



SK系列不锈钢气动执行器 液压执行器

SK Series Stainless Pneumatic and Hydraulic Actuator





设计特点 Design Features

SK系列不锈钢气动执行器的设计特点 Designing features of SK Series Pneumatic Actuator

执行器整体采用316、304不锈钢材质，外表电解抛光，光洁美观，抗腐蚀性能强，适合于抗腐蚀要求极高的工程环境。

双活塞齿轮齿条式设计，结构紧凑、安装位置对称、改变输出轴转向方便，使用寿命长、动作迅速。

活塞齿条背面装有复合轴承及导向环，动作精确、摩擦系数小、使用寿命延长。

组合式预负荷镀层弹簧，工作寿命长、抗腐蚀性能强。

高精度齿轮和齿条，啮合间隙小、精度高，输出功率大。

两个独立的行程调节螺钉可以进行方便、精确 $\pm 5^\circ$ 调节开、关位置。

不锈钢紧固件，安全美观，抗腐蚀性强。

采用国际规范尺寸：输出轴槽、螺孔；顶部安装孔尺寸符合NAMUR标准；气源接口尺寸符合NAMUR标准；底部安装孔尺寸符合ISO5211、DIN3337标准，方便安装电磁阀限位开关等附件。

ASTM316L、316、304、303 stainless steel pneumatic actuator with electro-polish finish offer excellent resistance to most corrosive chemicals as well as industrial atmospheres.

Dual piston rack and pinion design for compact construction, symmetric mounting position, high-cycle life and fast operation, reverse rotation can be accomplished in the field by simply inverting the pistons.

Multiple bearings and guides on racks and pistons, low friction, high cycle life and prevent shaft blowout.

Modular preloaded spring cartridge design, with coated spring for simple versatile range, greater safety and corrosion resistance, longer cycle life.

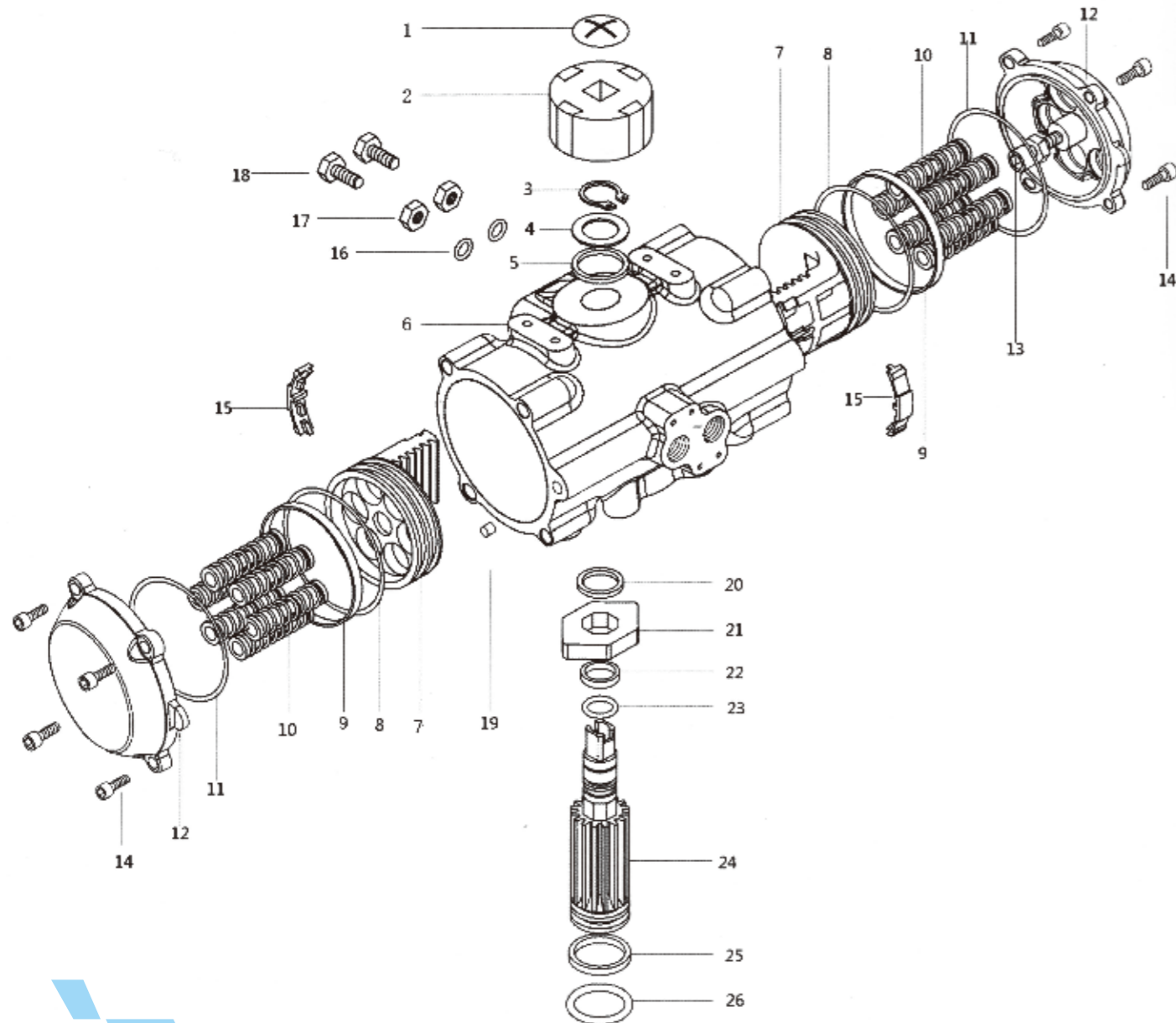
Fully machined teeth on piston and pinion for accurate low backlash rack and pinion engagement, maximum efficiency.

The two independent external travel stop adjustment bolts can adjust $\pm 5^\circ$ at both open and close directions easily and precisely.

Stainless steel fasteners for long term corrosion resistance.

Full conformance to the latest specifications: ISO5211, DIN3337 and Namur or product interchangeability and easy mounting of solenoids, limit switches and other accessories.

零件和材料 Parts and Materials

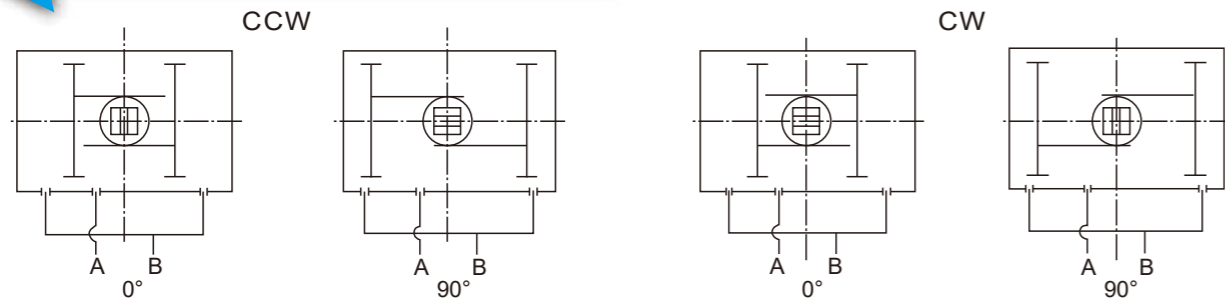


序号 NO.	名称 Description	数量 Qty.	材料 Standards Material
1	指示器螺钉 Indicator Screw	1	塑料 Plastic
2	指示器 Indicator	1	塑料 Plastic
3	弹性挡圈 Snap Ring	1	不锈钢 Stainless steel
4	垫片 Washer	1	不锈钢 Stainless steel
5	外垫片 Outside Washer	1	工程塑料 Engineering Plastics
6	缸体 Body	1	不锈钢 Stainless steel
7	活塞 Piston	2	不锈钢 Stainless steel
8	活塞"O"型圈 Piston O - ring	2	氟橡胶、丁腈橡胶 Viton/NBR
9	活塞支承圈 Piston Bearing	2	工程塑料 Engineering Plastics
10	弹簧 Spring 弹簧左右套 Spring Retainer(L,R) 弹簧套连杆 Retainer Connector	0-12	弹簧钢 Spring Steel 尼龙 66 Nylon 66 铜 Brass
11	端盖"O"型圈 End - Cap O - ring	2	氟橡胶、丁腈橡胶 Viton/NBR
12	端盖 End-Cap	2	不锈钢 Stainless steel
13	活塞导板 Guide Piston	2	尼龙 66 Nylon 66
14	调节螺钉"O"型圈 O - ring(Adjust screw)	2	橡胶 NBR
15	调节螺钉螺母 Nut(Adjust screw)	2	不锈钢 Stainless steel
16	调节螺栓 Adjust screw	2	不锈钢 Stainless steel
17	塞头 Plug	2	橡胶 NBR
18	肉垫片 Inside Washer	1	工程塑料 Engineering Plastics
19	凸轮 Cam	1	不锈钢 Stainless steel
20	上轴轴承 Bearing Top	1	工程塑料 Engineering Plastics
21	上轴"O"型圈 O - ring(Top)	1	氟橡胶、丁腈橡胶 Viton/NBR
22	轴 Pinion	1	不锈钢 Stainless steel
23	下轴轴承 Bearing Bottom	1	工程塑料 Engineering Plastics
24	下轴"O"型圈 O - ring Bottom	1	氟橡胶、丁腈橡胶 Viton/NBR



工作原理和输出扭矩 Operating Principle And Out Torque

双作用执行器 Double Acting Actuators



A口进气, 压缩空气推动活塞向外运动, 使执行器输出轴逆时针旋转(0° 90°), B口排气。

B口进气, 压缩空气推动活塞向内运动, 使执行器输出轴顺时针旋转(90° 0°), A口排气。

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.

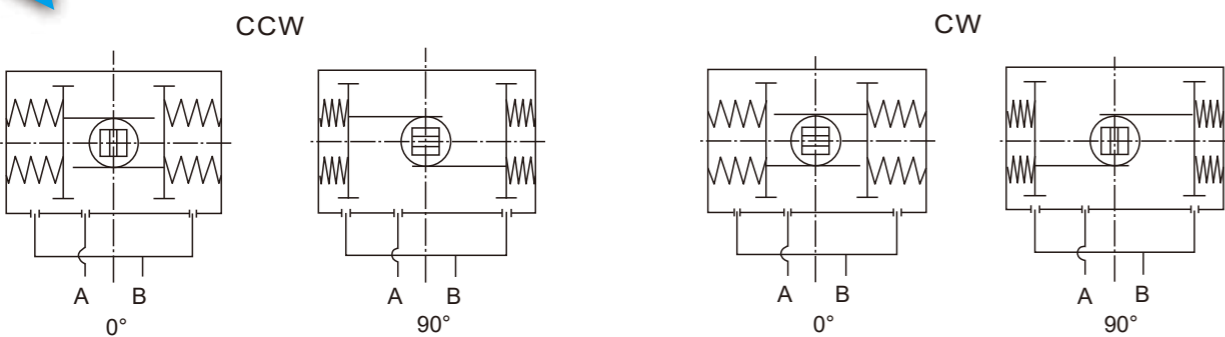
A口进气, 压缩空气推动活塞向外运动, 使执行器输出轴顺时针旋转(0° 90°), B口排气。

B口进气, 压缩空气推动活塞向内运动, 使执行器输出轴逆时针旋转(90° 0°), A口排气。

Air to Port A forces the pistons outwards, causing the pinion to turn clockwise While the air is being exhausted from Port B.

Air to Port B forces the pistons inwards, causing the pinion to turn counterclockwise while the air is being exhausted from port A.

单作用执行器 Spring Return Actuators



A口进气, 压缩空气克服弹簧力, 推动活塞向外运动, 执行器输出轴逆时针转动(0° 90°), B口排气;
执行器失气, 活塞在弹簧力的作用下向内运动, 执行器输出轴顺时针转动(90° 0°), A口排气。

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.

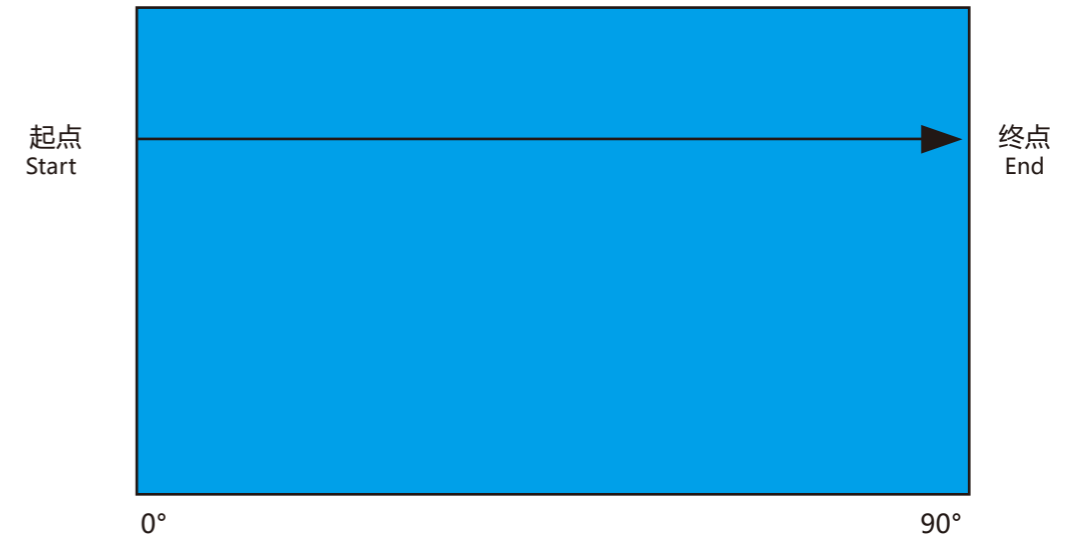
Loss of air pressure on port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A.

A口进气, 压缩空气克服弹簧力, 推动活塞向外运动, 执行器输出轴顺时针转动(0° 90°), B口排气;
执行器失气, 活塞在弹簧力的作用下向内运动, 执行器输出轴逆时针转动(90° 0°), A口排气。

Air to port B 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.

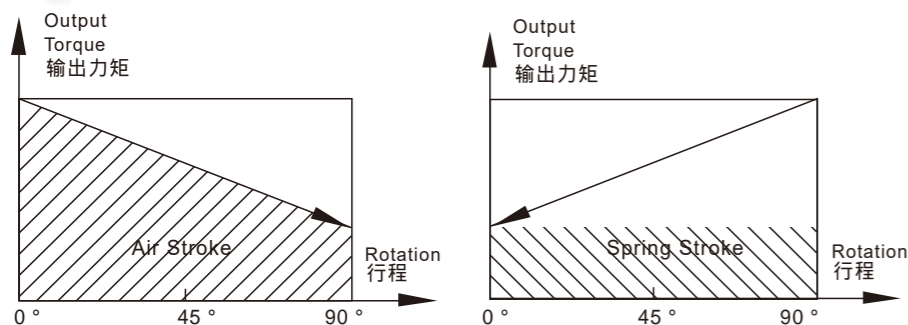
SK双作用执行器力矩图
SK double-acting actuator output torque



SK双作用式执行器输出力矩
SK double acting actuator output torque

型号 Model	输入气源压力 (单位bar) input air pressure (bar)					
	3.0	4.0	5.0	6.0	7.0	8.0
气源输出扭矩 (Nm) ioutput torque (Nm)						
SK-40	9.1	12.1	15.1	18.1	21.1	24.1
SK-52	12.0	16.0	20.0	24.0	28.0	32.0
SK-63	21.7	28.9	36.0	43.4	50.6	57.8
SK-75	30.0	40.0	50.0	60.0	70.0	80
SK-83	46.8	62.4	78.0	93.6	109.2	124.8
SK-92	67.6	90.1	112.6	135.2	157.7	180.2
SK-105	97.7	130.3	162.9	195.5	228.0	260.6
SK-125	150.5	200.6	250.8	301.0	351.1	401.3
SK-140	260.7	347.6	433.8	521.4	608.3	695.2
SK-160	397.2	529.6	662.0	794.4	926.8	1059.2
SK-190	640.2	853.6	1067.0	1280.4	1493.8	1707.2
SK-210	798.0	1064.0	1330.0	1596.0	1862.0	2128.0
SK-240	1154.3	1539.0	1923.8	2308.5	2693.3	3078.0
SK-270	1755.0	2340.0	2924.0	3510.0	4095.0	4680.0
SK-300	2291.4	3055.2	3819.0	4582.8	5346.6	6110.4
SK-350	3426.0	4568.0	5710.0	6852.0	7994.0	9136.0
SK-400	4872.0	6496.0	8120.0	9744.0	11368.0	12992.0

单作用扭矩 Output Torque with Spring Return



双作用执行器的选型 Sizing : Spring Return Actuators

在正常操作条件下，双作用执行器考虑的安全系数为 20%-30%。
 示例：
 阀门力矩=100Nm
 安全力矩=100x(1+30%)=130Nm
 气源压力=5Bar
 对照双作用力矩表，选配双作用执行器最小规格为 SK-105DA。

The suggested safety factor for double acting actuators under normal working conditions is 20%-30%. Example:
 The torque needed by valve=100N.m
 The torque considered safety factor (1+30%)=130N.m Air Supply=5Bar
 According to the above table, we can choose the minimum model is SK-105DA.

单作用执行器的选型 Sizing : Spring Return Actuators

在正常工作条件下，单作用执行器考虑的安全系数为 30%-50%
 例如：
 阀门需要力矩=80N.m
 安全力矩=80(1+30%)=104N.m 气源压力=5Bar
 对照单作用执行器输出力矩表，我们可以查到 SK-SR140 K7输出力矩为
 空气行程0°=308N.m
 空气行程90°=247N.m
 弹簧行程90°=181N.m

The suggested safety factor for spring return actuator under normal working conditions is 30-50%
 Example:
 The torque needed by valve = 80N.m
 The torque consider safety factor (1+30%)=104 N.m
 Air Supply=5Bar
 According to the table of spring return actuators' output, we find output torque of SK-SR140 K7 is:

弹簧行程0°=120N.m
 所有输出力矩均大于我们需求。
 注意：
 单作用执行器弹簧复位过程中，执行器B口通气不影响执行器输出力矩，相反帮主弹簧的复位。

Air stroke 0°=308N.m
 Air stroke 90°=247N.m
 Spring stroke 90°=181N.m
 Spring stroke 0°=120N.m
 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 inputing air from the port B. On the contrary, it will help the restoration of springs.

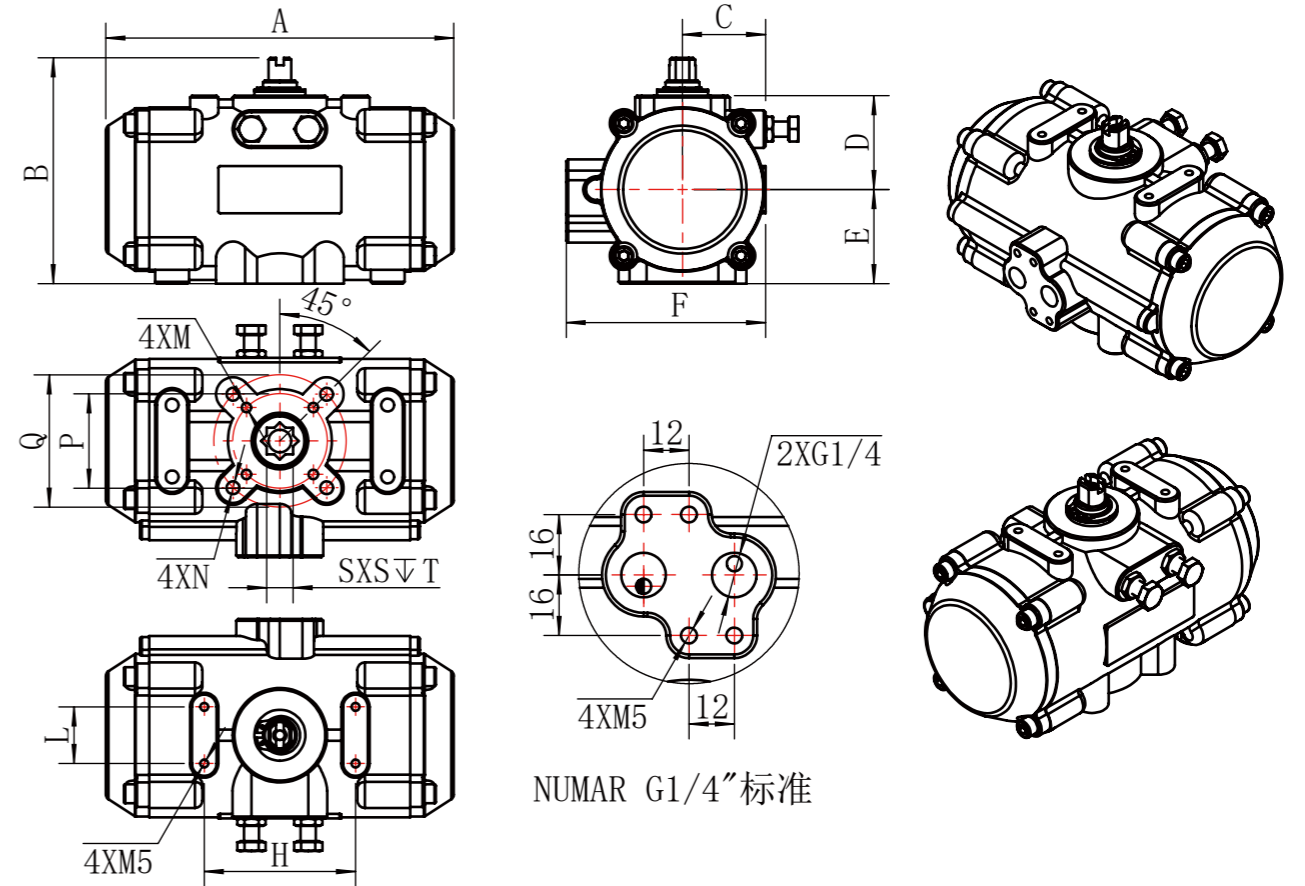
SK单作用式执行器输出力矩
SK single acting actuator output torque

型号 Model	弹簧数量 Spring Qty	输入气源压力 (单位) Input air pressure(bar)											
		3.0		4.0		5.0		6.0		7.0			
		气源输出扭矩 (Nm) (单位) Output torque(Nm)											
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
SK-45SR	2	4.6	7.4	4.2	1.3	7.2	4.3	10.2	7.3				
	3	5.8	9.2			6	2.4	9	5.4	12	8.4	15	11.4
	4	7	11.1					7.8	3.5	10.8	6.5	13.8	9.5
	5	4.0	6.2	8.1	5.8	12.1	9.8						
SK-52	6	4.7	7.4	7.3	4.6	11.3	8.6						
	7	5.5	8.7	6.5	3.3	10.5	7.3	14.5	11.3				
	8	6.3	9.9			9.7	6.1	13.7	10.1				
	9	7.1	11.2			8.9	4.8	12.9	8.8	16.9	12.8		
	10	7.9	12.4			8.1	3.6	12.1	7.6	16.1	11.6	20.1	15.6
	11	8.7	13.6			7.3	2.4	11.3	6.4	15.3	10.4	19.3	14.4
	12	9.5	14.9					10.5	5.1	14.5	9.1	18.5	13.1
	SK-63	5	6.8	10.4	14.9	11.3	22.1	18.5					
6		8.2	12.5	13.5	9.2	20.7	16.4						
7		9.6	14.6	12.1	7.1	19.3	14.3	26.5	21.5				
8		10.9	16.7			18.0	12.2	25.2	19.4				
9		12.3	18.9			16.6	10.0	23.8	17.2	31.1	24.5		
10		13.7	20.9			15.2	8.0	22.4	15.2	29.7	22.5	36.9	29.7
11		15.0	22.9					21.1	13.2	28.4	20.5	35.6	27.7
12		16.4	25.0					19.7	11.1	27.0	18.4	34.2	25.6
SK-75	5	10.0	15.0	20.0	15.0	30.0	25.0						
	6	12.0	18.0	18.0	12.0	28.0	22.0						
	7	14.0	21.0	16.0	9.0	26.0	19.0						
	8	16.0	24.0			24.0	16.0	34.0	26.0				
	9	18.0	27.0			22.0	13.0	32.0	23.0	42.0	33.0		
	10	20.0	30.0			20.0	10.0	30.0	20.0	40.0	30.0	50.0	40.0
	11	22.0	33.0			18.0	7.0	28.0	17.0	38.0	27.0	48.0	37.0
	12	24.0	36.0					26.0	14.0	36.0	24.0	46.0	34.0
SK-83	5	15.5	23.0	30.5	23.0	46.5	39.0						
	6	18.6	27.6	27.4	18.4	43.4	34.4						
	7	21.7	32.2			40.3	29.8	56.3	45.8				
	8	24.8	36.8			37.2	25.2	53.2	41.2				
	9	27.9	41.4			34.1	20.6	50.1	36.6	65.1	51.6		
	10	31.0	46.0			31.0	16.0	47.0	32.0	62.0	47.0	77.0	62.0
	11	34.1	50.6					43.9	27.4	58.9	42.4	73.9	57.4
	12	37.2	55.2					40.8	22.8	55.8	37.8	70.8	52.8
SK-92	5	23.0	33.0	44.6	34.7	67.1	57.2						
	6	27.6	39.5	40.0	28.1	62.5	50.6						
	7	32.2	46.1			57.9	44.0	80.4	66.5				
	8	36.8	52.7			53.3	37.4	75.8	59.9				
	9	41.4	59.3			48.7	30.8	71.2	53.3	93.8	75.9		
	10	46.0	65.9			44.1	24.2	66.6	46.7	89.2	69.3	111.7	91.8
	11	50.6	72.5					62.0	40.1	84.6	62.7	107.1	85.2
	12	55.2	79.1					57.4	33.5	80.0	56.1	102.5	78.6
SK-105	5	31.8	49.3	66.0	48.4	98.6	81.0						
	6	38.1	59.2	59.6	38.5	92.2	71.1						
	7	44.5	69.0			85.9	61.3	118.5	93.9				
	8	50.8	78.9			79.5	51.4	112.1	84.0				
	9	57.2	88.7			73.2	41.6	105.8	74.2	138.4	106.8		
	10	63.5	98.6			66.8	31.7	99.4	64.3	132.0	96.9	164.5	129.4
	11	69.9	108.5					93.1	54.4	125.7	87.0	158.2	119.5
	12	76.2	118.3					86.7	44.6	119.3	77.2	151.8	109.7
SK-125	5	50.0	78.0	100	72	150	122						
	6	60.0	93.6	90	56	140	106						
	7	70.0	109.2			130	91	181	142				
	8	80.0	124.8			120	75	171	126				
	9	90.0	140.4			110	60	161	110	211	161		
	10	100.0	156.0			100	44	151	95	201	145	251	195
	11	110.0	171.6					141	79	191	129	241	179
	12	120.0	187.2					131	64	181	114	231	164
SK-140	5	86.0	129.0	174	131	261	218						
	6	103.2	154.8	157	105	244	192						
	7	120.4	180.6			227	166	314	253				
	8	137.6	206.4			209	141	296	228				
	9	154.8	232.2			192	115	279	202	366	289		
	10	172.0	258.0			175	89	262	176	349	263	436	350
	11	189.2	283.8					245	150	332	237	585	324
	12	206.4	309.6					228	124	315	211	402	298

SK单作用式执行器输出力矩
SK single acting actuator output torque

型号 Model	弹簧数量 Spring Qty	弹簧输出扭矩(Nm) Spring output torque		输入气源压力 (单位) Input air pressure(bar)										
		0°	90°	3.0		4.0		5.0		6.0		7.0		
				气源输出扭矩 (Nm) (单位) Output torque(Nm)										
				0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	
SK-160	5	139.5	192.5	258	205	390	337							
	6	167.4	231.0	230	166	362	298							
	7	195.3	269.5			334	260	467	393					
	8	223.2	308.0			306	221	439	354					
	9	251.1	346.5			278	183	411	316	543	448			
	10	279.0	385.0			250	144	383	277	515	409	647	541	
	11	306.9	423.5					355	239	487	371	619	503	
12	334.8	462.0					327	200	459	332	591	464		
SK-190	5	190	320	451	320	664	533							
	6	227	384	413	256	626	469							
	7	265	448			588	405	802	619					
	8	303	512			550	341	764	555					
	9	341	576			512	277	726	491	939	704			
	10	379	640			474	213	688	427	901	640	1114	853	
	11	417	704					650	363	863	576	1076	789	
12	455	768					612	299	825	512	1038	725		
SK-210	5	261	440	619	439	912	732							
	6	313	528	566	351	859	644							
	7	365	616			807	556	1101	850					
	8	417	704			755	468	1049	762					
	9	469	792			703	380	997	674	1290	967			
	10	521	880			651	292	945	586	1238	879	1531	1172	
	11	573	968					893	498	1186	791	1479	1084	
12	625	1056					841	410	1134	703	1427	996		
SK-240	5	389	583	766	572	1151	957							
	6	467	700	688	455	1073	840							
	7	545	816			995	724	1379	1108					
	8	622	933			918	607	1302	991					
	9	700	1049			840	491	1224	875	1610	1261			
	10	778	1166			762	374	1146	758	1532	1144	1916	1528	
	11	856	1283					1068	641	1454	1027	1838	1411	
12	934	1399					990	525	1376	911	1760	1295		
SK-270	5	505	960	1434	979	2080	1625							
	6	606	1152	1333	787	1979	1433							
	7	707	1344			1878	1241	2523	1886					
	8	808	1536			1777	1049	2422	1694					
	9	909	1728			1676	857	2321	1502	2967	2148			
	10	1010	1920			1575	665	2220	1310	2866	1956	3513	2603	
	11	1111	2112					2119	1118	2765	1764	3412	2411	
12	1212	2304					2018	926	2664	1572	3311	2219		
SK-300	5	725	1145	1522	1102	2271	1851							
	6	870	1374	1377	873	2126	1622							
	7	1015	1603			1981	1393	2730	2142					
	8	1160	1832			1836	1164	2585	1913					
	9	1305	2061			1691	935	2440	1684	3189	2433			
	10	1450	2290			1546	706	2295	1455	3044	2204	3793	2953	
	11	1595	2519					2150	1226	2899	1975	3648	2724	
12	1740	2748					2005	997	2754	1746	3503	2495		
SK-350	5	1173	1703	2003	1474	3145	2616							
	6	1408	2043	1768	1133	2910	2275							
	7	1642	2384			2676	1935	3818	3077					
	8	1877	2724			2441	1594	3583	2736					
	9	2111	3065			2207	1254	3349	2396	4491	3538			
	10	2346	3405			1972	913	3114	2055	4256	3197	5398	4339	
	11	2581	3746					2879	1715	4021	2857	5413	3999	
12	2815	4086					2645	1374	3787	2516	4928	3658		
SK-400	7	1837	2881	2812	1768									
	8	2099	3292	2550	1225									
	9	2362	3704	2259	768	3887	2396							
	10	2624	4115	1967	311	3595	1939	5223	3567					
	11	2886	4527			3303	1482	4931	3110	6559	4738			
	12	3149	4938					4641	2653	6268	4281	7895	5908	
	13	3411	5350					4348	2195	5976	3823	7603	5450	
	14	3674	5761					4057	1738	5685	3366	7312	4993	
15	3936	6173					3765	1281	5393	2909	7020	4536		
16	4198	6584							5101	2452	6728	4079		

气动执行器外形尺寸及连接尺寸示意图
Pneumatic actuator size and connection size diagram

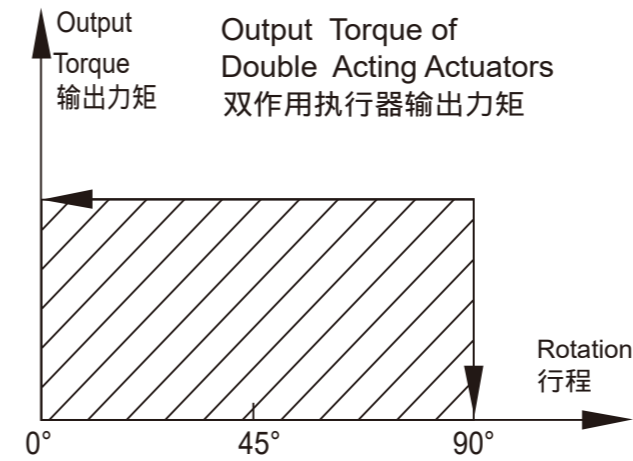


型号	A	B	C	D	E	F	HxL	P	Q	M	N	SXS	T	气源接口
SK-45	133	84	28	32	32	70	80X30	φ 36	φ 50	M5	M6	11X11	13	G1/4"
SK-52	146	92	30	36	36	79	80X30	φ 36	φ 50	M5	M6	11X11	13	G1/4"
SK-63	173	108	36	44	44	93	80X30	φ 50	φ 70	M6	M8	14X14	18	G1/4"
SK-75	184	119.5	44	49.75	49.75	105.5	80X30	φ 50	φ 70	M6	M8	14X14	20	G1/4"
SK-83	211	128	48	54	54	113.5	80X30	φ 50	φ 70	M6	M8	17X17	19	G1/4"
SK-92	262	138	49	59	59	125.5	80X30	φ 50	φ 70	M6	M8	17X17	22	G1/4"
SK-105	270	152.5	50	66.5	66.5	137	80X30	φ 70	φ 102	M8	M10	22X22	26	G1/4"
SK-125	302	174.5	58	77.5	77.5	156.5	130X30	φ 70	φ 102	M8	M10	22X22	27	G1/4"
SK-140	394	192	69	86	86	172.5	130X30	φ 102	φ 125	M10	M12	27X27	32	G1/4"
SK-160	456	218	75	99	99	195	130X30	φ 102	φ 125	M10	M12	27X27	32	G1/4"
SK-190	528	260	86	115	115	235	130X30	φ 140		M16		36X36	40	G1/4"
SK-210	532	285	101	127.5	127.5	255	130X30	φ 140		M16		36X36	40	G1/4"
SK-240	608	322	115	146	146	294	130X30	φ 165		M20		46X46	49	G1/4"
SK-270	714	361	126	165.5	165.5	327	130X30	φ 165		M20		46X46	49	G1/2"
SK-300	783	384	144	177	177	355	130X30	φ 165		M20		46X46	56	G1/2"
SK-400	940	491	180	232	232	439	130X30	φ 165	φ 254	M20		55X55	61	G1/2"

不锈钢气缸开关时间, 耗气量, 重量表
Aluminum alloy cylinder switch time, gas consumption, weight table

型号 Model	单作用K10开关时间 Spring return opening closing time		双作用开关时间 Double acting opening closing time		耗气量开关向体积 air volume opening closing		气缸重量表 Weight of pneumatic actuator	
	开时间 open time (S)	关时间 close time (S)	开时间 open time (S)	关时间 close time (S)	开向体积 open volume (L)	关向体积 close volume (L)	双作用 double acting (kg)	单作用K10 spring return (kg)
SK-45	0.4	0.2	< 1	< 1	0.08	0.11	1.9	2.1
SK-52	0.5	0.3	< 1	< 1	0.12	0.16	2.5	2.6
SK-63	0.5	0.3	< 1	< 1	0.21	0.23	3.6	4
SK-75	0.5	0.3	< 1	< 1	0.3	0.34	5	5.8
SK-83	0.8	0.5	< 1	< 1	0.43	0.47	6.5	7
SK-92	1	0.5	< 1	< 1	0.64	0.73	8.8	9.5
SK-105	2	1	< 1	< 1	0.95	0.88	10.5	11
SK-125	3	1.5	< 1	< 1	1.6	1.4	16	17
SK-140	3.9	1.8	< 1	< 1	2.5	2.3	23	25
SK-160	4	2	< 1.5	< 1.5	3.8	3.4	33	36
SK-190	5	2.5	< 1.5	< 1.5	6.1	5.6	50	57
SK-210	5.5	3	< 2	< 2	7.8	7.8	72	80
SK-240	9	4	< 3	< 3	11.3	9.5	86	110
SK-270	10	5	< 5	< 5	17.5	14.8	14	180
SK-300	13	6	< 6	< 6	23.8	29.7	198	220
SK-350	16	8	< 8	< 8	35.1	46.3		
SK-400	18	9	< 9	< 9	52.6	56	351	380

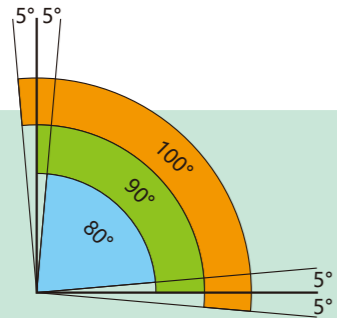
单作用: 非定制实测时间, 定制可加快速度
 双作用: 为0.5MPa, 无负载, 气源管路通径6mm, 储气包到气缸管长8米。(管长越短, 通径越大, 速度越快)
 耗气量: 耗气量取决于供气压力、开关行程、体积及动作次数, 计算如下:
 升/分=气缸体积(开向体积+关向体积)×[供气压力(Kpa)+101.3]/101.3×次数/分钟



双作用液动执行器扭矩表 (Nm) Output Torque Table Sheet (Unit Nm)

压力 型 扭 号 Model Torque	70bar	100bar	110bar	120bar	130bar	140bar	160bar
Pressure HD32	67	96	106	115	125	135	154
HD40	183	262	288	314	340	366	418
HD50	377	538	592	646	700	754	862
HD63	754	1077	1185	1292	1400	1508	1723
HD80	1615	2308	2538	2769	3000	3231	3692
HD100	2800	4000	4400	4800	5200	5600	6400
HD125	5385	7692	8462	9231	10000	10769	12308

工作技术条件 Operating Conditions



1. 使用介质：压缩空气、无腐蚀性气体和油；
2. 压力范围：双作用2~8巴 (Bar) ，单作用2~8巴 (Bar)
3. 工作温度：标准型（使用丁腈橡胶O型圈）-20°C~+80°C
低温型（使用硅橡胶O型圈）-40°C~+80°C
高温型（使用氟橡胶O型圈）-20°C~+150°C
4. 行程调整：在90°位置有±5°的可调范围；
5. 润滑：在正常工作条件下，不需添加润滑剂；
6. 安装：适合室内或室外安装；
7. 最高使用压力：输入气压不超过10巴。

1. Operating media : Dry or lubricated air, the non-corrosive gases or oil.
2. Air supply pressure : Double acting: 2 ~ 8 Bar; Spring return: 2 ~ 8 Bar
3. Operating temperature : Standard: -20°C~+80°C
Low temperature: -40°C~+80°C
High temperature: -20°C~+150°C
4. Travel adjustment : Have adjustment range of ±4°for the rotation at 90°
5. Lubrication : Under normal operating condition, need not accrete lubricant
6. Application : Either indoor or outdoor
7. Highest pressure : The maximum input pressure is 10 Bar

注意

确保执行器的输出扭矩和驱动阀门所需要的扭矩相符（执行器的型号和气源压力）。请注意，选型扭矩不仅取决于阀门，还要考虑相关的工况、安全系数等参数。

Note

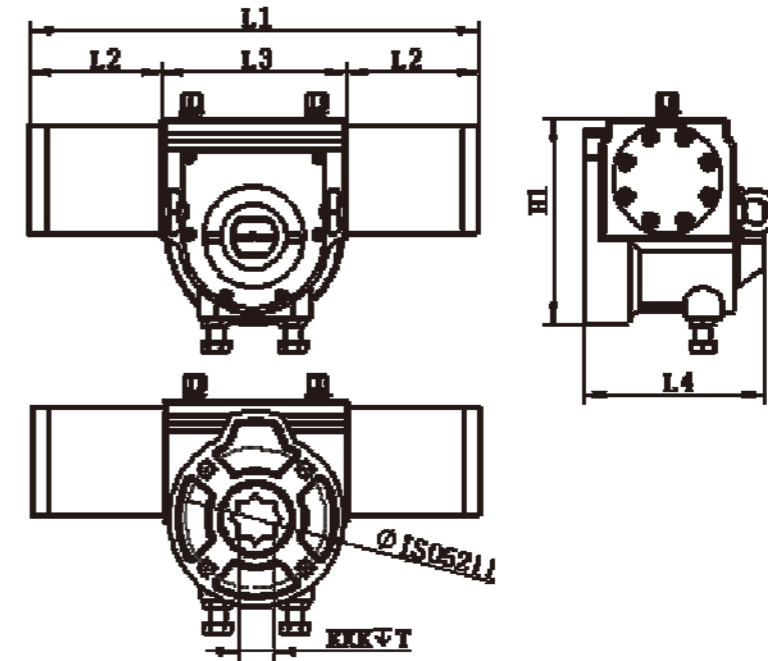
Make sure that the torque necessary to operate the valve is compatible with the actuator torque (it depends on both actuator type and air supply). Please note that the requested torque depends not only on the valve, but on the working conditions and the safety margins or the plant in question, too.



主要尺寸 Main Dimensions

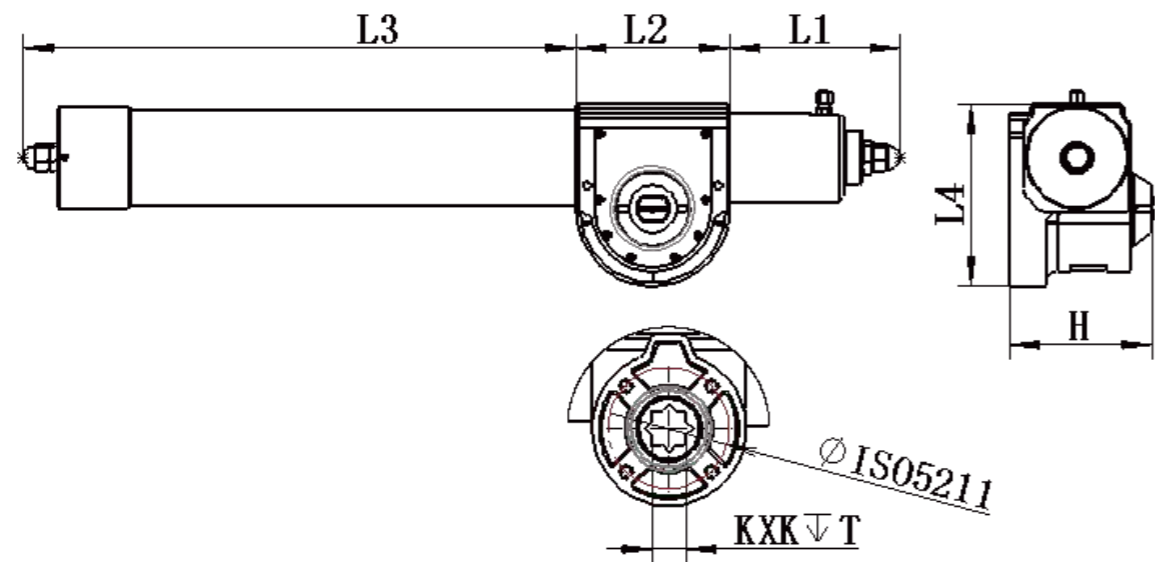
执行器显示在关闭位置

Actuator shown in closed position..



双作用液动执行器外形尺寸图 Double acting hydraulic actuator size chart

型号Modle	H1	L1	L2	L3	L4	KXX	T	ISO5211	G	容积 Volume (L)
HD32	115	246	73	100	112	11X11	27	F05/F07	G1/4"	0.02
HD40	148	304	84	136	132	22X22	30	F07/F10	G1/4"	0.05
HD50	176	360	104	152	148	27X27	36	F10/F12	G1/4"	0.11
HD63	205	448	132	184	180	36X36	45	F10/F12 /F14	G1/4"	0.22
HD80	248	655	222.5	210	195	46X46	50	F14/F16	G1/4"	0.45
HD100	269.5	700	240	220	210	46X46	50	F14/F16	G1/4"	0.78
HD125	420	870	282.5	305	275	55X55	65	F16/F25	G1/4"	1.52



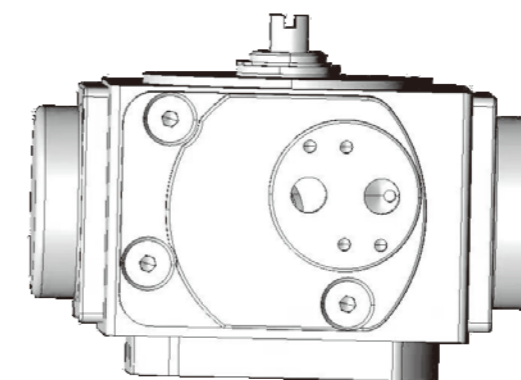
单作用液动执行器外形尺寸图 Single acting hydraulic actuator size chart

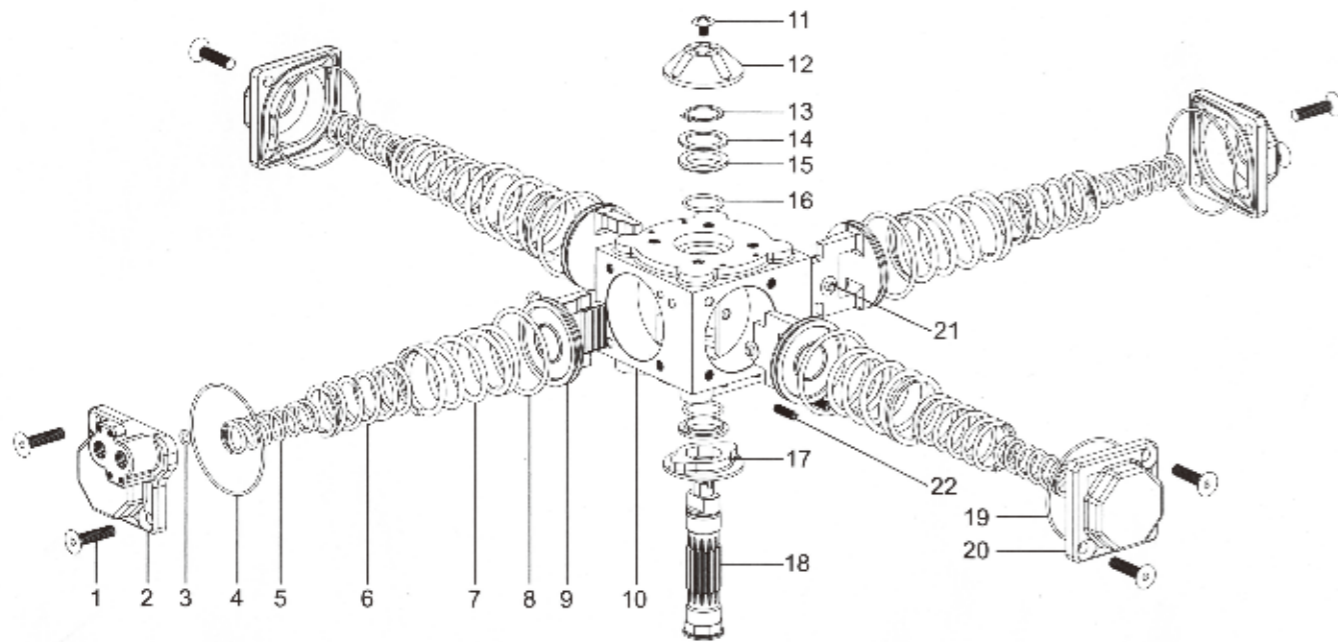
型号Modle	L1	L2	L3	L4	H	SxS	T	ISO5211	G	重量Weight (kg)	容积Volume (L)
HS160	105	125	244	145	135	17x17	30	F07	G1/4"	28	0.1
HS350	124	155	354	170	155	22x22	36	F10	G1/4"	53	0.2
HS900	150	200	429	225	215	27x27	50	F12	G1/4"	130	0.6
HS2000	186	245	694	270	235	36x36	50	F14	G1/4"	185	1.3

型号 Model	压力 Pressure	扭矩 Torque	Spring torque		90bar		100bar		110bar		130bar		140bar	
			min	max	min	max	min	max	min	max	min	max	min	max
			0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
HS160			160	280	160	55	160	98	160	142	160	230	160	270
HS350			330	535	330	117	330	218	330	318	330	518	330	620
HS900			900	1721	900	379	900	680	900	974	900	1570	900	1867
HS2000			2000	3787	2000	149	2000	839	2000	1529	2000	2909	2000	3598

主要参数Main Data

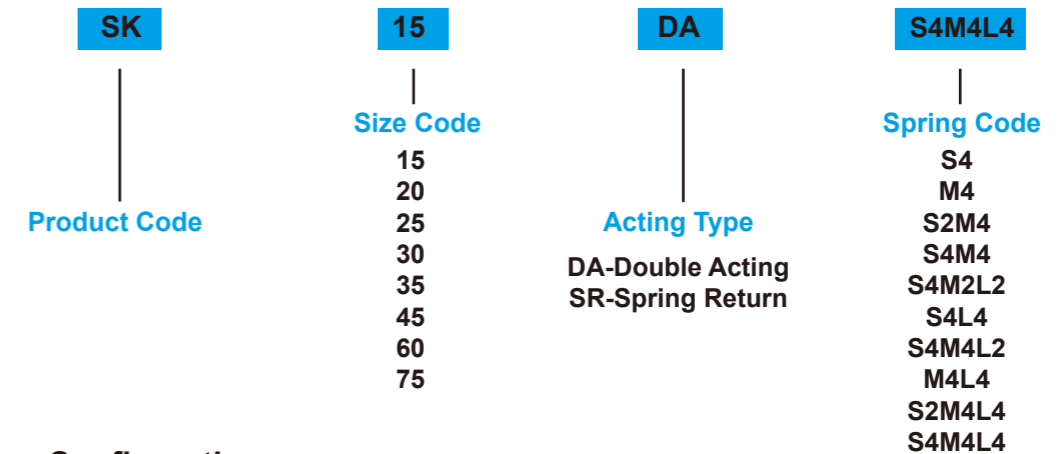
HD	
阀门Valve applications	蝶阀、球阀 Butterfly and ball valve (Quarter-turn valve)
性能PHYSICAL PROPERTIES	
类型Design	齿轮齿条Simple piston rack and pinion design
基体材质House Material And Finish	SUS304、SUS316
接口直径Oil connection	G1/4" BSPP1/4"- Φ8/Φ10/Φ12
法兰标准Mounting flange	ISO5211 According to ISO5211 standard
IP等级IP grade, application	干湿: IP56, 湿室: IP68浸没 IP56 dry area or IP68 submerged area
工作参数OPERATING CONDITIONS	
压力working pressure range	70-160 bar
容积volume	详见下表See Below Sheet Table
环境温度Operating temperature	Standard:-30℃—+60℃
调节范围Travel adjustment	90° ±5°
液压油Hydraulic oil	32#与46#, 粘度范围为15 - 64 cSt 32#与46#, Viscosity range: 15 - 64 cSt.
阀位指示Indication	开/关Open/close on shaft
关方向Closing direction	顺时针Clockwise
安装和操作标准MOUNTING AND OPERATING STANDARD	
底部安装连接按照ISO5211标准设计, 直接安装在阀门、齿轮箱或安装支架上, 执行机构的输出轴可根据阀杆进行调整 Bottom mounting connection is designed in accordance with ISO5211 standard for direct mounting with valve gear boxes or mounting bracket, outgoing shaft of actuator can be adjusted according to stem of valve.	





No.	Name	Qty.	Material
1	Cover Screw	8	Stainless Steel
2	Namur Cover	1	Die-casting Aluminum 356
3	Air Supply O-ring	1	NBR / Viton / L NBR
4	Namur Cover O-ring	1	NBR / Viton / L NBR
5	Small Spring	4	Spring Steel
6	Middle Spring	4	Spring Steel
7	Large Spring	4	Spring Steel
8	Piston O-ring	4	NBR / Viton / L NBR
9	Piston	4	Diee casting Aluminum 356
10	Body	1	Gravity Casting Aluminum 356-T6
11	Indicator Screw	1	Stainless Steel
12	Indicator	1	Plastic (ABS)
13	Snap Ring	1	Stainless Steel
14	Thrust Washer	1	POM
15	Bearing	2	POM
16	Pinion O-ring	2	NBR / Viton / L NBR
17	Travel Stop	1	Stainless Steel
18	Pinion	1	Alloy Steel With Nickel Chemical Coating
19	Cover O-ring	3	NBR / Viton / L NBR
20	Cover	3	Die-casting Aluminum 356
21	Position Pad	4	POM
22	Stroke Adjustment Screw	4	Stainless Steel

Part Number Example



Spring Configuration

S4	M4	S2M4**	S4M4	S4M2L2	Springs
S4L4	S4M4L2	M4L4*	S2M4L4	S4M4L4	

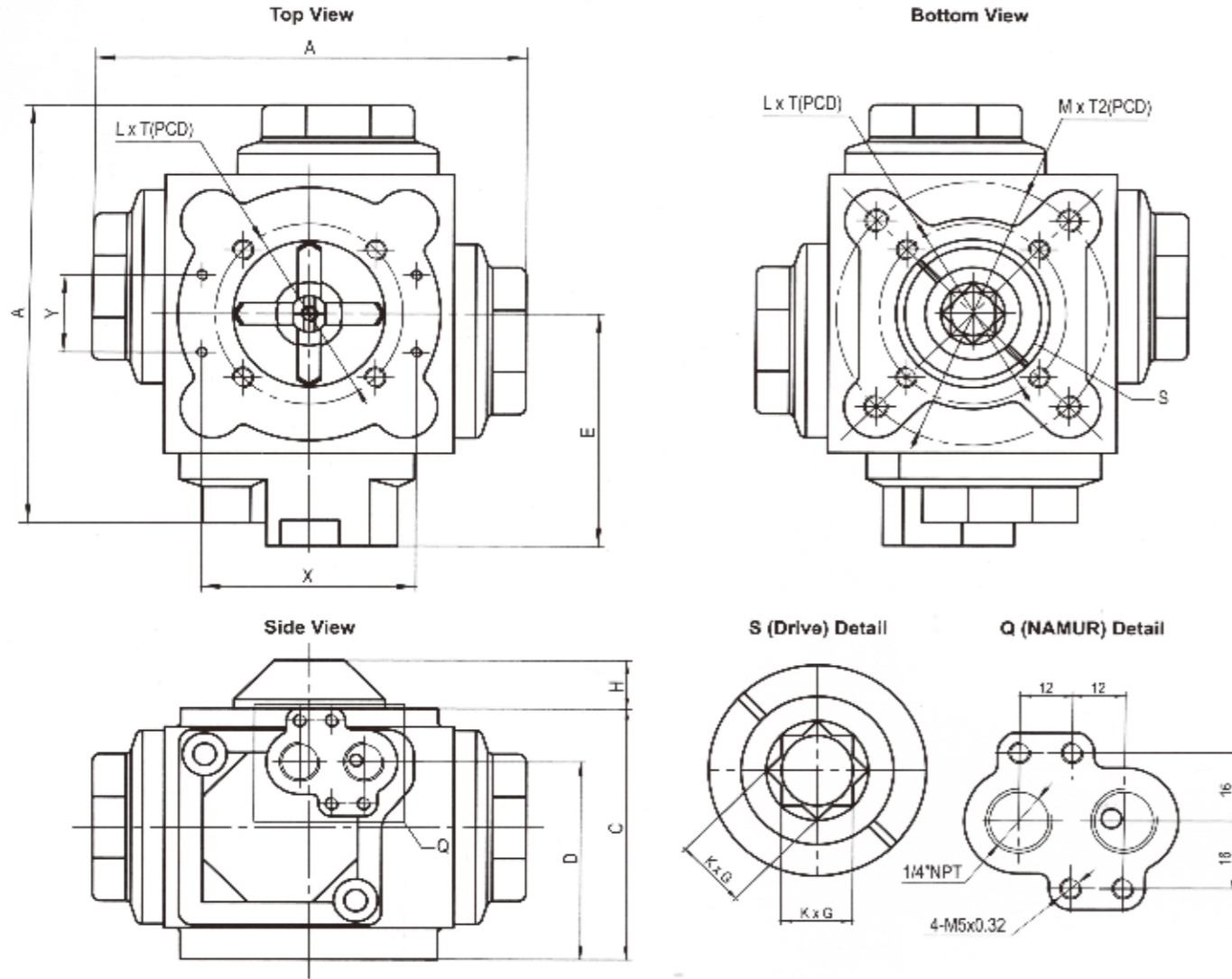
S-small size spring; M-middle size springs; L-large size springs.

* Default spring setting for SK20SR - SK75SR;

**Default spring setting for SK15SR.

SK Double Acting Actuator Output Torques

Model	Unit: Nm							Unit: in-lb						
	Operating Pressure (bar)							Operating Pressure (psi)						
	3	4	5	5.5	6	7	8	45	60	75	80	85	100	115
SK-15DA	10	14	17	19	21	24	27	92	128	156	169	182	209	237
SK-20DA	18	25	32	35	38	45	51	165	229	293	311	329	392	447
SK-25DA	39	52	65	72	79	92	105	357	476	595	639	683	802	921
SK-30DA	62	84	107	119	130	153	176	568	769	980	1056	1124	1334	1544
SK-35DA	114	151	190	208	226	265	304	1044	1382	1739	1847	1954	2311	2667
SK-45DA	222	297	371	408	445	519	593	2032	2719	3397	3622	3848	4525	5203
SK-60DA	527	703	879	967	1055	1230	1406	4825	6436	8047	8585	9122	10725	12336
SK-75DA	974	1299	1624	1786	1948	2273	2596	8917	11893	14868	15856	16843	19819	22777



Unit: $\frac{\text{mm}}{\text{in}}$

Model	A	C	D	E	G	H	K	L	M	T	T2	X	Y	ISO5211
SK-15	113 (4.45)	70.7 (2.78)	52.2 (2.06)	66.5 (2.62)	13.4 (0.53)	20 (0.79)	9 (0.35)	50 (1.97)	70 (2.76)	M6x8	M8x11	80 (3.15)	30 (1.18)	F05/F07
SK-20	132.5 (5.22)	82.5 (3.25)	63.4 (2.50)	77.2 (3.04)	16 (0.63)	20 (0.79)	11 (0.43)	50 (1.97)	70 (2.76)	M6x8	M8x11	80 (3.15)	30 (1.18)	F05/F07
SK-25	162 (6.38)	97.6 (3.84)	77 (3.03)	90 (3.54)	19.5 (0.77)	20 (0.79)	14 (0.55)	70 (2.76)	102 (4.02)	M8x11	M10x14	80 (3.15)	30 (1.18)	F07/F10
SK-30	186 (7.32)	117 (4.61)	93.7 (3.69)	105.5 (4.15)	23 (0.91)	20 (0.79)	17 (0.67)	70 (2.76)	102 (4.02)	M8x11	M10x14	80 (3.15)	30 (1.18)	F07/F10
SK-35	224 (8.82)	136 (5.35)	104.7 (4.12)	122 (4.80)	27 (1.06)	20 (0.79)	22 (0.87)	102 (4.02)	-	M10x14	-	80 (3.15)	30 (1.18)	F10
SK-45	272.6 (10.73)	164.5 (6.48)	128.5 (5.06)	146 (5.75)	33 (1.30)	20 (0.79)	27 (1.06)	102 (4.02)	125 (4.92)	M10x14	M12x18	80 (3.15)	30 (1.18)	F10/F12
SK-60	361 (14.21)	218 (8.58)	180 (7.09)	141.5 (5.57)	43 (1.69)	30 (1.18)	36 (1.42)	140 (5.51)	-	M16x24	-	130 (5.12)	30 (1.18)	F14
SK-75	433 (17.05)	268 (10.55)	222 (8.74)	166 (6.54)	43 (1.69)	30 (1.18)	38 (1.50)	165 (6.50)	-	M20x30	-	130 (5.12)	30 (1.18)	F16

MODEL	SK-15	SK-20	SK-25	SK-30	SK-35	SK-45	SK-60	SK-75	
Weight (kg / lb)	DA	0.9 / 1.9	1.5 / 3.3	2.8 / 6.2	4.4 / 9.7	7.1 / 15.6	11 / 24.2	26 / 57.2	51 / 112.2
	SR	1.1 / 2.4	1.9 / 4.2	3.5 / 7.7	5 / 11.0	9 / 19.8	15 / 33.0	35 / 77.0	64 / 140.8
Air Consumption (L / in ³)	CCW	0.07 / 4.27	0.12 / 7.32	0.25 / 15.25	0.44 / 26.84	0.74 / 45.14	1.33 / 81.13	3.2 / 195.2	5.76 / 351.36
	CW	0.09 / 5.49	0.15 / 9.15	0.33 / 20.13	0.54 / 32.94	0.8 / 48.8	1.33 / 81.13	3.2 / 195.2	5.76 / 351.36
	Total	0.16 / 9.76	0.27 / 16.47	0.58 / 35.38	0.98 / 59.79	1.54 / 162.26	2.66 / 162.26	6.4 / 390.4	11.52 / 702.72
Stroke Time (Sec.)	With Solenoid Valve of CV1.4 At 5.5 Bar (80 psi)	0.1	0.15	0.2	0.3	0.5	0.9	2	3
	Working Pressure	DA	1.5 ~ 8 Bar (20 ~ 120 psi)						
	SR	2 ~ 8 Bar (20 ~ 120 psi)							
Operating Temperature	Standard (NBR O-rings)	-20 ~ 80 °C (-5 ~ 175 °F)							
	High temperature (Viton O-rings)	-15 ~ 120 °C (-4 ~ 250 °F)							
	Low temperature (LNBR O-rings)	-40 ~ 80 °C (-40 ~ 175 °F)							

