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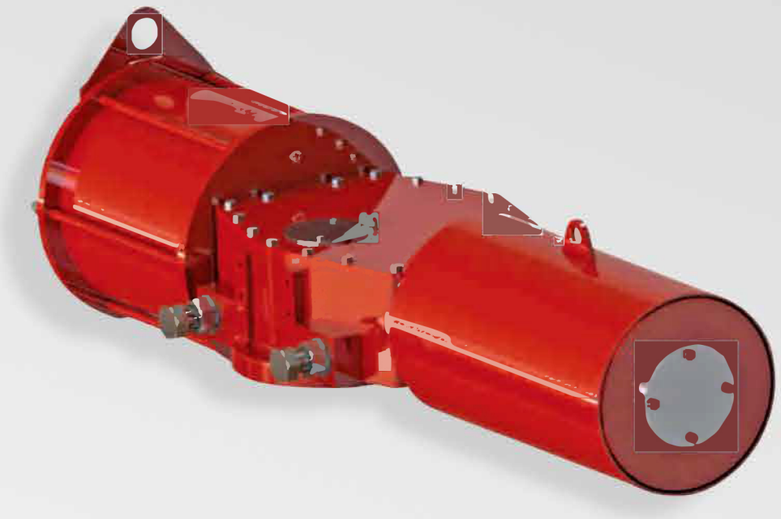
重载型气动执行器

Heavy-Duty Pneumatic Actuator

SP series



VALVE AUTOMATION

KOCH

RYAN

Heavy-Duty Pneumatic Actuator
SP Series
SP 系列重载型气动执行器

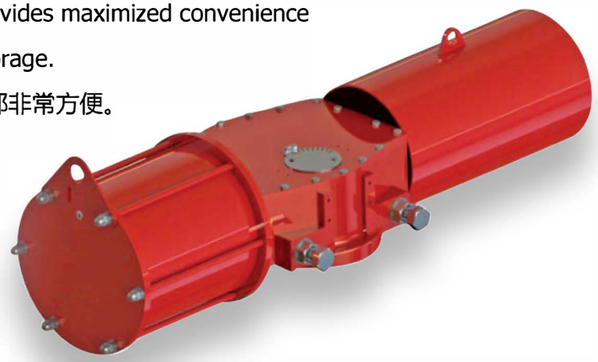
- The SP series of heavy duty scotch yoke actuators is designed suitable for general purpose of valves and damper automation and offer a wide range of torques enable to operate ball, butterfly, plug valves, dampers or any device that requires a quarter-turn operation for on-off or modulating service.
  SP系列重载型气动执行器为拨叉式传动结构，适用于一般以90°回转的阀门。
  如球阀、蝶阀、旋塞阀、风门等，来控制其开度。

- SPA series is the symmetrical design yoke that produces maximum torque at both ends of the 90° cycle providing travel stops.
  SPA系列为对称式拨叉设计，在90°行程的起始端和终端会输出最大的扭矩。

- SPB series is the canted design yoke that max produces torque at either close or open end.
  SPB系列为偏心式拨叉设计，在90°行程的起始端会输出最大的扭矩。

- Both series actuators come along with a complete line of controls and monitoring accessories including.
  Manual Handwheel (jackscrew), hydraulic overrides, limit switches, solenoid valves, positioners and other controls accessories.
  SP系列重载型执行器可附带完整的控制及监控附件，如手动机构、液压机构、限位开关、电磁阀、定位器等。

- Its modular design and construction provides maximized convenience during installation, maintenance and storage.
  模块化设计及结构使安装、维修、储存都非常方便。



PERFORMANCE FEATURES 性能特点

- SP spring return actuator can provide 120000Nm torque output, SP double acting actuator can provide 240000 Nm torque output. The maximum working pressure is 10 bar.
  SP系列执行器在单作用可以提供120000Nm, 双作用可以提供240000Nm的扭矩输出。
  最大工作气压10巴。

- The size of the valve bottom connecting flange in accordance with ISO 5211 standard.
  底部与阀门连接法兰的尺寸符合ISO 5211标准。

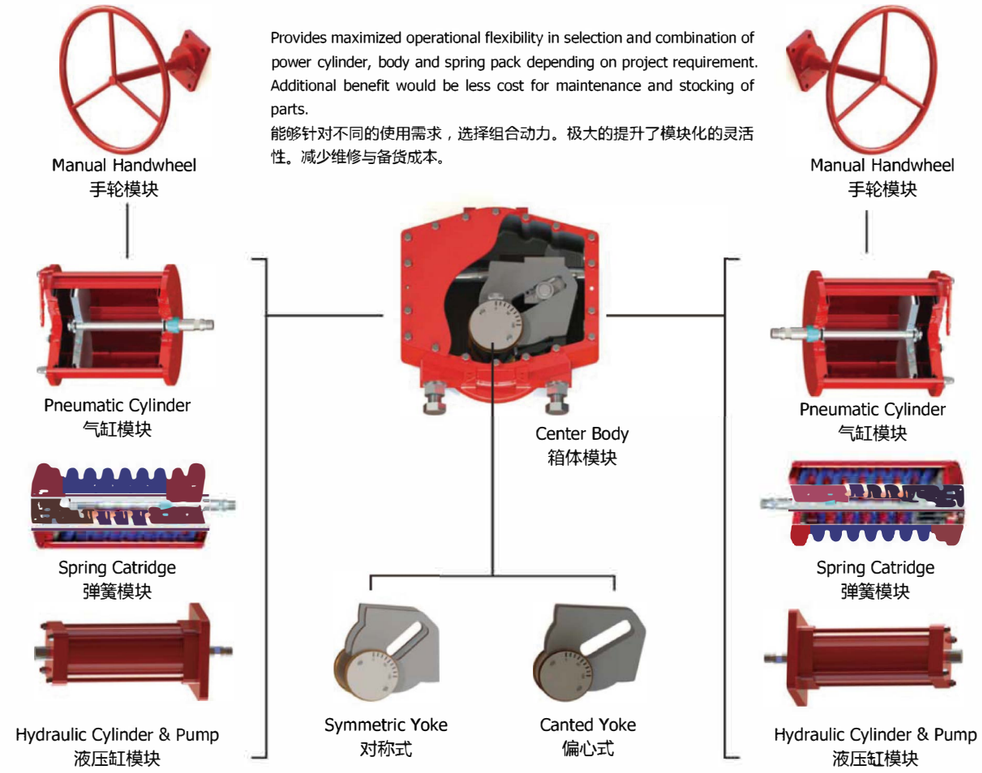
- Two independent travel adjustment bolts, can be in the range of +/-6° to regulate valve switch position.
  两个独立的行程调节螺栓，可以在±6°的范围调节阀门开关位置。

- Standard Operating temperature: -20℃~+80℃
  工作温度：标准：-20℃~+80℃
  High temperature: -20℃~+150℃ 高温：-20℃~+150℃
  Low temperature: -40℃~+80℃ 低温：-40℃~+80℃

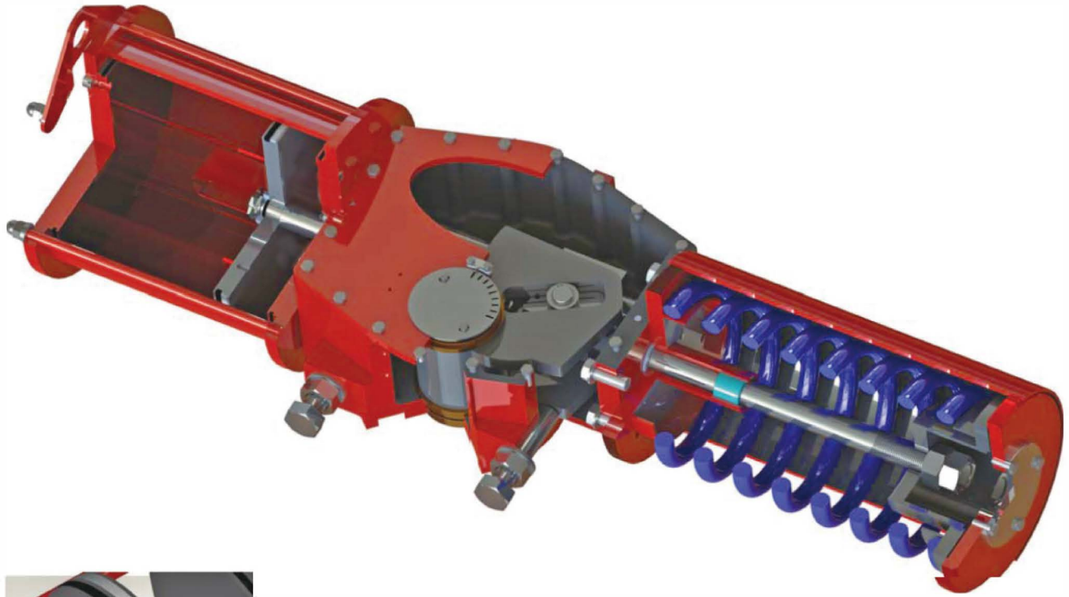
- IP65 for water ingress protection and corrosion resistance.
  符合IP65以上的防护等级。

MODULAR 模块设计

Provides maximized operational flexibility in selection and combination of power cylinder, body and spring pack depending on project requirement. Additional benefit would be less cost for maintenance and stocking of parts.
能够针对不同的使用需求，选择组合动力。极大的提升了模块化的灵活性。减少维修与备货成本。

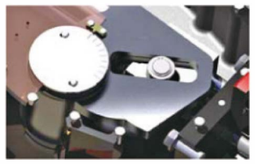


CONSTRUCTION 结构介绍



Piston Guide Ring

High quality Back-up Ring preventing any possible leakage and ensure long lifespan.
品质上乘的品质O型圈和支撑圈，能够防止任何潜在的泄漏，并保证更长的使用寿命。

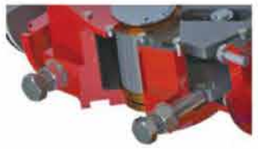


Replceable Bearing

Surface heat-treated Slide Pin, Slide Bearing, and Yoke Slide provides semi-permanent lifespan with strong durability of abrasion.
经过表面热处理的销子、滚轮和摆臂提供了超强的耐磨性，保证半永久的使用性。

Standard NAMUR Mounting Dimension

For easy installation of accessories like limit switch box, positioners & etc. 标准的安装尺寸，便于配件安装，如指示开关和定位器。



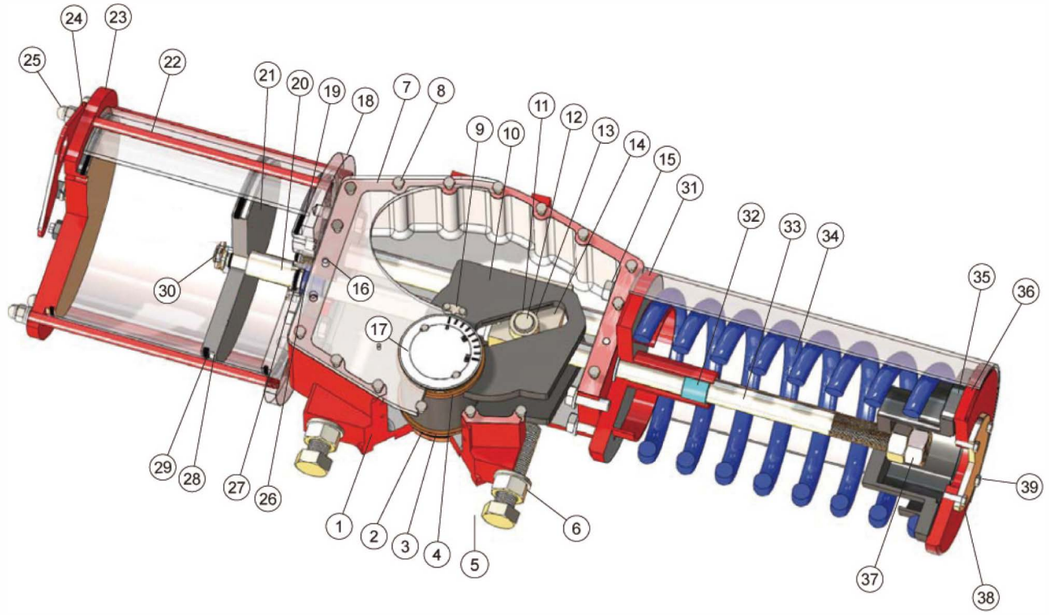
Travel Stop

Two independent travel adjustment bolts, can be in the range of +/6° to regulate valve switch position.
两个独立的行程调节螺栓，可以在±6°的范围调节阀门开关位置。

Adaption

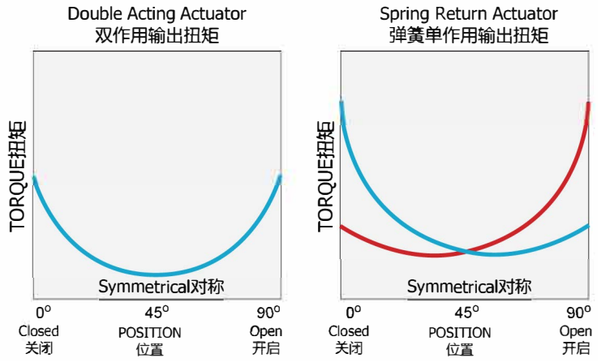
In order for direct mounting valve and actuator without separate coupler and bracket, bore diameter for valve shaft is increased, so that it can accept thicker diameter shaft rather than standard.
Mounting flange as per ISO5211.
安装执行器和阀门时，不需要单独的支架和连接件，轴孔增大，可以安装比标准尺寸更大的轴。安装法兰符合ISO5211标准。

MATERIALS 材质介绍



序号	DESCRIPTION描述	MATERIAL材质
1	BODY主体	DUCTILE IRON球铁
2	LOWER BUSHING下轴套	LOW CARBON STEEL低碳钢
3	BUSHING O-RING密封圈	NBR丁睛橡胶
4	UPPER BUSHING上轴套	LOW CARBON STEEL低碳钢
5	STOPPER BOLT止动螺栓	ALLOY STEEL合金钢
6	STOPPER UNT止动螺母	ALLOY STEEL合金钢
7	BODY COVER体盖	ALLOY STEEL合金钢
8	BODY COVER BOLT体盖螺栓	ALLOY STEEL合金钢
9	POSITION INDICATOR指示器	ALLOY STEEL合金钢
10	YOKE摆臂	ALLOY STEEL合金钢
11	SNAP RING卡环	ALLOY STEEL合金钢
12	SLIDE PIN滑销	ALLOY STEEL合金钢
13	SLIDE ROLLER滚轮	ALLOY STEEL合金钢
14	SLIDE BLOCK活灵	ALLOY STEEL合金钢
15	FRONT COVER BOLT前盖螺栓	ALLOY STEEL合金钢
16	COVER FIXED PIN销子	ALLOY STEEL合金钢
17	POSITION NEEDLE指示板	ALLOY STEEL合金钢
18	CYLINDER FRONT COVER缸前盖	ALLOY STEEL合金钢
19	COVER O-RING-O型圈	NBR丁睛橡胶
20	PISTION ROD活塞杆	ALLOY STEEL合金钢

序号	DESCRIPTION描述	MATERIAL材质
21	PISTON活塞	ALLOY STEEL合金钢
22	TIE BOLT连接螺栓	ALLOY STEEL合金钢
23	CYLINDER END COVER后盖板	ALLOY STEEL合金钢
24	LIFT PLATE起吊板	ALLOY STEEL合金钢
25	TIE BOLT NUT并紧螺栓螺母	ALLOY STEEL合金钢
26	FRONT COVER BUSHING前盖衬套	ENGINEERING PLASTIC工程塑料
27	O-RING前盖O型圈	NBR丁睛橡胶
28	BACK-UP RING支撑圈	PTFE聚四氟乙烯
29	PISTON O-RING活塞O型圈	NBR丁睛橡胶
30	PISTON LOCK BOLT活塞并紧螺母	ALLOY STEEL合金钢
31	SPRING CASE FRONT COVER弹簧箱前盖	ALLOY STEEL合金钢
32	SPRING ROD GUIDE BUSHING弹簧杆导套	ENGINEERING PLASTIC工程塑料
33	ASPRING ROD弹簧杆	ALLOY STEEL合金钢
34	SPRING弹簧	ALLOY STEEL合金钢
35	SPRING RETAINER弹簧限位	ALLOY STEEL合金钢
36	SPRING CASE END COVER弹簧箱后盖	ALLOY STEEL合金钢
37	SPRING ROD LOCK NUT弹簧杆锁紧螺母	ALLOY STEEL合金钢
38	COVER封盖	ALLOY STEEL合金钢
39	COVER BOLT封盖螺栓	ALLOY STEEL合金钢



Symmetric Type
对称式

Torque Curve
扭力曲线
Air Torque气动扭矩
Spring Torque弹簧扭矩

Double Acting 对称式双作用

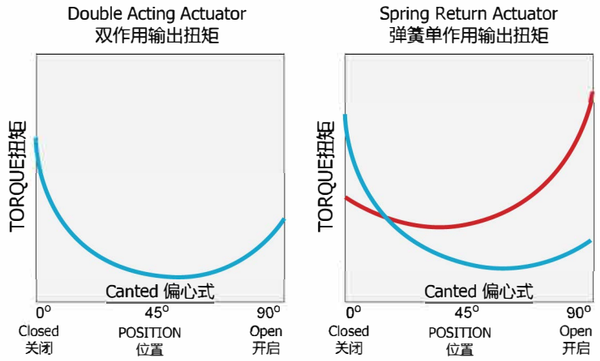
Unit : Nm

MODEL 型 号	4.0 Bar			5.0 Bar			6.0 Bar			8.0 Bar		
	0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°
SPA-D02-20	1,460	908	1,403	1,827	1,135	1,755	2,193	1,362	2,106	2,924	1,816	2,807
SPA-D02-25	2,284	1,419	2,226	2,855	1,773	2,783	3,426	2.128	3,339	4,568	2,837	4,452
SPA-D02-30	3,289	2,043	3,231	4,111	2,554	4,039	4,934	3,064	4,847	6,578	4,086	6,462
SPA-D02-35	4,477	2,781	4,419	5,596	3,476	5,524	6,715	4,171	6,628	8,954	5,561	8,838
SPA-D03-35	5,419	3,366	5,262	6,774	4,208	6,577	8,129	5,049	7,893	10,839	6,732	10,524
SPA-D03-38	6,388	3,968	6,231	7,985	4,960	7,788	9,582	5,952	9,346	12,777	7,936	12,461
SPA-D03-43	8,180	5,081	8,022	10,225	6,351	10,028	12,270	7,621	12,034	16,360	10,162	16,045
SPA-D04-43	10,492	6,517	10,217	13,115	8,146	12,772	15,738	9,775	15,326	20,984	13,033	20,435
SPA-D04-48	13,074	8,120	12,799	16,342	10,150	15,999	19,610	12,180	19,199	26,147	16,241	25,599
SPA-D04-53	15,939	9,900	15,665	19,924	12,375	19,581	23,909	14,850	23,497	31,878	19,800	31,330
SPA-D05-53	19,586	12,165	19,143	24,483	15,207	23,928	29,379	18,248	28,714	39,173	24,331	38,285
SPA-D05-58	23,456	14,569	23,013	29,320	18,211	28,766	35,184	21,854	34,519	46,912	29,138	46,025
SPA-D05-63	27,675	17,189	27,231	34,593	21,486	34,039	41,512	25,784	40,847	55,349	34,378	54,462
SPA-D06-63	34,546	21,457	33,682	43,182	26,821	42,102	51,818	32,185	50,523	69,091	42,914	67,364
SPA-D06-68	40,247	24,998	39,383	50,308	31,247	49,228	60,370	37,497	59,074	80,493	49,996	78,766
SPA-D06-73	46,383	28,809	45,519	57,978	36,011	56,899	69,574	43,214	68,278	92,765	57,618	91,038

Spring Return 对称式单作用

Unit : Nm

MODEL 型 号		Spring Torque 弹簧扭矩			Air Torque : Air Supply Pressure 气源压力											
					4 Bar			5 Bar			6 Bar			8 Bar		
		0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°
SPA-S02-20	A	602	495	975	858	413	428	1,225	640	780	1,591	867	1,131			
	B	790	650	1,280				1,037	485	475	1,403	712	826	2,134	1,166	1,527
SPA-S02-25	A	913	751	1,479	1,371	668	747	1,942	1,022	1,304	2,513	1,377	1,860			
	B	1,239	1,019	2,007				1,616	754	776	2,187	1,409	1,332	3,329	1,818	2,445
SPA-S02-30	A	1,301	1,080	2,141	1,988	963	1,090	2,810	1,474	1,898	3,633	1,984	2,706			
	B	1,787	1,469	2,894				2,324	1,085	1,145	3,147	1,595	1,953	4,791	2,617	3,568
SPA-S02-35	A	1,628	1,352	2,679	2,849	1,429	1,740	3,968	2,124	2,845	5,087	2,819	3,949			
	B	2,140	1,759	3,466				3,456	1,717	2,058	4,575	2,412	3,162	6,814	3,802	5,372
SPA-S03-35	A	1,803	1,539	3,098	3,616	1,827	2,164	4,971	2,669	3,479	6,326	3,510	4,795			
	B	2,566	2,120	4,189				4,208	2,088	2,388	5,563	2,929	3,704	8,273	4,612	6,335
SPA-S03-38	A	2,480	2,049	4,048	3,908	1,919	2,183	5,505	2,911	3,740	7,102	3,903	5,298			
	B	3,303	2,729	5,391				4,682	2,231	2,397	6,279	3,223	3,955	9,474	5,207	7,070
SPA-S03-43	A	3,049	2,519	4,977	5,131	2,562	3,045	7,176	3,832	5,051	9,221	5,102	7,057			
	B	4,097	3,554	7,223				6,128	2,797	2,805	8,173	4,067	4,811	12,263	6,608	8,822
SPA-S04-43	A	4,167	3,569	7,202	6,325	2,948	3,015	8,948	4,577	5,570	11,571	6,206	8,124			
	B	5,436	4,656	9,395				7,679	3,490	3,377	10,302	5,119	5,931	15,548	8,377	11,040
SPA-S04-48	A	5,125	4,390	8,857	7,949	3,730	3,942	11,217	5,760	7,142	14,485	7,790	10,342			
	B	6,406	5,582	11,372				9,936	4,568	4,627	13,204	6,598	7,827	19,741	10,659	14,227
SPA-S04-53	A	6,214	5,323	10,745	9,725	4,577	4,920	13,710	7,052	8,836	17,695	9,527	12,752			
	B	8,236	7,054	14,234				11,688	5,321	5,347	15,673	7,796	9,263	23,642	12,746	17,096
SPA-S05-53	A	7,651	6,505	13,070	11,935	5,660	6,073	16,832	8,702	10,585	21,728	11,743	15,644			
	B	10,204	8,675	17,431				14,279	6,532	6,497	19,175	9,573	11,283	28,969	15,656	20,854
SPA-S05-58	A	9,296	7,733	15,538	14,160	6,836	7,475	20,024	10,478	13,228	25,888	14,121	18,981			
	B	12,124	10,308	20,710				17,196	7,903	8,056	23,060	11,546	13,809	34,788	18,830	25,315
SPA-S05-63	A	10,971	9,328	18,742	16,704	7,861	8,489	23,622	12,158	15,297	30,541	16,456	22,105			
	B	14,127	12,010	24,132				20,466	9,476	9,907	27,385	13,774	16,715	41,222	22,368	30,330
SPA-S06-63	A	13,456	11,608	23,515	21,090	9,849	10,167	29,726	15,213	18,587	38,362	20,577	27,008			
	B	17,092	14,744	29,869				26,090	12,077	12,233	34,726	17,441	20,654	51,999	28,170	37,495
SPA-S06-68	A	15,243	13,149	26,637	25,004	11,849	12,746	35,065	18,098	22,591	45,127	24,348	32,437			
	B	20,474	17,662	35,779				29,834	13,585	13,449	39,896	19,835	23,295	60,019	32,334	42,987
SPA-S06-73	A	17,816	15,368	31,134	28,567	13,441	14,385	40,162	20,643	25,765	51,758	27,846	37,144			
	B	23,159	19,978	40,471				34,819	16,033	16,428	46,415	23,236	27,807	69,606	37,640	50,567



Canted Type
偏心式

Torque Curve 扭力曲线 — Air Torque气动扭矩 / Spring Torque弹簧扭矩

Double Acting 偏心式双作用

Unit : Nm

MODEL 型 号	4.0 Bar			5.0 Bar			6.0 Bar			8.0 Bar		
	0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°
SPB-D02-20	1,836	908	1,279	2,295	1,135	1,599	2,754	1,362	1,919	3,672	1,816	2,559
SPB-D02-25	2,869	1,419	1,999	3,586	1,773	2,499	4,303	2.128	2,998	5,737	2,837	3,998
SPB-D02-30	4,131	2,043	2,879	5,164	2,554	3,598	6,196	3,064	4,318	8,262	4,086	5,757
SPB-D02-35	5,623	2,781	3,918	7,028	3,476	4,898	8,434	4,171	5,877	11,245	5,561	7,839
SPB-D03-35	6,806	3,366	4,743	8,508	4,208	5,929	10,209	5,049	7,114	13,613	6,732	9,486
SPB-D03-38	8,023	3,968	5,591	10,029	4,960	6,988	12,035	5,952	8,386	16,046	7,936	11,182
SPB-D03-43	10,273	5,081	7,159	12,842	6,351	8,949	15,410	7,621	10,738	20,547	10,162	14,318
SPB-D04-43	13,177	6,517	9,182	16,471	8,146	11,477	19,765	9,775	13,773	26,353	13,033	18,364
SPB-D04-48	16,419	8,120	11,441	20,524	10,150	14,302	24,629	12,180	17,162	32,838	16,241	22,883
SPB-D04-53	20,018	9,900	13,959	25,023	12,375	17,437	30,027	14,850	20,924	40,036	19,800	27,899
SPB-D05-53	24,598	12,165	17,141	30,748	15,207	21,426	36,898	18,248	25,712	49,197	24,331	34,282
SPB-D05-58	29,459	14,569	20,528	36,823	18,211	25,660	44,188	21,854	30,792	58,917	29,138	41,055
SPB-D05-63	34,757	17,189	24,220	43,446	21,486	30,274	52,135	25,784	36,329	69,513	34,378	54,462
SPB-D06-63	43,386	21,457	30,233	54,232	26,821	37,791	65,079	32,185	45,349	86,771	42,914	60,465
SPB-D06-68	50,546	24,998	35,222	63,182	31,247	44,027	75,818	37,497	52,833	101,091	49,996	70,444
SPB-D06-73	58,252	28,809	40,592	72,815	36,011	50,740	87,378	43,214	60,888	116,504	57,618	81,184

Spring Return 偏心式单作用

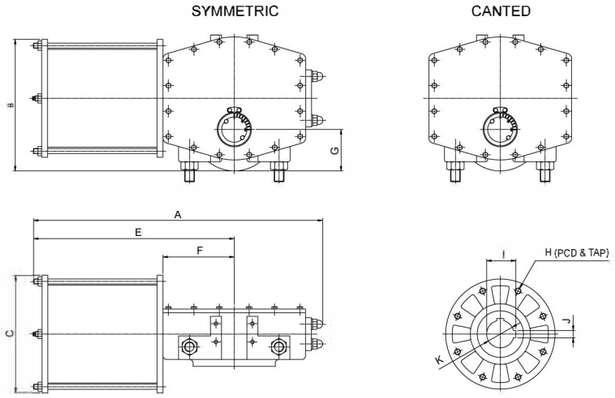
Unit : Nm

MODEL 型 号		Spring Torque 弹簧扭矩			Air Torque : Air Supply Pressure 气源压力											
					4 Bar			5 Bar			6 Bar			8 Bar		
		0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°
SPB-S02-20	A	670	452	808	1,166	456	471	1,625	683	791	2,084	910	1,111			
	B	876	591	1,056				1,419	544	543	1,878	771	863	2,796	1,225	1,503
SPB-S02-25	A	1,063	717	1,282	1,806	702	717	2,523	1,056	1,217	3,240	1,411	1,716			
	B	1,396	942	1,683				2,190	831	816	2,907	1,186	1,315	4,341	1,895	2,315
SPB-S02-30	A	1,496	1,020	1,834	2,635	1,023	1,045	3,668	1,534	1,764	4,700	2,044	2,484			
	B	2,059	1,404	2,524				3,105	1,150	1,074	4,137	1,660	1,794	6,203	2,682	3,233
SPB-S02-35	A	1,807	1,262	2,299	3,816	1,519	1,619	5,221	2,214	2,599	6,627	2,909	3,578			
	B	2,543	1,735	3,118				4,485	1,741	1,780	5,891	2,436	2,759	8,702	3,826	4,718
SPB-S03-35	A	2,047	1,464	2,700	4,759	1,902	2,043	6,461	2,744	3,229	8,162	3,585	4,414			
	B	3,093	2,098	3,759				5,415	2,110	2,170	7,116	2,951	3,355	10,520	4,634	5,727
SPB-S03-38	A	2,759	1,973	3,641	5,264	1,995	1,950	7,270	2,987	3,347	9,276	3,979	4,745			
	B	3,913	2,654	4,757				6,116	2,306	2,231	8,122	3,298	3,629	12,133	5,282	6,425
SPB-S03-43	A	3,637	2,467	4,421	6,636	2,614	2,738	9,205	3,884	4,528	11,773	5,154	6,317			
	B	5,017	3,403	6,099				7,825	2,948	2,850	10,393	4,218	4,639	15,530	6,759	8,219
SPB-S04-43	A	4,735	3,340	6,118	8,442	3,177	3,064	11,736	4,806	5,359	15,030	6,435	7,655			
	B	6,098	4,301	7,878				10,373	3.845	3,599	13,667	5,474	5,895	20,255	8,732	10,486
SPB-S04-48	A	5,887	4,152	7,605	10,532	3,968	3,836	14,637	5,998	6,697	18,742	8,028	9,557			
	B	7,754	5,469	10,017				12,770	4,681	4,285	16,875	6,711	7,145	25,084	10,772	12,866
SPB-S04-53	A	7,035	4,962	9,088	12,983	4,938	4,861	17,988	7,413	8,349	22,992	9,888	11,836			
	B	9,217	6,502	11,908				15,806	5,873	5,529	20,810	8,348	9,016	30,819	13,298	15,991
SPB-S05-53	A	8,854	6,189	11,286	15,744	5,976	5,855	21,894	9,018	10,140	28,044	12,059	14,426			
	B	11,770	8,235	15,018				18,978	6,972	6,408	25,128	10,013	10,694	37,427	16,096	19,264
SPB-S05-58	A	10,195	7,133	13,008	19,264	7,436	7,520	26,628	11,078	12,652	33,993	14,721	17,784			
	B	14,355	10,044	18,316				22,468	8,167	7,344	29,833	11,810	12,476	44,562	19,094	22,739
SPB-S05-63	A	12,292	8,601	15,684	22,465	8,588	8,536	31,154	12,885	14,590	39,843	17,183	20,645			
	B	16,158	11,306	20,617				27,288	10,180	9,657	35,977	14,478	15,712	53,355	23,072	27,822
SPB-S06-63	A	14,480	10,292	18,928	28,906	11,165	11,305	39,752	16,529	18,863	50,599	21,893	26,421			
	B	18,967	14,028	26,335				35,265	12,793	11,456	46,112	18,157	19,014	67,804	28,886	34,130
SPB-S06-68	A	17,715	12,591	23,156	32,831	12,407	12,066	45,467	18,656	20,871	58,103	24,906	29,677			
	B	22,115	16,357	30,708				41,067	14,890	13,319	53,703	21,140	22,125	78,976	33,639	39,736
SPB-S06-73	A	19,992	14,209	26,132	38,260	14,600	14,460	52,823	21,802	24,608	67,386	29,005	34,756			
	B	25,029	18,512	34,753				47,786	17,499	15,987	62,349	24,702	26,135	91,475	39,106	46,431

DIMENSION 产品的尺寸数据

DOUBLE ACTING
双作用

SPA

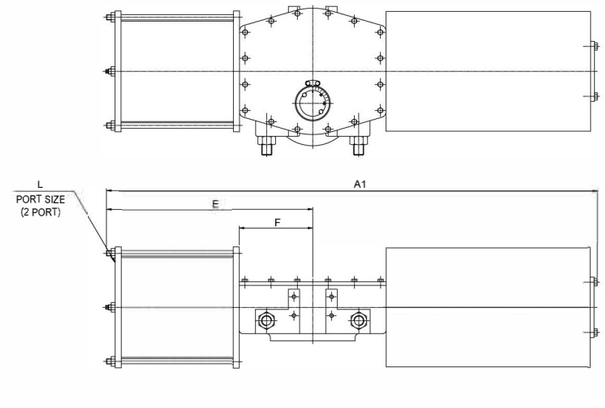


Symmetric SPA Series Dimension 对称式SPA系列尺寸

MODEL型号	A	A1		B	C	D	E
		4.2 Bar	5.6 Bar				
SPA 02-20	755	1280	1280	370	272	48	516
SPA 02-25	755	1280	1280	395	322	73	516
SPA 02-30	755	1280	1280	420	373	98	516
SPA 02-35	755	1280	1280	445	410	117	516
SPA 03-35	935	1475	1475	490	410	92	653
SPA 03-38	935	1475	1475	505	461	118	653
SPA 03-43	935	1475	1475	530	512	143	653
SPA 04-43	1105	1860	1860	640	514	128	763
SPA 04-48	1105	1860	1860	657	564	153	763
SPA 04-53	1105	1860	1860	682	625	184	763
SPA 05-53	1310	2240	2240	710	625	157	904
SPA 05-58	1310	2240	2240	732	675	183	904
SPA 05-63	1310	2240	2240	760	730	210	904
SPA 06-63	1610	2695	2695	830	745	192	1124
SPA 06-68	1610	2695	2695	850	795	217	1124
SPA 06-73	1610	2695	2695	875	847	243	1124

Canted SPB Series Dimension 偏心式SPB系列尺寸

MODEL型号	A	A1		B	C	D	E
		4.2 Bar	5.6 Bar				
SPB 02-20	800	1325	1325	370	272	48	516
SPB 02-25	800	1325	1325	395	322	73	516
SPB 02-30	800	1325	1325	420	373	98	516
SPB 02-35	800	1325	1325	445	410	117	516
SPB 03-35	985	1510	1510	490	410	92	653
SPB 03-38	985	1510	1510	505	461	118	653
SPB 03-43	985	1510	1510	530	512	143	653
SPB 04-43	1215	1935	1935	640	514	128	763
SPB 04-48	1215	1935	1935	657	564	153	763
SPB 04-53	1215	1935	1935	682	625	184	763
SPB 05-53	1435	2320	2320	710	625	157	904
SPB 05-58	1435	2320	2320	732	675	183	904
SPB 05-63	1435	2320	2320	760	730	210	904
SPB 06-63	1710	2750	2750	830	745	192	1124
SPB 06-68	1710	2750	2750	850	795	217	1124
SPB 06-73	1710	2750	2750	875	847	243	1124



SPRING RETURN
单作用

F	G	H		I	J	K		L
		PCD	TAP/DP			DIA	DP	
196	145	165	M20/25	54	14	50	156	1/2” NPT
196	145	165	M20/25	54	14	50	156	1/2” NPT
196	145	165	M20/25	54	14	50	156	1/2” NPT
196	145	165	M20/25	54	14	50	156	1/2” NPT
236	175	254	M16/27	80	20	75/80	204	1/2” NPT
236	175	254	M16/27	80	20	75/80	204	1/2” NPT
236	175	254	M16/27	80	20	75/80	204	1/2” NPT
287	190	298	M20/34	95.4	22	90/100	234	3/4” NPT
287	190	298	M20/34	95.4	22	90/100	234	3/4” NPT
287	190	298	M20/34	95.4	22	90/100	234	3/4” NPT
343	230	356	M30/43	117.4	32	120/110/130	279	3/4” NPT
343	230	356	M30/43	117.4	32	120/110/130	279	3/4” NPT
343	230	356	M30/43	117.4	32	120/110/130	279	3/4” NPT
415	260	406	M36/53	137.4	32	140/130/150	326	3/4” NPT
415	260	406	M36/53	137.4	32	140/130/150	326	3/4” NPT
415	260	406	M36/53	137.4	32	140/130/150	326	3/4” NPT

F	G	H		I	J	K		L
		PCD	TAP/DP			DIA	DP	
196	145	165	M20/25	54	14	50	156	1/2” NPT
196	145	165	M20/25	54	14	50	156	1/2” NPT
196	145	165	M20/25	54	14	50	156	1/2” NPT
196	145	165	M20/25	54	14	50	156	1/2” NPT
236	175	254	M16/27	80	20	75/80	204	1/2” NPT
236	175	254	M16/27	80	20	75/80	204	1/2” NPT
236	175	254	M16/27	80	20	75/80	204	1/2” NPT
295	205	298	M20/34	95.4	22	90/100	234	3/4” NPT
295	205	298	M20/34	95.4	22	90/100	234	3/4” NPT
295	205	298	M20/34	95.4	22	90/100	234	3/4” NPT
345	240	356	M30/43	117.4	32	120/110/130	279	3/4” NPT
345	240	356	M30/43	117.4	32	120/110/130	279	3/4” NPT
345	240	356	M30/43	117.4	32	120/110/130	279	3/4” NPT
415	260	406	M36/53	137.4	32	140/130/150	326	3/4” NPT
415	260	406	M36/53	137.4	32	140/130/150	326	3/4” NPT
415	260	406	M36/53	137.4	32	140/130/150	326	3/4” NPT