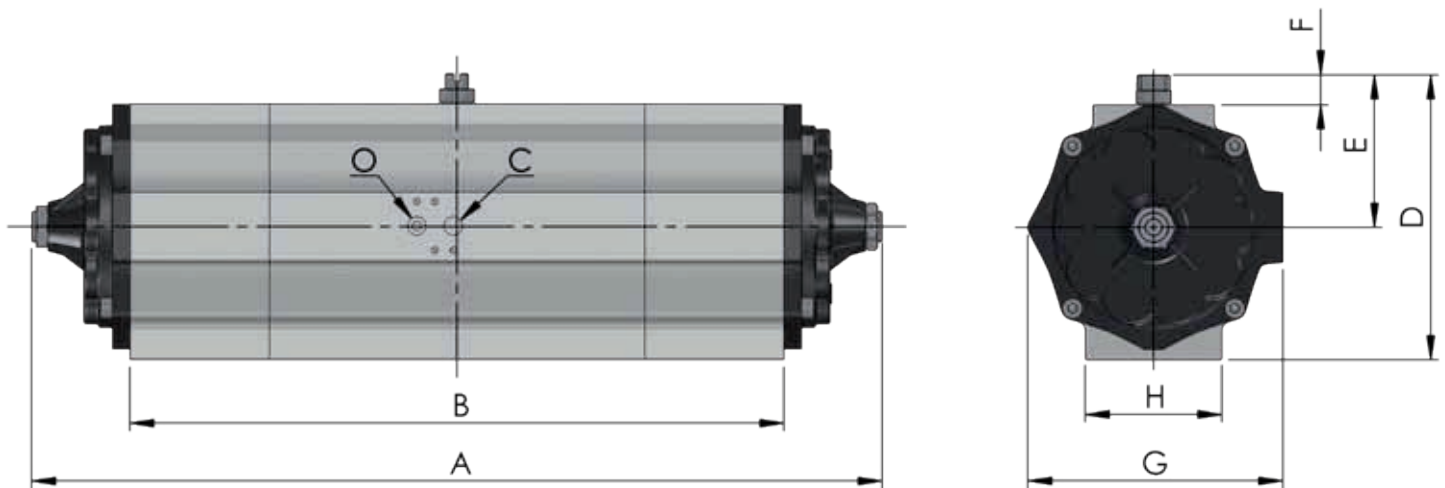
POSITION 1



POSITION 2



RPC ACTUATORS SERIES 3 POSITIONS



Actuator	A	B	D	E	F	G	H
KPM-5-180-RPC	333	263	111	64,2	20	89	48
KPM-12-180-RPC	445	361	159	83,5	20	133	72
KPM-30-180-RPC	535	437	189	101	20	169	90
KPM-60-180-RPC	680	570	230	128	30	195	90
KPM-140-180-RPC	880	768	272	150	30	232	130

NOTE: Rest of dimensions are the same than the standard actuator.

TORQUES

Torques are the same than their respective standard model.

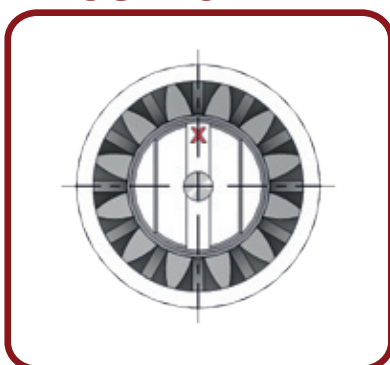
Example: Torque KPM 5 - 180 RPC : Torque KPM 005 Spring Return

HOW IT WORKS

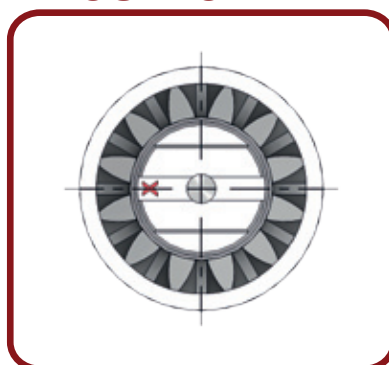
This Actuator has 3 positions.

- Position 1 - Drive shaft turns until this Position by spring force when it doesn't have any pressure.
- Position 2 - When there's some pressure in the input O
- Position 3 - When there's some pressure in the input C

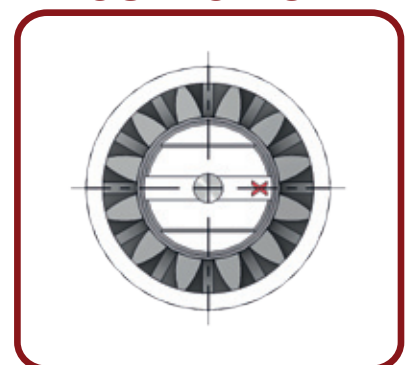
POSITION 1



POSITION 2



POSITION 3



QUIFER ACTUATORS



