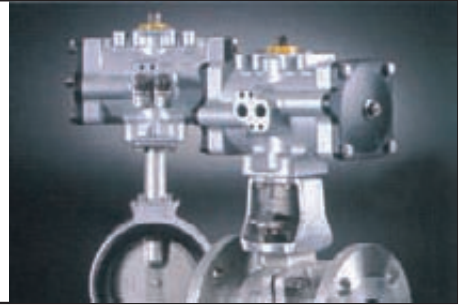


KITZ

F 系列 [SERIES]

气动执行机构 [Pneumatic Valve Actuators]

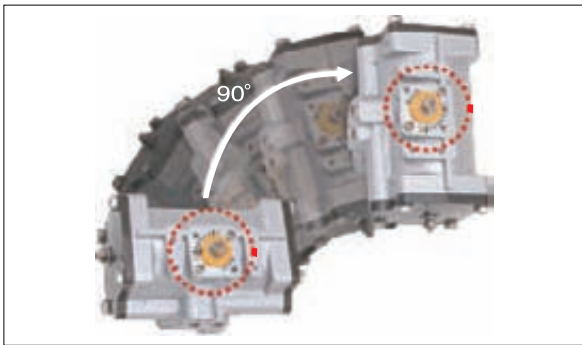


操作简便、使用寿命长、驱动效率高

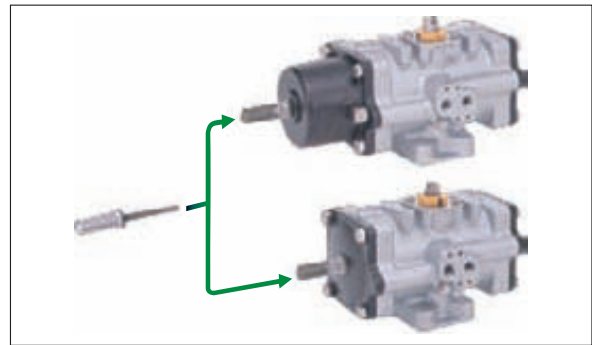
Featured by the utmost handling ease and extended service life with high operational efficiency

■ 易满足各类工程工况的要求 [Easy answers to engineering modification requirements]

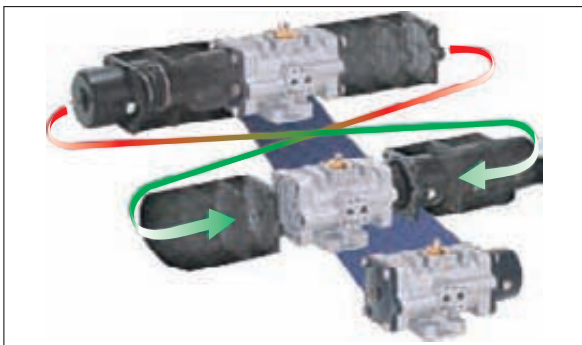
- 当执行机构的安装位置作了90°调整时，其指示器的位置也可作90°调整。即可改变安装方向。
Position indicator can be adjusted by 90°, when actuator mounting position is turned by 90°, for local piping or operating convenience.



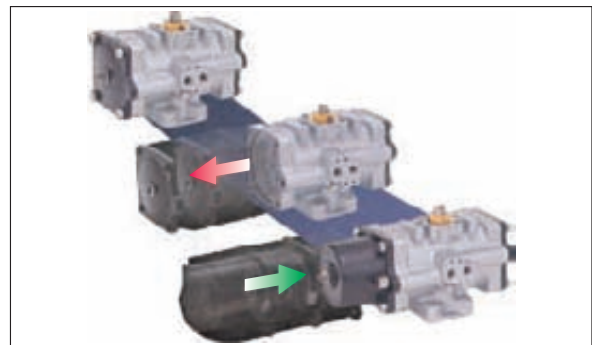
- 执行机构的阀开、阀闭旋转角度范围可以通过任选的长止动螺栓从±7°的标准范围调节到90°。
Actuator shaft rotating angle (valve opening/closing range) can be adjusted with optional longer stopper bolt to full 90° rotation from standard range of plus/minus 7°.



- 在执行机构外罩的反向端上装配弹簧盒就可以把标准的“气停—关闭”作用模式转换成“气停—阀开”模式。(只适用于弹簧复位型)
Standard AIR-FAIL-CLOSE mode can be converted to AIR-FAIL-OPEN mode by means of mounting of spring cartridge on the actuator housing reverse end. (Spring-return type only)



- 通过更换可选择的弹簧盒配件可提供高输出扭矩或者低操作压力。(只适用于弹簧复位型)
Replacing modular units of blowoff-proof spring cartridge enables accommodation of higher output torque or lower operating pressure. (Spring-return type only)



- 阀执行机构可通过增加或减少弹簧盒来实现双作用与弹簧复位型的转换。
Valve actuation mode is convertible between double-action and spring-return with addition or deletion of spring carriage.

■ 经济实惠 [Economic advantage]

使用整体铸造的活塞架使外罩尺寸降低了10%到15% (与KITZ D系列执行机构相比而言)，同时节省了耗气量。
Use of monobloc casting of piston-rack assembly results in reduced housing dimensions by 10% to 15% (compared with KITZ D Series actuators), and saves air consumption for valve actuation.

■ 整体铸造的双活塞和一根齿条大大延长了使用寿命 [Extended service life with monobloc casting of two pistons and a gear-rack]

齿条的螺纹定位于执行机构外罩的中心，而且双活塞与齿条一起被铸造成一个整体部件，这有助于执行机构在行程过程中保持活塞位置平行。
Threads of a gear-rack is positioned in the center of actuator housing, and two pistons are cast in integration with gear-rack as one piece unit. This helps to keep piston position in parallel during actuator travel.

■ 外罩重量轻且结构紧凑 [Light and compact housing]

外罩和活塞架使用压铸铝材料制成，降低了执行机构重量的20%到45% (与KITZ D系列执行机构相比而言)，从而使扭矩-重量比更佳。
Employment of diecast aluminum for housings and piston-rack assemblies has reduced the actuator weight by 20% to 40% (compared with KITZ D Series actuators) for better torque to weight ration.

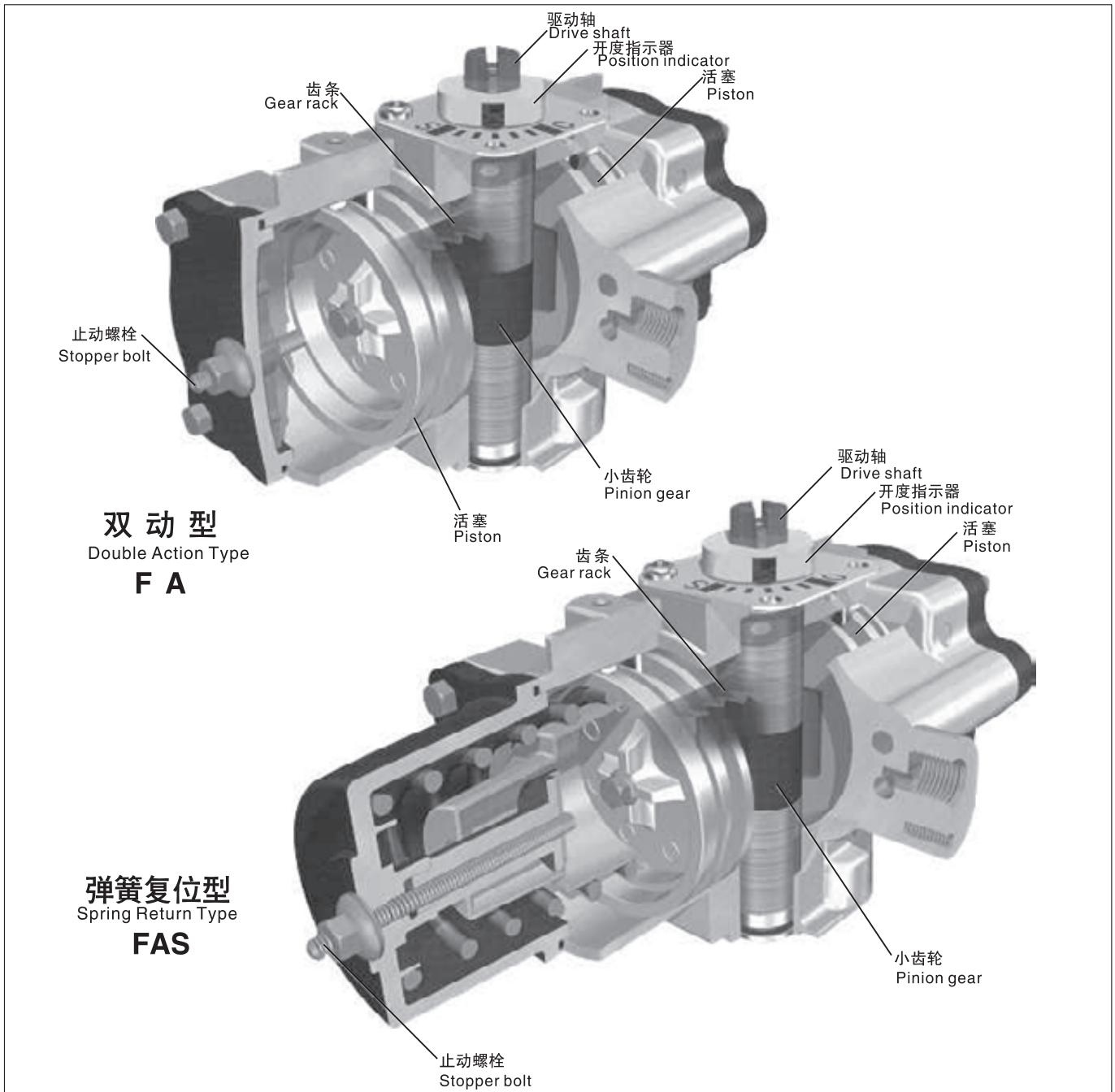
■ 符合国际标准 [Conformity to international standards]

电磁阀和限位开关盒皆实现了拔插式无管线安装，其接口符合NAMUR VDI/VDE 3845标准。此外，与阀门之间的安装接口也符合ISO 5211标准。
NAMUR VDI/VDE 3845 designs are used for tubeless mounting of solenoid valve and switchbox on actuator housing besides the conformity to ISO 5211 requirements for valve mounting flanges. The stem top design also conforms to NAMUR dimensions.

■ 本执行机构可适用于KITZ DJ, XJ系列蝶阀上 [Actuators can be directly mounted to KITZ DJ, XJ Series Butterfly Valves]

■ 另有执行机构安装接口可供选配。

[Optional adaptors (connectors) to the valves on the bottom of actuators can be provided for wide mounting variations]



双动型
Double Action Type
FA

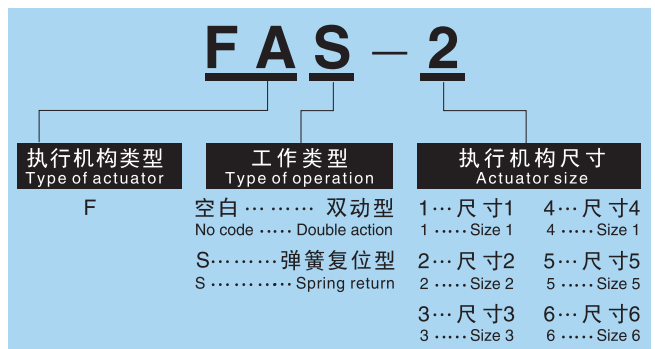
弹簧复位型
Spring Return Type
FAS

规格 [Specifications]

工作介质 Operating medium	压缩的仪表空气或氮气 Compressed instrumentation air or nitrogen gas
工作压力 Operating pressure	标准工作压力0.39 MPa Standard operating pressure 0.39 Mpa
工作压力范围 Operating pressure range	0.29 MPa~0.69 MPa *
气缸试验压力 Cylinder test pressure	0.97 MPa
驱动轴转角 Shaft rotating angle	90° ± 7°
工作温度 Service temperature	-20 °C ~ +80 °C (供气不得冻结) (Supply air should not be frozen.)
开度指示 Opening degree indication	指示器有15个刻度 Indicator has 15 degree graduation
阀门安装法兰 Valve mounting flange	ISO 5211
附件装配连接 Accessory mounting connection	NAMUR VDI/VDE 3845
涂层 Coating	聚酯树脂烤漆 Baked Polyester Resin Coating

* 请向KITZ咨询非标准工作压力 (* Be consulted by KITZ for non-standard operating pressure.)

产品编码 [Product Coding]



工作机制 [Operating Mechanism]

双动型(FA型) [Double action (Type FA)]

- 通过端口①提供给内腔A的空气压力，把齿条连同两个活塞向外推，并且通过端口②把残留空气排出。
 - 齿条则带动小齿轮和轴沿着逆时针方向转动，从而驱动阀门。
 - 反之，向端口②提供的空气压力驱动阀门逆向动作。
- (1) Air pressure supplied into the chamber A through port ①, pushes gear rack with two pistons outward, and discharges the air residue through port ②.
- (2) The gear rack rotates the pinion gear and the shaft counter-clockwise, to drive the valve.
- (3) Reverse supply of the air pressure activates reverse valve operation.

弹簧复位(FAS型) [Spring return (Type FAS)]

- 通过端口①提供给内腔A的空气压力，把齿条连同两个活塞向外推，压缩弹簧并且通过端口②把残留空气排出。
 - 齿条则带动小齿轮和轴沿着逆时针方向转动，从而驱动阀门。
 - 内腔A中的空气通过电磁阀排出的同时，弹簧的力量把活塞向反方向推动，从而使齿条带动轴沿着顺时针方向转动，驱动阀门逆向动作。
- (1) Air pressure supplied into the chamber A through port ①, pushes gear rack with two pistons outward, and discharges the air residue through port ②.
- (2) The gear rack rotates the pinion gear and the shaft counter-clockwise, to drive the valve.
- (3) At the time the air in chamber A is discharged through the solenoid valve, the spring force pushes the pistons to the reverse direction, and the gear rack activates rotation of the shaft clockwise to reversely operate the valve.

气缸容量 [Cylinder volume]

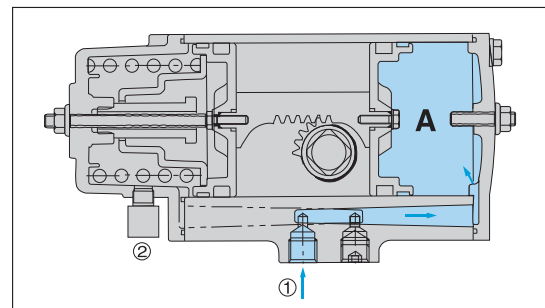
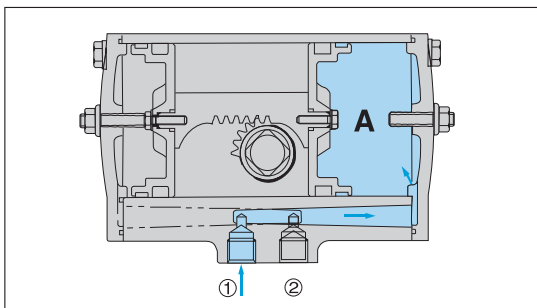
单位 (unit): ℓ

型号 [Type]	内腔 A [Chamber A]	内腔 B [Chamber B]
FA-1	0.15	0.15
FA-2	0.31	0.31
FA-3	0.61	0.61
FA-4	1.29	1.29
FA-5	2.29	2.29
FA-6	5.27	5.27

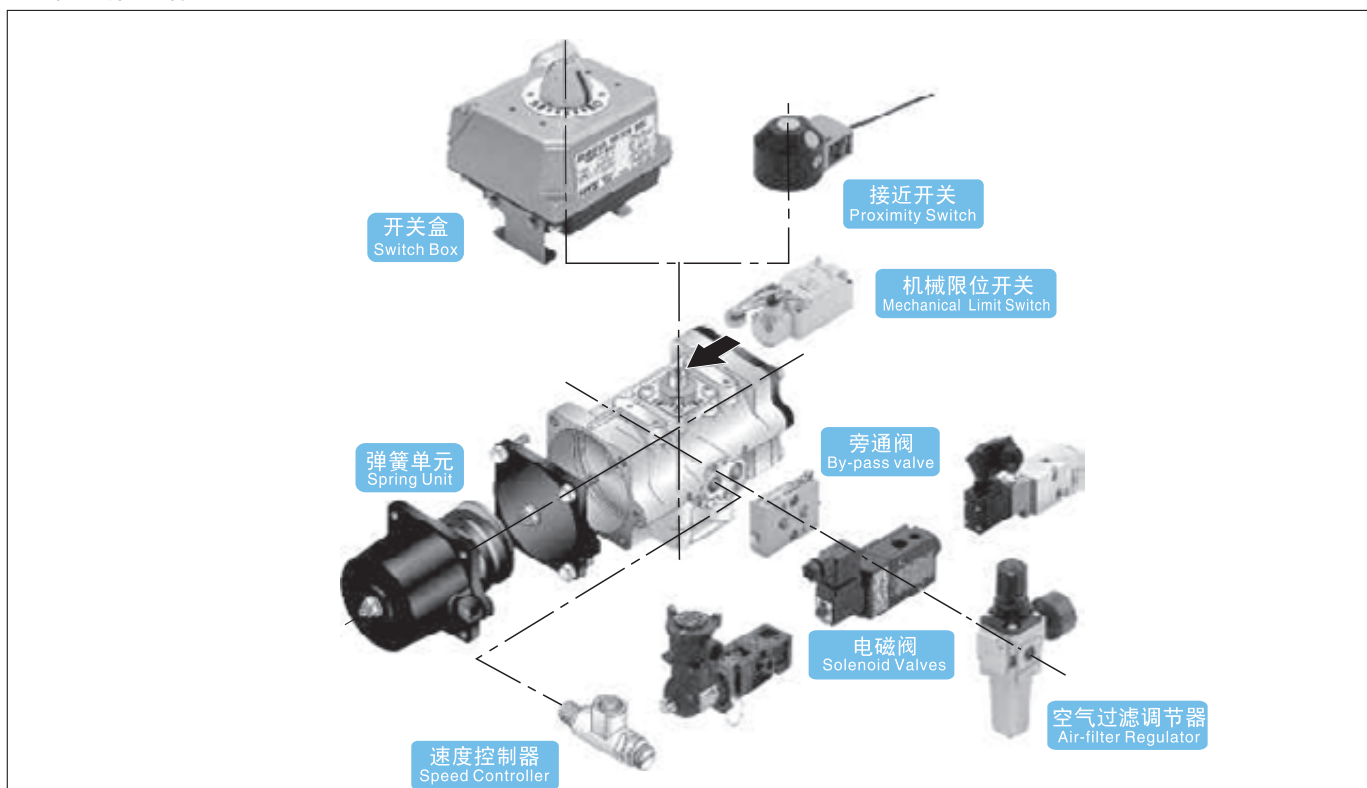
气缸容量 [Cylinder volume]

单位 (unit): ℓ

型号 [Type]	内腔 A [Chamber A]
FAS-1	0.15
FAS-2	0.31
FAS-3	0.61
FAS-4	1.29
FAS-5	2.29
FAS-6	5.27



可选购的零件 [Optional Accessories]



执行机构输出扭矩 [Actuator Output Torque]

■ 双动型 [Double action]

单位(unit): N·m

型号 Type	工作压力(空气) Operating pressure (air)		
	0.29 MPa	0.39 MPa	0.49 MPa
FA-1	14.12	18.83	23.54
FA-2	33.41	44.54	55.68
FA-3	67.37	89.83	112.30
FA-4	134	179	223
FA-5	244	332	407
FA-6	588	784	980

■ 双动型 [Double action]

单位(unit): LB·IN.

型号 Type	工作压力(空气) Operating pressure (air)		
	45 psi	60 psi	75 psi
FA-1	125	166	208
FA-2	296	394	493
FA-3	597	795	991
FA-4	1186	1584	1974
FA-5	2160	2939	3602
FA-6	5204	6939	8674

■ 弹簧复位型 [Spring return]

单位(unit): N·m

型号 Type	弹簧刚度 Spring rating	工作压力(空气) Operating pressure (air)						工作力(弹簧) Operating pressure (spring)	
		0.29 MPa		0.39 MPa		0.49 MPa		0° ^{※3}	90° ^{※4}
		0° ^{※1}	90° ^{※2}	0° ^{※1}	90° ^{※2}	0° ^{※1}	90° ^{※2}		
FAS-1	3K	9.25	6.51	14.06	11.32	18.87	16.12	5.18	7.92
	4K	—	—	11.66	7.64	16.47	12.45	7.58	11.60
	5K	—	—	—	—	14.60	9.60	9.44	14.45
FAS-2	3K	20.19	13.68	31.32	24.81	42.45	35.95	13.21	19.71
	4K	—	—	26.76	18.02	37.89	29.15	17.76	26.50
	5K	—	—	—	—	33.39	22.43	22.26	33.22
FAS-3	3K	42.83	32.72	64.00	52.89	87.16	75.06	23.68	35.79
	4K	—	—	53.52	35.54	75.69	57.71	35.16	53.14
	5K	—	—	—	—	66.79	44.41	44.06	66.43
FAS-4	3K	83.00	59.40	129	106	175	152	55.60	79.10
	4K	—	—	110	74.60	157	121	74.30	110
	5K	—	—	—	—	138	93.20	93.10	138
FAS-5	3K	155	109	240	194	325	279	101	147
	4K	—	—	203	138	288	222	138	203
	5K	—	—	—	—	255	171	171	254
FAS-6	3K	354	249	551	446	748	643	237	342
	4K	—	—	473	326	670	510	326	475
	5K	—	—	—	—	591	392	394	593

■ 弹簧复位型 [Spring return]

单位(unit): LB·IN.

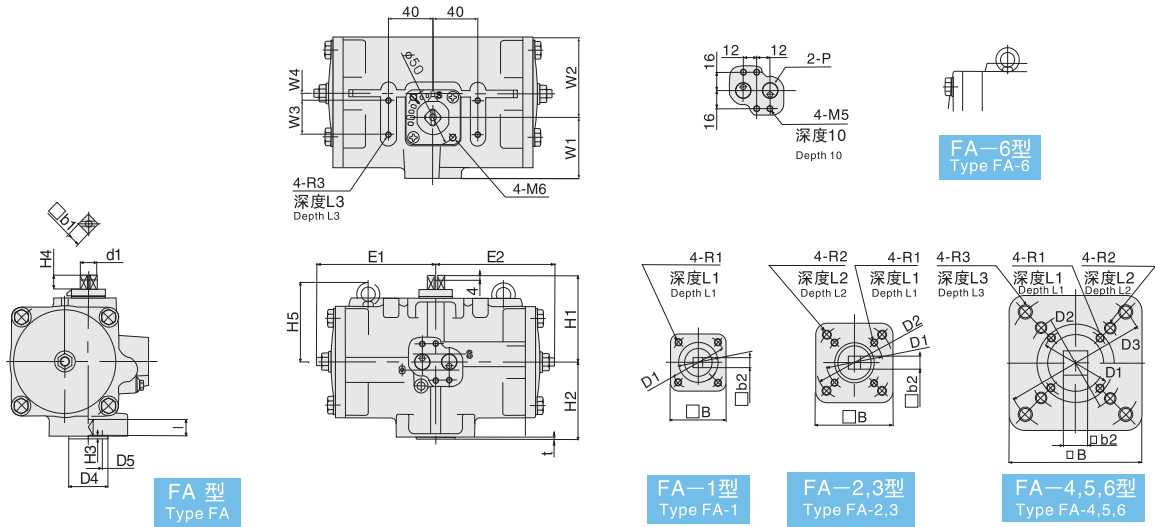
型号 Type	弹簧刚度 Spring rating	工作压力(空气) Operating pressure (air)						工作力(弹簧) Operating pressure (spring)	
		45 psi		60 psi		75 psi		0°	90°
		0°	90°	0°	90°	0°	90°		
FAS-1	45psi	82	58	124	100	167	143	46	70
	60psi	—	—	103	68	146	110	67	103
	75psi	—	—	—	—	129	85	84	128
FAS-2	45psi	179	121	277	220	376	318	117	174
	60psi	—	—	237	159	335	258	157	235
	75psi	—	—	—	—	296	199	197	294
FAS-3	45psi	379	290	566	468	771	664	210	228
	60psi	—	—	474	315	670	511	311	470
	75psi	—	—	—	—	591	393	390	588
FAS-4	45psi	735	526	1142	938	1549	1549	492	700
	60psi	—	—	974	660	1390	1390	658	974
	75psi	—	—	—	—	1221	1221	824	1221
FAS-5	45psi	1372	965	2124	1717	2877	2877	894	1301
	60psi	—	—	1797	1221	2549	2549	1221	1797
	75psi	—	—	—	—	2257	2257	1514	2248
FAS-6	45psi	3133	2204	4877	3948	6621	6621	2098	3027
	60psi	—	—	4187	2770	5930	4514	2788	4204
	75psi	—	—	—	—	5231	3470	3487	5249

※1 在起点 (闭合位) ※2 在终点 (开启位) ※3 在终点 (闭合位) ※4 在起点 (开启位)

※1 At starting point (close position) ※2 At ending point (open position) ※3 At ending point (open position) ※4 At starting point (open position)

尺寸 [Dimensions]

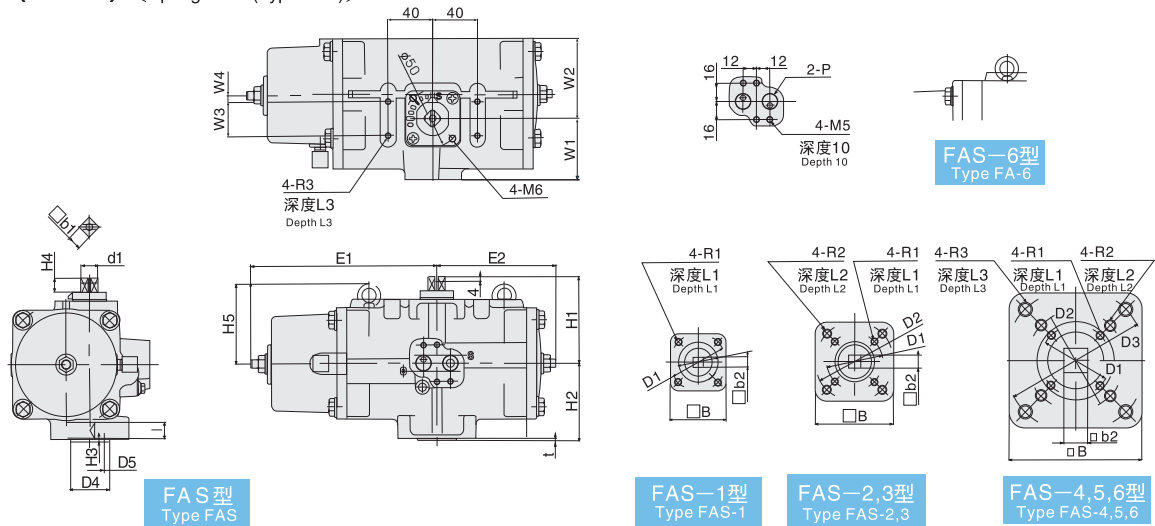
双动型(FA型) [Double action(Type FA)]



单位(unit): mm

型号 Type	E1	E2	W1	W2	W3	W4	H1	H2	H3	H4	H5	D1	D2	D3	D4	D5	d1	b1	b2	B	l	t	R1 × L1	R2 × L2	R3 × L3	R4 × L4	P	重量 Weight (Kg)
FA-1	87	87	50	54	30	0	67	54	3	12	—	50	—	—	35	25	15	12	9	50	16	2	M6×9	—	—	M5×7.5	Rc 1/4	1.7
FA-2	107	107	54	70	30	6	76	68	3	12	—	50	70	—	35	30	15	12	11	70	16	2	M6×9	M8×12	—	M5×7.5	Rc 1/4	2.9
FA-3	128	128	57	87	30	13	86	78	3	12	—	50	70	—	35	32	21	17	13	70	25	2	M6×9	M8×12	—	M5×7.5	Rc 1/4	4.4
FA-4	160	160	68	111	30	21	108	96	4	12	—	50	70	102	55	40	21	17	17	95	26	3	M6×9	M8×12	M10×15	M5×7.5	Rc 1/4	8.0
FA-5	208	208	78	135	30	30	132	116	5	20	—	70	102	125	55	50	29	23	27	113	34	3	M8×12	M10×15	M12×18	M5×7.5	Rc 1/4	13.6
FA-6	268	268	101	178	30	45	152	125	5	20	160	70	102	125	70	60	41	32	27	134	34	3	M8×12	M10×15	M12×18	M5×7.5	Rc 1/4	28.2

弹簧复位(FAS型) [Spring return(Type FAS)]



单位(unit): mm

型号 Type	E1	E2	W1	W2	W3	W4	H1	H2	H3	H4	H5	D1	D2	D3	D4	D5	d1	b1	b2	B	l	t	R1 × L1	R2 × L2	R3 × L3	R4 × L4	P	重量 Weight (Kg)
FAS-1	132	87	50	54	30	0	67	54	3	12	—	50	—	—	35	25	15	12	9	50	16	2	M6×9	—	—	M5×7.5	Rc 1/4	2.1
FAS-2	166	107	54	70	30	6	76	68	3	12	—	50	70	—	35	30	15	12	11	70	16	2	M6×9	M8×12	—	M5×7.5	Rc 1/4	3.8
FAS-3	203	128	57	87	30	13	86	78	3	12	—	50	70	—	35	32	21	17	13	70	25	2	M6×9	M8×12	—	M5×7.5	Rc 1/4	6.4
FAS-4	290	160	68	111	30	21	108	96	4	12	—	50	70	102	55	40	21	17	17	95	26	3	M6×9	M8×12	M10×15	M5×7.5	Rc 1/4	12.8
FAS-5	363	208	78	135	30	30	132	116	5	20	—	70	102	125	55	50	29	23	27	113	34	3	M8×12	M10×15	M12×18	M5×7.5	Rc 1/4	23.4
FAS-6	483	268	101	178	30	45	152	125	5	20	160	70	102	125	70	60	41	32	27	134	34	3	M8×12	M10×15	M12×18	M5×7.5	Rc 1/4	50.0