CATALOGUE SERIES

PNEUMATIC ACTUATOR

2014

YONGJIA NICE TRADE CO.,LTD.

HUANQIU VALVE GROUP

COMPANY BREIF

Nice Trade is import & export company, built in 2013, belongs to HUANQIU VALVE GROUP. There are fourteen sub-branch factories in HUANQIU VALVE GROUP now, according to HUANQIU VALVE GROUP develop plan, Nice Trade is new face to show in front of clients for group export and import business, and collect possible products resource inside and outside group, help clients to find good and more competitive products resource.

Nice trade company focus in valves sales area,
Product scope is following:

A. Special valves: High performance ball valve, Control valves, Reduce temperature & pressure control valve, Eccentric half ball valve, Special power station high pressure & temperature valves, Large size butterfly valves, PTFE lining ball & butterfly valve, Breath valve etc.
B. Widely used valves: Gate valve, Globe valve, Check valve, Triple offsets butterfly valve, Double offsets butterfly valve, Floating ball valve, Trunnion ball valve.
C. Other valves: Needle valves, Filter, etc

There are two special and professional teams to support us:

- HUANQIU VALVE GROUP Quality Control Team,
- HUANQIU VALVE GROUP Technology Control Team.

They have enough experience to develop and control products quality. This is our products control basis.

Valves resource: We have a lot!
Products quality: We can control it!
Delivery time: We will make it fast!

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Haqun

PNEUMATIC ACTUATOR PRODUCT SHOW















CONTENT

1. Product performance

- Using rocker transmission-mechanism transfer piston Liner motion to rotary motion.
- SA series actuator cylinder is separated from body, air consumption is less.
- DA series actuator with double cylinders for air intake together, output big torque, move smoothly.
- Two-way mechanical stroke limit, stroke adjustable ±5°.
- Add spring cartridge at one side for single action.
- Output axis(or indicator)can indicate the open/close position of rocker.
- Mount flange connection dimension is as per ISO5211 Standards.
- Top flange with connection method for install multiple accessories.

2. Technical parameters

Double Acting:
Working Pressure: 4Bara
Air source Pressure: 0.4~0.6MPa
Environment Temperature:
Standard Type: －20~+80℃
Low Temperature Type: －40~+60℃
High Temperature Type: 0~+160℃
Output Torque: 450~150000 Nm

Single Acting:
Working Pressure: 4Bara
Air source Pressure: 0.23~0.6MPa
Environment Temperature:
Standard Type: －20~+80℃
Low Temperature Type: －40~+60℃
High Temperature Type: 0~+160℃
Output Torque: 280~20000 Nm

3. Application

Apply to 90° part turn valve, widely used in automation and remote control operation.

4. Code structure

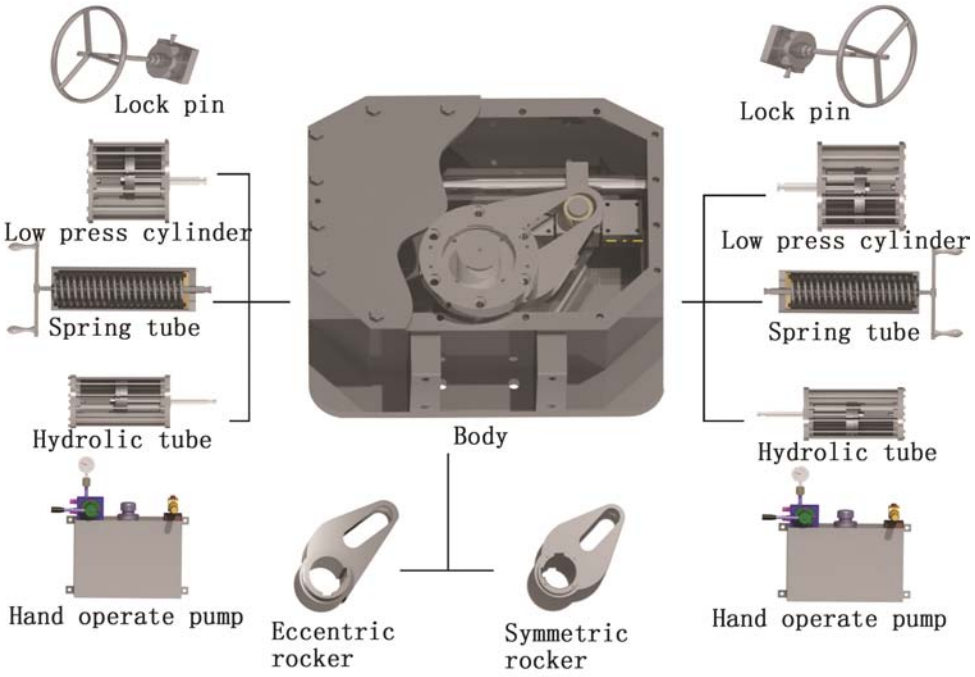
S	A	-	100	C	-	350	N	-	HW	-	FC
1	2		3	4		5	6		7		8

1、Actuator Type: S—Single action, D—Double action
2、Working Medium: A—Compressed air, H—Hydraulic fluid
3、Body size: 040、060、085、100、130、160、200、270、350
4、Body Type: C—Eccentric, S—symmetric form
5、Air Cylinder and Hydraulic Cylinder Diameter Dimension:
6、Sealing Material: **(omit)**: NBR H: HNBR V: Viton
7、Manual Operation: **(omit)**: No Manual HG: Double acting side hand wheel
HW: Single acting side hand wheel
HD: Double acting hydraulic manual
HS: Single acting hydraulic manual
8、logical function: (FL): Fail limit FC: Fail close FO: Fail open

5. Structure feature

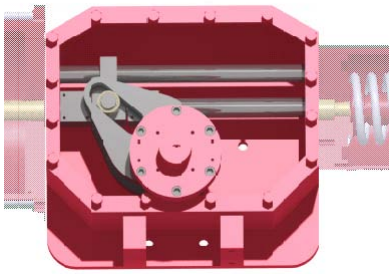
Modular Components Compatibility and Flexibility

Compatible design and high-efficiency modular components got the biggest operation flexibility. It is easy to combine the double acting, spring reset and manual operation in the low pressure air or hydraulic elements. This make the performance of equipment keep relative consistency at any design requirement. But no relation with the dimension and grade of valve; driving medium, and pressure of actuator and requirement of actuator performance(DA/SR). Therefore, all the equipments are safe and reliable to the operator. Besides, this compatible design significantly reduced quantity of necessary spare parts and sealing parts, so then make maintenance working costs lower.



Framework design Standard features

- Steel framework supply solid basis for components.
- Chrome slide loading bar and leading block efficiency remove the deviation of piston Rod
- Rolling sleeves design supports rotating components for the low friction



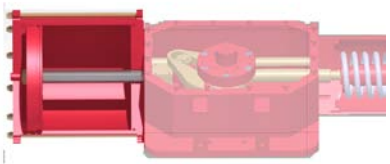
Symmetric rocker design

- Supply the conventional torque output
- Same open/close torque value

Eccentric rocker design

- Supply unique torque output
- Biggest open/close valve torque value

Power cylinder and spring cartridge design



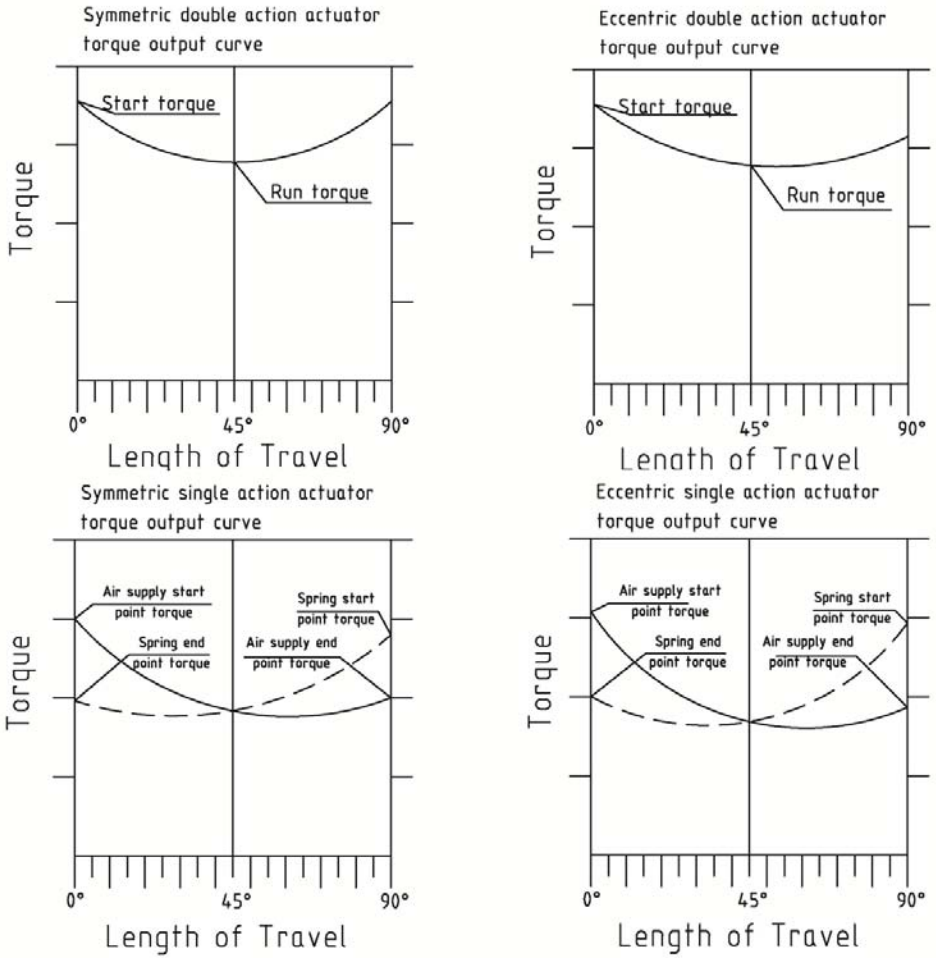
Power cylinder standards features

- Steel cylinder is the solid pressure container.
- Inner surface of cylinder body is coated Teflon for resistance corrosion, reduce friction and greatly extended life.
- Specially designed NBR piston structure
- Guide ring with complex material on piston supply low friction guide grooves and support

Spring cartridge standards features

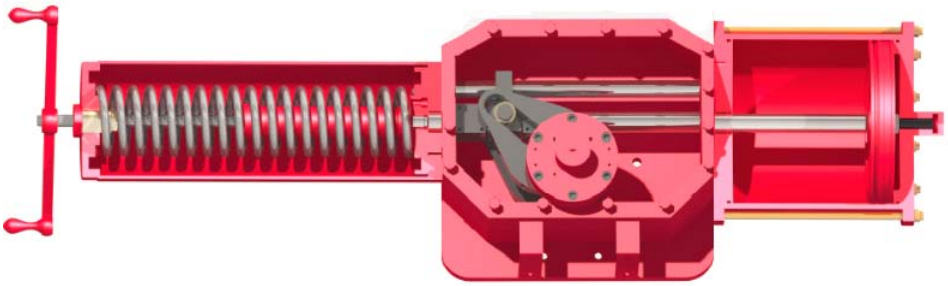
- Steel Spring isolated with outer environment
- Epoxy coated spring with pre-tighten feature have solid and rust-proof performance
- Welded sealing design for highest Personal Safety

6. Output torque curve



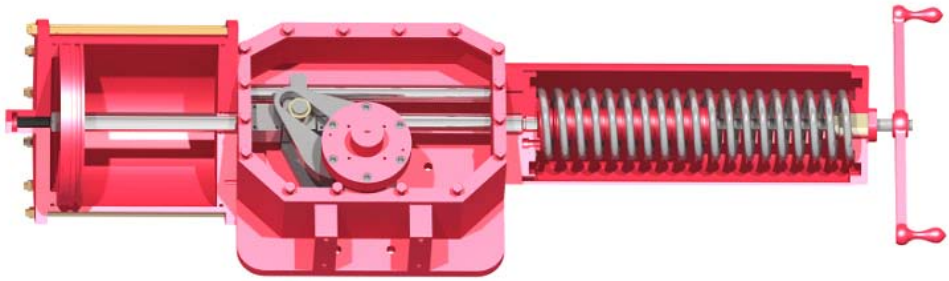
Single action (Fail close FC) pneumatic actuator torque (N.m)

No.	Single Acting Pneumatic Actuator Code	Body Code	Cylinder Code	4Bar Cylinder Output Torque			Spring Output Torque			Air consume for One turn(L)
				0°	45°	90°	0°	45°	90°	
1	SA-040C-160-FC	40	160	284	147	151	166	144	226	15
2	SA-040C-180-FC	40	180	356	181	182	214	187	296	19
3	SA-040C-200-FC	40	200	444	229	236	260	224	354	23
4	SA-040C-220-FC	40	220	539	276	282	312	273	433	28
5	SA-040C-250-FC	40	250	687	351	356	412	358	567	36
6	SA-060C-220-FC	60	220	806	414	423	471	409	648	37
7	SA-060C-250-FC	60	250	1037	532	543	611	531	840	48
8	SA-060C-280-FC	60	280	1309	670	680	759	665	1055	60
9	SA-060C-300-FC	60	300	1495	765	778	879	766	1214	69
10	SA-060C-320-FC	60	320	1716	885	908	985	858	1359	79
11	SA-060C-350C-FC	60	350	2039	1048	1071	1192	1037	1640	94
12	SA-085C-320-FC	85	320	2420	1239	1260	1406	1230	1951	103
13	SA-085C-350-FC	85	350	2890	1488	1525	1687	1465	2317	123
14	SA-085C-400-FC	85	400	3773	1934	1968	2206	1924	3049	161
15	SA-085C-450-FC	85	450	4741	2433	2481	2826	2450	3869	204
16	SA-100C-450-FC	100	450	5614	2895	2970	3289	2850	4500	233
17	SA-100C-500-FC	100	500	6988	3586	3656	4003	3506	5567	287
18	SA-130C-450-FC	130	450	7285	3754	3849	4288	3714	5863	291
19	SA-130C-500-FC	130	500	9007	4627	4724	5281	4593	7267	359
20	SA-130C-550-FC	130	550	10893	5613	5754	6396	5543	8754	434
21	SA-130C-600-FC	130	600	12977	6684	6850	7598	6592	10416	517
22	SA-160C-550-FC	160	550	13436	6959	7184	7843	6771	10672	521
23	SA-160C-600-FC	160	600	15968	8220	8417	9355	8120	12833	620
24	SA-160C-700-FC	160	700	22358	11801	12481	12110	10440	16443	843



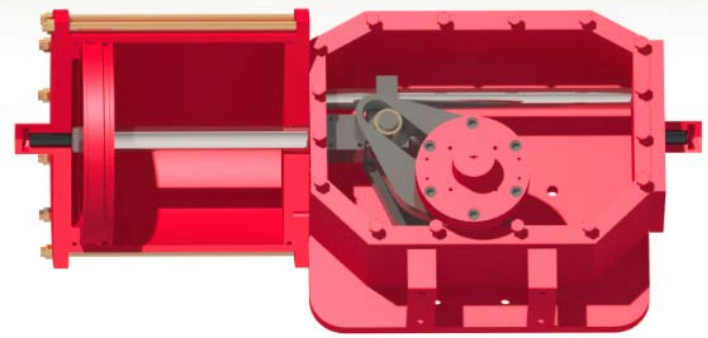
Single action (Fail open FO) pneumatic actuator torque (N.m)

No.	Single Acting Pneumatic Actuator Code	Box Body Code	Cylinder Code	4Bar Cylinder Output Torque			Spring Output Torque			Air consume for one turn(L)
				90°	45°	0°	90°	45°	0°	
1	SA-040C-160-FO	40	160	238	175	180	139	120	270	15
2	SA-040C-180-FO	40	180	299	216	217	179	157	352	19
3	SA-040C-200-FO	40	200	372	273	281	218	188	422	23
4	SA-040C-220-FO	40	220	452	329	336	262	229	516	28
5	SA-040C-250-FO	40	250	576	418	424	346	301	675	36
6	SA-060C-220-FO	60	220	677	494	504	395	344	772	37
7	SA-060C-250-FO	60	250	870	635	647	513	446	1001	48
8	SA-060C-280-FO	60	280	1099	798	811	637	558	1257	60
9	SA-060C-300-FO	60	300	1255	912	927	738	643	1447	69
10	SA-060C-320-FO	60	320	1440	1054	1082	827	720	1619	79
11	SA-060C-350-FO	60	350	1711	1249	1277	1001	870	1955	94
12	SA-085C-320-FO	85	320	2031	1477	1502	1180	1032	2325	103
13	SA-085C-350-FO	85	350	2426	1774	1817	1416	1229	2761	123
14	SA-085C-400-FO	85	400	3166	2305	2345	1851	1615	3634	161
15	SA-085C-450-FO	85	450	3979	2900	2956	2371	2055	4611	204
16	SA-100C-450-FO	100	450	4711	3450	3540	2760	2391	5363	233
17	SA-100C-500-FO	100	500	5864	4274	4357	3360	2942	6634	287
18	SA-130C-450-FO	130	450	6114	4474	4586	3598	3116	6987	291
19	SA-130C-500-FO	130	500	7558	5514	5629	4432	3854	8659	359
20	SA-130C-550-FO	130	550	9141	6690	6857	5367	4651	10432	434
21	SA-130C-600-FO	130	600	10890	7967	8162	6376	5531	12413	517
22	SA-160C-550-FO	160	550	11275	8294	8561	6582	5681	12718	521
23	SA-160C-600-FO	160	600	13400	9798	10030	7850	6812	15293	620
24	SA-160C-700-FO	160	700	18762	14065	14874	10162	8759	19594	843

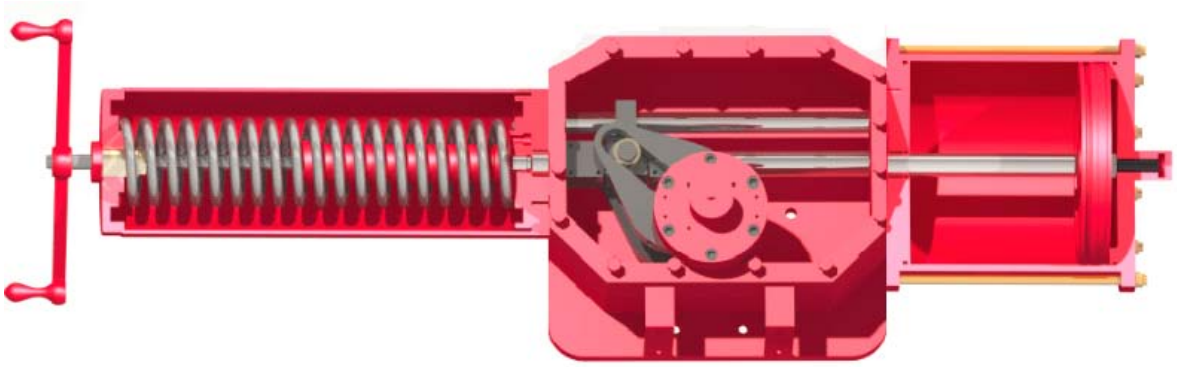


Double action pneumatic actuator torque (N.m)

No.	Doubling Acting Pneumatic Actuator Code	Body Code	Cylinder Code	4Bar Output Torque			Air consume for one turn (L)
				0°	45°	90°	
1	SA-040C-160	40	160	450	290	378	30
2	SA-040C-180	40	180	570	368	478	37
3	SA-040C-200	40	200	703	454	590	46
4	SA-060C-180	60	180	855	551	717	50
5	SA-060C-200	60	200	1055	681	885	61
6	SA-060C-220	60	220	1277	824	1071	74
7	SA-060C-250	60	250	1649	1064	1383	96
8	SA-060C-280	60	280	2068	1334	1735	120
9	SA-060C-300	60	300	2374	1532	1992	138
10	SA-085C-280	85	280	2930	1890	2459	158
11	SA-085C-300	85	300	3363	2170	2822	181
12	SA-085C-320	85	320	3827	2469	3211	206
13	SA-085C-350	85	350	4578	2954	3841	247
14	SA-100C-350	100	350	5386	3475	4519	282
15	SA-100C-400	100	400	7034	4539	5903	368
16	SA-130C-320	130	320	5852	3776	4911	294
17	SA-130C-400	130	400	9144	5901	7674	459
18	SA-130C-450	130	450	11573	7468	9712	581
19	SA-160C-300	160	300	6331	4085	5313	310
20	SA-160C-350	160	350	8617	5560	7231	422
21	SA-160C-450	160	450	14244	9191	11953	697
22	SA-160C-500	160	500	17586	11347	14757	861
23	SA-160C-550	160	550	21279	13730	17856	1041
24	SA-160C-600	160	600	25323	16340	21250	1239
26	SA-200C-600	200	600	31654	20425	26563	1514
27	SA-200C-700	200	700	43085	27800	36155	2060
28	SA-270C-700	270	700	58164	37531	48809	2714
29	SA-270C-800	270	800	75970	49020	63751	3545
30	SA-350C-800	350	800	98479	63544	82640	4521
31	SA-350C-1000	350	1000	153874	99287	129125	7064



7. Manual and open-bit limit device



8. Air consume calculate

Air demand needed for pneumatic actuator is gained from the following two methods:

Qsmax: Qp、Qs Qsmax has great relationship with operational open and close time, relate to the elements of air supply volume and air filter regulator volume, solenoid valve diameter (Cv value) and piping diameter etc. when pneumatic actuator acting.

Double Acting: Vp=A{(P+0.1)/0.1}n

Single Acting: Vs=A{(P+0.1)/0.1}n

Air Consumption: Vp、Vs

Air Consumption is determined by cylinder action number.

Double Acting: Qp=A{(P+0.1)/0.1}60/T

Single Acting: Qs=B{(P+0.1)/0.1}60/T

Marks Instruction:

Qp= Qsmax of Cylinder when double action, L/min

Qs = Qsmax of Cylinder when single action, L/min

Vp = Air consumption of Cylinder when double action, L

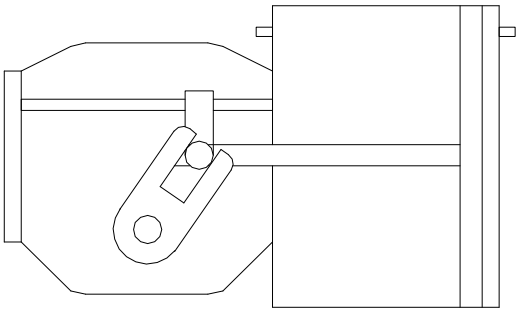
Vs = Air consumption of Cylinder when single action, L

A = Cylinder volume, L

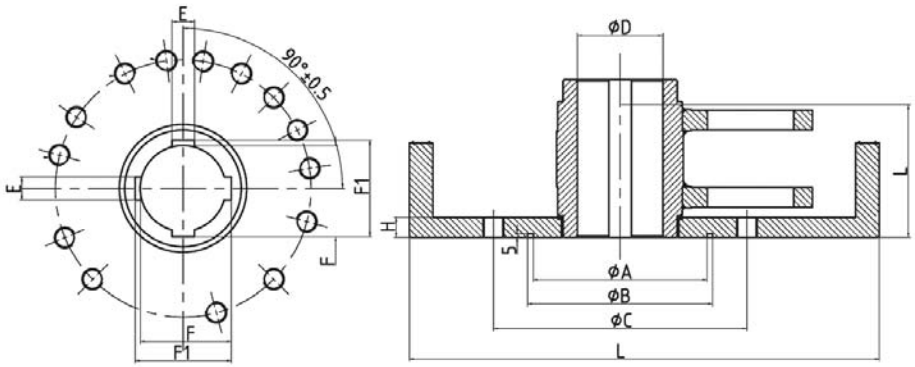
P = Operation pressure, MPa

T = Operation time, Sec

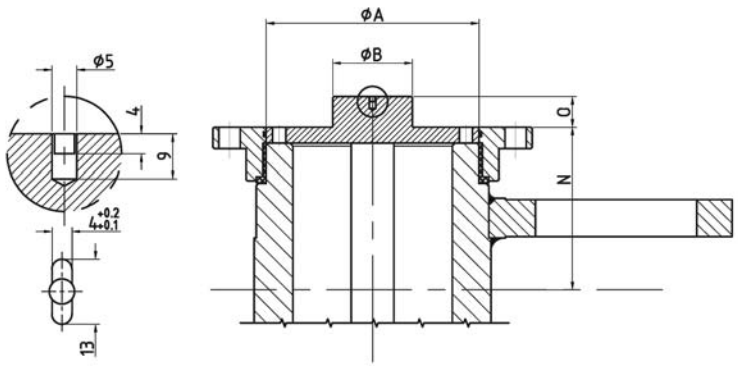
n = Actions number in unit time, piston reciprocating for one time



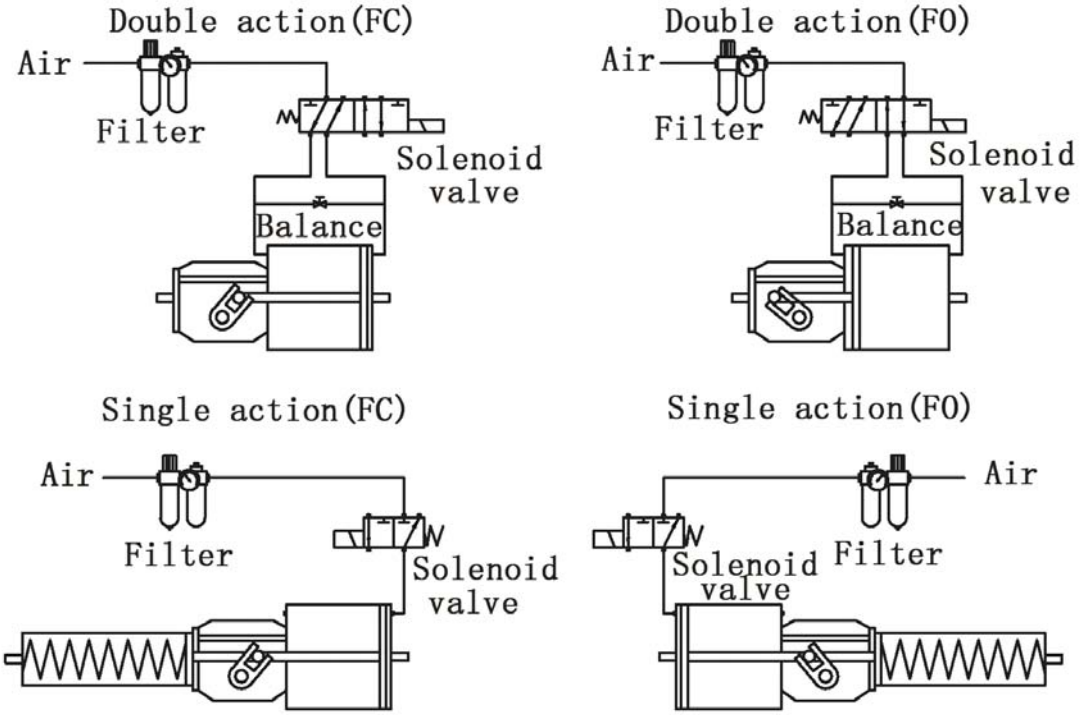
9. Dimensions sheet



Actuator Body Code	SA 040	SA 060	SA 085	SA 100	SA 130	SA 160	SA 200	SA 270	SA 350
ISO 5211 Flange Code	F14	F16	F25	F25	F30	F35	F40	F48	F60
ΦA	84	114	184	184	214	244	280	354	600
ΦB	100	130	200	200	230	260	300	370	700
ΦC	140	165	254	254	298	356	406	483	813
ΦD	25	45	65	75	110	130	160	170	250
E*	8	14	18	20	28	32	40	40	56
F	28.3	48.8	69.4	79.9	116.4	137.4	169.4		
F1								188.8	274
G	M16	M20							
G1			M16	M16	M20	M30	M36		
G2								M36	
G3									
G4									M42
H	20	18	15	18	18	23	28	33	63
L	50	70	120	140	155	200	230	280	630
N	180	220	380	440	520	670	840	1010	1630



10. Pneumatic actuator basic piping form



11. Common accessories (Option)

Solenoid Valve

Function: Control cylinder air input and output.
Type: Two-two way, Two-five way
Normal size: 1/4“~1/2”
Explosions Proof Grade: Supply non explosion-proof, frame-proof and various NAMUR explosion proof grade

Positioner

Function: Control angular position for rotating of pneumatic actuator output axis, achieve the aim to control the flow through controlling the valve open degree
Type: Mainly two types: air-air positioner and electrical-air positioner
Input Signal: air-air positioner 0.02~0.1MPa air signal power-air positioner 4~20mA power signal

Limit Switch

Function: Convert valve open/close mechanism action into electric signal to automatic notice valve on/off status and control valve
Explosion-proof grade: Supply non explosion-proof, flame-proof and various NAMUR explosion-proof grade

Pneumatic operated directional valve

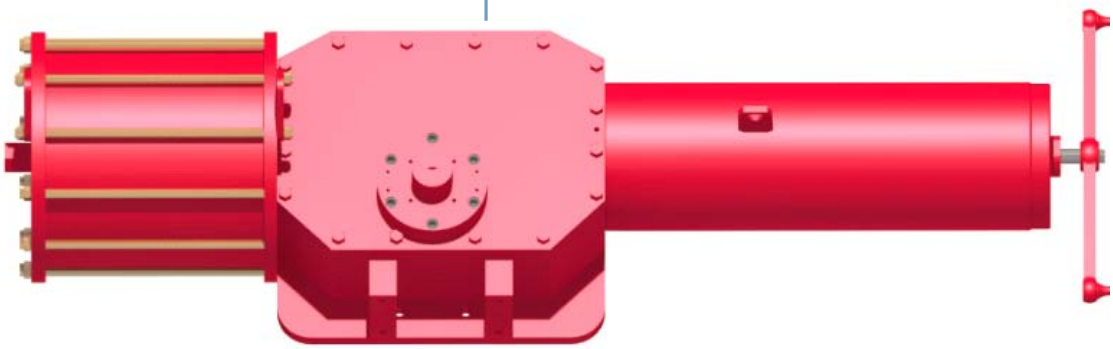
Function: Normally solenoid valve has small Cv value which can not meet the air input and release demand of pneumatic actuator, so added pneumatic operated directional valve which has high flow coefficient character to satisfy fast action of pneumatic actuator
Type: Two-two way, Two-five way
Normal size: 1/4“~3/4”

Quick Exhaust Air Valve

Function: Rapid discharge the compressed air in the cylinder, fasten the action speed of pneumatic actuator to shorten the time for valve open/close.
Normal size: 1/4“~1/2”

Air Treatment Components

Function: Reducer and filter compressed air
Normal Specification: 1/4“~3/4”
According to different requirements we can choose the following two kinds of air treatment components:
Air Relief Valve + Filter (Two linked parts)
Air Relief Valve + Filter + Oil Fog Generator (Three linked parts)



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