Yuan Dong

奉化市远东车辆部件有限公司

Fenghua Yuandong Auto Parts Limited Company

Hawks®

奉化市哈克斯自动化设备有限公司

Fenghua Hawks Automatic Equipment Limited Company

COMPANY PROFILE

Yuandong-hawks are manufacturer and exporter, specialized in aluminum alloy casting since 1989; make the rotary pneumatic actuator since 2003.

Our headquarter covering the area of 18,000 square meters; include the workshops with a floor space of 30, 000 square meters, and employee is about 300 persons.

Current main facilities include the non-ferrous smelting 3sets, heat treatment 6sets, shot blasting 2sets, vibration 2sets, machine center 5sets, CNC 12sets, lathes 30sets, milling 50sets, metallic gravity casting 9sets, die casting 6sets, ultrasonic cleaner 3sets, polisher 10sets, painting line 300 meters, assembly line 3sets, etc.

Yuandong-hawks main products are automatic equipments; include aluminum alloy castings, aluminum gearbox drivers, aluminum levers, pneumatic actuators, pneumatic cylinders, air filter regulator and lubricator combinations, limit switches, electro pneumatic positioners, solenoid valves, pulse valves, angle seat valves, butterfly valves, ball valves, DC motors, planetary geared motors etc.

Yuandong-hawks obtained ISO 9001 quality system and CE (ATEX) certificates issued by Sira, and focused on maintaining the products standard and performance stability.

Now some factories and companies had combined to be a new yuandong group, members include:

Fenghua Yuandong Auto Parts Co., Ltd.
Fenghua Hawks Automatic Equipment Co., Ltd.
Fenghua Haks Import and Export Co., Ltd.
Fenghua Leiteng Metal Co., Ltd.
Fenghua Weibo Machinery Manufacture Co., Ltd.
Fenghua Fengquan Micro Motor Co., Ltd.
Fenghua Liangjie Locomotive Part Co., Ltd.

Our products sales not only the home market, but also all of the world, especial in Europe market our products enjoyed a good reputation, even earned some Germany customers such as EBRO, GEMU, GEFA etc.

Welcome to visit us at any time, wish to be your cooperative partner and supporter in China for long time.

sira CERTIFICATION UKAS MANAGEMENT SYSTEMS 014

QUALITY SYSTEM CERTIFICATE

This is to Certify that the Quality Management System of

FENGHUA YUANDONG AUTO PARTS CO., LTD

No.285, Yuelin East Road
Fenghua City
Zhejiang Province
P.R.China

has been assessed by Sira Certification Service
and found to comply with

ISO 9001:2008

for the

Manufacture and sale of aluminium casting

Certificate No:	104465
Date of Initial Certification:	10 August 2010
Date of Issue/Reissue:	10 August 2010
Renewal Due:	08 August 2013

On behalf of SCS

This certificate is subject to the company maintaining its system to the required standards, which will be monitored by Sira. The use of this Certificate and the Sira Certification Mark are subject to the Regulations Applicable to Holders of Sira Certificates.

Sira Certification Service

12 Acorn Industrial Park, Crayford Road, Crayford, Kent, DA1 4AL, England Email: management.systems@siracertification.com

This certificate is the property of Sira and shall be returned when requested. It may only be reproduced in its entirety and without change.
Registered office: CSA International, 3 America Square, 1st Floor, London, United Kingdom EC3N 2LR

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sira CERTIFICATION

Certificate for receipt of Technical Documentation
Directive 94/9/EC Annex VIII paragraph 3

Manufacturer: Fenghua Yuandong Auto Parts Co. Ltd
No 278 Yuelin East Road
Fenghua
Ningbo City
Zhejiang Province
P.R. China (315500)

Subject: Notification of receipt of technical documentation (Directive 94/9/EC Annex VIII paragraph 3) in accordance with Directive 94/9/EC Chapter II Article 8(b)(ii)

Sira Test & Certification (Notified Body No 0518) confirm that a copy of the technical documentation files for the following products has been received and will be retained as required by the Directive:

Manufacturer's reference	Sira Reference	Subject
Hawks	Sira 11XT295	Model Nos: 10032DA, 10040DA, 10052DA, 10063DA, 10075DA, 10083DA, 10092DA, 10105DA, 10127DA, 10140DA, 10160DA, 10190DA, 10210DA, 10240DA and 10270DA

Date received: 26 October 2011

Please write to Sira quoting the relevant Sira reference number if you add additional or amended documents to the file. This service will attract a fee.

On behalf of Sira Test & Certification

Roy Craig

Certification Officer,

www.siracertification.com

Our Ref: 51E26244
Date: 26 October 2011

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中华人民共和国
组织机构代码证

代　码：75887698-9

机构名称：奉化市远东车辆部件有限公司

机构类型：企业法人　舒亮

地　址：浙江省宁波市奉化市东郊开发区瑞峰路

有效期：自2011年06月28日至2015年06月28日

颁发单位：奉化市质量技术监督局

登记号：组代管330283-035515

说　明

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中华人民共和国国家质量监督检验检疫总局

年检记录

NO.2010 7357072

对外贸易经营者备案登记表

经营者中文名称	奉化市远东车辆部件有限公司		
经营者英文名称	FENGHUA YUANDONG AUTO PARTS LIMITED COMPANY		
组织机构代码	75887698-9	经营者类型（非备案登记机关填写）	有限责任公司
住　所	奉化市东郊开发区瑞峰路		
经营场所（中文）	奉化市东郊开发区瑞峰路		
经营场所（英文）	RUIFENG ROAD FENGHUA CITY EASTERN SUBURBAN DEVELOPMENT DISTRICT		
联系电话	0574-88829332	联系传真	0574-88829332
邮政编码	315500	电子邮箱	hawks01@188.com
工商登记注册日期	2003-3-19	工商登记注册号	3302283001772

依法办理工商登记的企业法人填写以下内容

企业法定代表人姓名	舒亮	有效证件号	332223197108308519
注册资金	壹仟贰佰万元		（折美元）

依法办理工商登记的外国（地区）企业或个体工商户（独资经营者）还须填写以下内容

企业法定代表人/个体工商户负责人姓名		有效证件号	
企业资产/个人财产			（折美元）

备注	

填表前请认真阅读背面的条款，并由企业法定代表人或个体工商户负责人签字、盖章。

备案登记机关

年　月　日

Designing Features of Hawks 10 Series Pneumatic Actuator

Extruded aluminum ASTM6005 body with both internal and external corrosion protection having honed cylinder surface for longer life and low coefficient of friction.
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 safely and corrosion resistance, longer cycle life.
Fully machined teeth on piston and pinion for accurate low backlash rack and pinion engagement, maximum efficiency.
Carbon steel with nickel plated or stainless steel fasteners for long term corrosion resistance.
Full conformance to the latest specifications: ISO5211, DIN 3337 and Namur or product interchangeability and easy mounting of solenoids, limit switches and other accessories.

Material

No	Description	Qty	Standard Material	Protection	Optional Material
1	Indicator Screw	1	Plastics		
2	Indicator	1	Plastics		
3	Circlip	1	Stainless Steel	Nickel Plated	
4	Gasket	1	Engineering Plastics		
5	Body	1	Cast Aluminum	Hard Anodize, Etc	
6	Retainer Ring	1	Engineering Plastics		
7	Cam	1	Steel Alloy		
8	O Ring (Upper Bearing)	1	NBR		Fluorine Rubber/Silicone Rubber
9	Upper Bearing	1	Engineering Plastics		
10	Pinion	1	Stainless Steel	Nickel Plated	
11	Lower Bearing	1	Engineering Plastics		
12	O Ring (Lower Bearing)	1	NBR		Fluorine Rubber/Silicone Rubber
13	O Ring (Adjust Screw)	2	NBR		Fluorine Rubber/Silicone Rubber
14	Nut (Adjust Screw)	2	Stainless Steel	Nickel Plated	
15	Adjust Screw	2	Stainless Steel	Nickel Plated	
16	Piston	2	Cast Aluminum/Casting	Anodized/Zinc Galvanized	Stainless Steel
17	Guide (Piston)	2	Engineering Plastics		
18	O Ring (Piston)	2	NBR		Fluorine Rubber/Silicone Rubber
19	Washer (Piston)	2	Engineering Plastics		
20	Spring (Single Acting)	0~12	Spring Steel	Dipping Paint	
21	O Ring (End Cap)	2	NBR		Fluorine Rubber/Silicone Rubber
22	End Cap	2	Cast Aluminum	Powder Coating, Etc	
23	Cap Screw	8	Stainless Steel	Nickel Plated	

Connection Type and Weight

Connection Type

1.Air supply connection is designed in accordance with NAMUR Standard to install solenoid valves.

2.The NAMUR drive pinion and the NAMUR top mounting connection permit direct installation of accessories such as limit switch box and positioner.

3.Bottom mounting connection is designed in accordance with ISO5211 and DIN3337 standards for direct mounting with valve gear boxes or mounting brackets.

New Type

New connection types are continued researching and developing.

Customer Need

We can design and produce all kinds of connection types according to customer'needs.

Air Volume (cm^3)

Model	32	40	52	63	75	82	92	105	127	140	160	190	210	240	270
CW	30	65	135	220	350	540	760	1100	2150	2950	4260	5900	7500	14360	21480
CCW	29	43	110	160	270	410	570	860	1590	2100	3080	5400	5630	10450	17010

Weight (kgs)

Model	32	40	52	63	75	82	92	105	127	140	160	190	210	240	270
DA	0.4	0.75	1.1	1.96	2.4	2.9	3.95	5.8	9.3	14.5	17.5	31	46	67	97
SR			1.4	2.3	3	3.7	5	7.5	12.2	20	24	35	54	80	118

Note: Spring Return unit weights are with full 6 sets of springs per piston.

Hawks

Dimension Table

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	Z	Ø	Air Connection
10032DA	20	25	45	65		30	50	Ø36		M5*8		9*9	12	100	40	NAMUR Rp1/8"
10040DA	25	32	60	80	50	30	50	Ø36	Ø50	M5*8	M6*8	9*9	12	108	40	NAMUR Rp1/8"
10052DA/SR	30	40	74.3	95	59	30	80	Ø36	Ø50	M5*8	M6*8	11*11	15	135	40	NAMUR Rp1/8"or 1/4"
10063DA/SR	36	44	88	107.5	74	30	80	Ø50	Ø70	M6*10	M8*13	14*14	16	142	40	NAMUR Rp1/4"
10075DA/SR	42	50	100.5	121	80.5	30	80	Ø50	Ø70	M6*10	M8*13	14*14	16	168	40	NAMUR Rp1/4"
10083DA/SR	46	57	108.5	128.7	88	30	80	Ø50	Ø70	M6*10	M8*13	17*17	19	188	40	NAMUR Rp1/4"
10092DA/SR	50	57	117	137	96.5	30	80	Ø50	Ø70	M6*10	M8*13	17*17	22	192	40	NAMUR Rp1/4"
10105DA/SR	57.5	64	133	153	109.5	30	80	Ø70	Ø102	M8*13	M10*16	22*22	26	258	40	NAMUR Rp1/4"
10127DA/SR	68.5	69	161	181	132	30	80/130	Ø70	Ø102	M8*13	M10*16	22*22	26	310	55	NAMUR Rp1/4"
10140DA/SR	75	77	180	200	137.5	30	80/130	Ø102	Ø125	M10*16	M12*20	27*27	31	370	55	NAMUR Rp1/4"
10160DA/SR	86	78	198	218	158	30	80/130	Ø102	Ø125	M10*16	M12*20	27*27	31	397	55	NAMUR Rp1/4"
10190DA/SR	103	103	230	260	189	30	130		Ø140		M16*25	36*36	40	525	80	NAMUR Rp1/4"
10210DA/SR	113	113	255	285	210	30	130		Ø140		M16*25	36*36	40	532	80	NAMUR Rp1/4"
10240DA/SR	129	129	290	320	245	30	130		Ø165		M20*25	46*46	50	602	80	NAMUR Rp1/4" or 3/8"
10270DA/SR	146	146	326	356	273	30	130		Ø165		M20*25	46*46	50	722	80	NAMUR Rp1/2"

Operating Principle and Condition

Double Acting Operating Principle

CCW
Input the compressed air from the A, the left and right plungers move reversely, the output pinion rotates counter-clockwise, and the air at the sides of the both plungers exhausts from B.

CW
Input the compressed air from the B, the left and right plungers move to the center, the output pinion rotates clockwise, and the air between the two plungers exhausts from A.

Single Acting Operating Principle

CCW
Input the compressed air from the A, the left and right plungers move reversely, the output pinion rotates counter-clockwise, and the air at the sides of the both plungers exhausts from B.

CW
When it is out of air or power, the two plungers move to the center under the spring action, the output pinion rotates clockwise, and the air exhausts from A.

Operating Condition

1. Operating Media
Dry and clear air, or the non-corrosive gases
The maximum particle diameter must less than 40um

2. Air Supply Pressure
The minimum supply pressure is 2.5Bar
The maximum supply pressure is 10Bar

3. Operating Temperature
Standard: -20℃~+80℃
Low temperature: -35℃~+80℃(can be customized)
High temperature: -15℃~+150℃(can be customized)

4. Travel Adjustment
Have adjustment range of +-5 degree for the rotation at 0 and 90 degree

5. Application
Either indoor or outdoor

Hauwin

Torque List and Reference Selection

Double Acting Torque List

Model \ Torque	Air Pressure(Bar)									
	2.5	3	3.5	4	4.5	5	5.5	6	7	8
10032DA	3.2	3.8	4.4	5.0	5.7	6.31	6.9	7.6	8.8	10.1
10040DA	4.9	6.0	6.9	7.9	8.9	9.85	10.8	11.8	13.8	15.8
10052DA	9.9	12.0	13.8	15.8	17.7	19.7	21.7	23.6	27.6	31.5
10063DA	14.5	17.7	20.3	23.2	26.1	29.0	31.9	34.8	40.6	46.4
10075DA	24.8	30.2	34.7	39.6	44.6	49.5	54.5	59.4	69.3	79.2
10083DA	35.3	43.0	49.4	56.4	63.5	70.5	77.6	84.6	98.7	112.8
10092DA	49.5	60.4	69.3	79.2	89.1	99.0	108.9	118.8	138.6	158.4
10105DA	80.5	98.2	112.7	128.8	144.9	161.0	177.1	193.2	225.4	257.6
10127DA	141.5	172.6	198.1	226.4	254.7	283.0	311.3	339.6	396.2	452.8
10140DA	215.0	262.3	301.0	344.0	387.0	430.0	473.0	516.0	602.0	688.0
10160DA	281.0	342.8	393.4	449.6	505.8	562.0	618.2	674.4	786.8	899.2
10190DA	532.0	649.0	744.8	851.2	957.6	1064.0	1170.4	1276.8	1489.6	1702.4
10210DA	665.0	811.3	931.0	1064.0	1197.0	1330.0	1463.0	1596.0	1862.0	2128.0
10240DA	962.0	1173.6	1346.8	1539.2	1731.6	1924.0	2116.4	2308.8	2693.6	3078.4
10270DA	1462.0	1783.6	2046.8	2339.2	2631.6	2924.0	3216.4	3508.8	4093.6	4678.4

TYPE: Double acting pneumatic actuator
The suggested safe factor for double acting actuators under normal working conditions is 20%~30%.
Example:
The torque needed by valve=100 Nm
The torque considered safe factor=100 (1+30%)=130 Nm
Air supply pressure=5Bar
According to the above table, we can choose the minimum model is 10105DA.

Reference Selection

Model	If air pressure	Reference	Reference	Valve	Double	ISO5211
32DA	6.3				9	F03
40DA	9.85				9	F03/05
52DA	19.7	40	2"	9	9	F03/05
63DA	29	65	2.5"	11	11	F05/07
75DA	49.5	80	3"	20	14	F05/07
83DA	70.5	100	4"	29	17	F05/07
92DA	99	100	4"	47	17	F05/07
105DA	161	125	5"	82	22	F07/10
127DA	283	150	6"	130	22	F07/10
140DA	430	250	10"	360	27	F10/12
160DA	562	250	10"	360	27	F10/12
190DA	1064	300	12"	475	36	F14
210DA	1330	350	14"	760	36	F14
240DA	1924	400	16"	1300	46	F16
270DA	2924	500	20"	2340	46	F16

Single Acting Torque List and Reference Selection

Model \ Torque	Spring Sets	Spring Torque		Air Pressure(Bar)																	
				3		3.5		4		4.5		5		5.5		6		7		8	
		90.0	0º	0º	90º	0º	90º	0º	90º	0º	90º	0º	90º	0º	90º	0º	90º	0º	90º	0º	90º
52	4	6.6	3.8	8.0	5.2	10.0	7.2	12.0	9.2	13.9	11.1	15.9	13.1	17.9	15.1	19.8	17.0	23.8	21.0	27.7	24.9
	5	8.3	4.8	7.0	3.5	9.0	5.5	11.0	7.5	12.9	9.4	14.9	11.4	16.9	13.4	18.8	15.3	22.8	19.3	26.7	23.2
	6	9.9	5.7	6.1	1.9	8.1	3.9	10.1	5.9	12.0	7.8	14.0	9.8	16.0	11.8	17.9	13.7	21.9	17.7	25.8	21.6
	7	11.6	6.7			7.1	2.2	9.1	4.2	11.0	6.1	13.0	8.1	15.0	10.1	16.9	12.0	20.9	16.0	24.8	19.9
	8	13.2	7.6					8.2	2.6	10.1	4.5	12.1	6.5	14.1	8.5	16.0	10.4	20.0	14.4	23.9	18.3
	9	14.9	8.6							9.1	2.8	11.1	4.8	13.1	6.8	15.0	8.7	19.0	12.7	22.9	16.6
	10	16.5	9.5							8.2	1.2	10.2	3.2	12.2	5.2	14.1	7.1	18.1	11.1	22.0	15.0
	11	18.2	10.5									9.2	1.5	11.2	3.5	13.1	5.4	17.1	9.4	21.0	13.3
	12	19.8	11.4											10.3	1.9	12.2	3.8	16.2	7.8	20.1	11.7
63	4	10.6	5.3	12.1	6.8	15.0	9.7	17.9	12.6	20.8	15.5	23.7	18.4	26.6	21.3	29.5	24.2	35.3	30.0	41.1	35.8
	5	13.3	6.7	10.7	4.1	13.6	7.0	16.5	9.9	19.4	12.8	22.3	15.7	25.2	18.6	28.1	21.5	33.9	27.3	39.7	33.1
	6	16.0	8.0	9.4	1.4	12.3	4.3	15.2	7.2	18.1	10.1	21.0	13.0	23.9	15.9	26.8	18.8	32.6	24.6	38.4	30.4
	7	18.6	9.3			11.0	1.7	13.9	4.6	16.8	7.5	19.7	10.4	22.6	13.3	25.5	16.2	31.3	22.0	37.1	27.8
	8	21.3	10.6					12.6	1.9	15.5	4.8	18.4	7.7	21.3	10.6	24.2	13.5	30.0	19.3	35.8	25.1
	9	23.9	12.0							14.1	2.2	17.0	5.1	19.9	8.0	22.8	10.9	28.6	16.7	34.4	22.5
	10	26.6	13.3									15.7	2.4	18.6	5.3	21.5	8.2	27.3	14.0	33.1	19.8
	11	29.3	14.6											17.3	2.6	20.2	5.5	26.0	11.3	31.8	17.1
	12	31.9	16.0											15.9	0.0	18.8	2.9	24.6	8.7	30.4	14.5
75	4	18.7	10.9	18.8	11.0	23.8	16.0	28.7	20.9	33.7	25.9	38.6	30.8	43.6	35.8	48.5	40.7	58.4	50.6	68.3	60.5
	5	23.4	13.6	16.1	6.3	21.1	11.3	26.0	16.2	31.0	21.2	35.9	26.1	40.9	31.1	45.8	36.0	55.7	45.9	65.6	55.8
	6	28.1	16.3	13.4	1.6	18.4	6.6	23.3	11.5	28.3	16.5	33.2	21.4	38.2	26.4	43.1	31.3	53.0	41.2	62.9	51.1
	7	32.8	19.1			15.6	1.9	20.5	6.8	25.5	11.8	30.4	16.7	35.4	21.7	40.3	26.6	50.2	36.5	60.1	46.4
	8	37.4	21.8					17.8	2.2	22.8	7.2	27.7	12.1	32.7	17.1	37.6	22.0	47.5	31.9	57.4	41.8
	9	42.1	24.5							20.1	2.5	25.0	7.4	30.0	12.4	34.9	17.3	44.8	27.2	54.7	37.1
	10	46.8	27.2									22.3	2.7	27.3	7.7	32.2	12.6	42.1	22.5	52.0	32.4
	11	51.5	30.0											24.5	3.0	29.4	7.9	39.3	17.8	49.2	27.7
	12	56.2	32.7													26.7	3.2	36.6	13.1	46.5	23.0
83	4	28.8	17.1	25.2	13.5	32.3	20.6	39.3	27.6	46.4	34.7	53.4	41.7	60.5	48.8	67.5	55.8	81.6	69.9	95.7	84.0
	5	36.1	21.4	20.9	6.2	28.0	13.3	35.0	20.3	42.1	27.4	49.1	34.4	56.2	41.5	63.2	48.5	77.3	62.6	91.4	76.7
	6	43.3	25.7			23.7	6.1	30.7	13.1	37.8	20.2	44.8	27.2	51.9	34.3	58.9	41.3	73.0	55.4	87.1	69.5
	7	50.5	30.0					26.4	5.9	33.5	13.0	40.5	20.0	47.6	27.1	54.6	34.1	68.7	48.2	82.8	62.3
	8	57.7	34.3							29.2	5.8	36.2	12.8	43.3	19.9	50.3	26.9	64.4	41.0	78.5	55.1
	9	64.9	38.6									31.9	5.6	39.0	12.7	46.0	19.7	60.1	33.8	74.2	47.9
	10	72.1	42.8											34.8	5.5	41.8	12.5	55.9	26.6	70.0	40.7
	11	79.3	47.1													37.5	5.3	51.6	19.4	65.7	33.5
	12	86.5	51.4															47.3	12.2	61.4	26.3
92	4	36.7	23.7	35.7	22.7	45.6	32.6	55.5	42.5	65.4	52.4	75.3	62.3	85.2	72.2	95.1	82.1	115	102	135	122
	5	45.9	29.6	29.8	13.5	39.7	23.4	49.6	33.3	59.5	43.2	69.4	53.1	79.3	63.0	89.2	72.9	109	93	129	113
	6	55.1	35.5	23.9	4.3	33.8	14.2	43.7	24.1	53.6	34.0	63.5	43.9	73.4	53.8	83.3	63.7	103	84	123	103
	7	64.3	41.4			27.9	5.0	37.8	14.9	47.7	24.8	57.6	34.7	67.5	44.6	77.4	54.5	97	74	117	94
	8	73.5	47.4					31.8	5.7	41.7	15.6	51.6	25.5	61.5	35.4	71.4	45.3	91	65	111	85
	9	82.7	53.3							35.8	6.4	45.7	16.3	55.6	26.2	65.5	36.1	85	56	105	76
	10	91.8	59.2									39.8	7.2	49.7	17.1	59.6	27.0	79	47	99	67
	11	101.0	65.1											43.8	7.9	53.7	17.8	74	38	93	57
	12	110.0	71.0													47.8	8.8	68	29	87	48
105	4	63.2	34.4	62.2	33.4	78.3	49.5	94.4	65.6	111	82	127	98	143	114	159	130	191	162	223	194
	5	79.0	43.0	53.6	17.6	69.7	33.7	85.8	49.8	102	66	118	82	134	98	150	114	182	146	215	179
	6	94.8	51.6	45.0	1.8	61.1	17.9	77.2	34.0	93	50	109	66	126	82	142	98	174	131	206	163
	7	111.0	60.2			52.5	1.7	68.6	17.8	85	34	101	50	117	66	133	82	165	114	197	147
	8	126.0	68.8					60.0	2.8	76	19	92	35	108	51	124	67	157	99	189	132
	9	142.0	77.4							68	3	84	19	100	35	116	51	148	83	180	116
	10	158	86									75	3	91	19	107	35	139	67	172	100
	11	174	95											83	3	99	19	131	51	163	84
	12	190	103													90	3	122	35	155	68
127	4	128	77	93	42	121	70	149	98	178	127	206	155	234	183	263	212	319	268	376	325
	5	160	96	73	10	102	38	130	66	158	95	187	123	215	151	243	180	300	236	356	293
	6	192	116			82	6	110	34	139	63	167	91	195	119	224	148	280	204	337	261
	7	223	135					91	3	120	32	148	60	176	88	205	117	261	173	318	230
	8	255	154									129	28	157	56	186	85	242	141	299	198
	9	287	173											138	24	167	53	223	109	280	166
	10	319	193													147	21	203	77	260	134
	11	351	212															184	45	241	102
	12	383	231															165	13	222	70

Single Acting Torque List and Reference Selection

140	4	181	102	156	77	199	120	242	163	285	206	328	249	371	292	414	335	500	421	586	507
	5	226	128	130	32	173	75	216	118	259	161	302	204	345	247	388	290	474	376	560	462
	6	271	153			148	30	191	73	234	116	277	159	320	202	363	245	449	331	535	417
	7	316	179					165	28	208	71	251	114	294	157	337	200	423	286	509	372
	8	361	204							183	26	226	69	269	112	312	155	398	241	484	327
	9	407	230									200	23	243	66	286	109	372	195	458	281
	10	452	255											218	21	261	64	347	150	433	236
	11	497	281													235	19	321	105	407	191
	12	542	306															296	60	382	146
160	4	234	143	194	103	250	159	307	216	363	272	419	328	475	384	531	440	644	553	756	665
	5	293	179	158	44	214	100	271	157	327	213	383	269	439	325	495	381	608	494	720	606
	6	351	214			179	42	236	99	292	155	348	211	404	267	460	323	573	436	685	548
	7	410	250					200	40	256	96	312	152	368	208	424	264	537	377	649	489
	8	468	286							220	38	276	94	332	150	388	206	501	319	613	431
	9	527	321									241	35	297	91	353	147	466	260	578	372
	10	585	357											261	33	317	89	430	202	542	314
	11	644	393													281	30	394	143	506	255
	12	702	428															359	85	471	197
190	4	242	160	478	396	585	503	691	609	798	716	904	822	1010	928	1117	1035	1330	1248	1542	1460
	5	309	200	438	329	545	436	651	542	758	649	864	755	970	861	1077	968	1290	1181	1502	1393
	6	371	240	398	267	505	374	611	480	718	587	824	693	930	799	1037	906	1250	1119	1462	1331
	7	433	280	358	205	465	312	571	418	678	525	784	631	890	737	997	844	1210	1057	1422	1269
	8	495	320	318	143	425	250	531	356	638	463	744	569	850	675	957	782	1170	995	1382	1207
	9	557	360			385	188	491	294	598	401	704	507	810	613	917	720	1130	933	1342	1145
	10	618	400					451	233	558	340	664	446	770	552	877	659	1090	872	1302	1084
	11	680	440							518	278	624	384	730	490	837	597	1050	810	1262	1022
	12	742	480									584	322	690	428	797	535	1010	748	1222	960
210	4	304	220	578	494	711	627	844	760	977	893	1110	1026	1243	1159	1376	1292	1642	1558	1908	1824
	5	380	275	523	418	656	551	789	684	922	817	1055	950	1188	1083	1321	1216	1587	1482	1853	1748
	6	456	330	468	342	601	475	734	608	867	741	1000	874	1133	1007	1266	1140	1532	1406	1798	1672
	7	532	385	413	266	546	399	679	532	812	665	945	798	1078	931	1211	1064	1477	1330	1743	1596
	8	608	440	358	190	491	323	624	456	757	589	890	722	1023	855	1156	988	1422	1254	1688	1520
	9	684	495			436	247	569	380	702	513	835	646	968	779	1101	912	1367	1178	1633	1444
	10	760	550					514	304	647	437	780	570	913	703	1046	836	1312	1102	1578	1368
	11	792	605							592	405	725	538	858	671	991	804	1257	1070	1523	1336
	12	912	660									670	418	803	551	936	684	1202	950	1468	1216
240	4	443	328	826	711	1019	904	1211	1096	1404	1289	1596	1481	1788	1673	1981	1866	2366	2251	2750	2635
	5	554	410	744	600	937	793	1129	985	1322	1178	1514	1370	1706	1562	1899	1755	2284	2140	2668	2524
	6	665	492	662	489	855	682	1047	874	1240	1067	1432	1259	1624	1451	1817	1644	2202	2029	2586	2413
	7	776	575	579	378	772	571	964	763	1157	956	1349	1148	1541	1340	1734	1533	2119	1918	2503	2302
	8	887	656	498	267	691	460	883	652	1076	845	1268	1037	1460	1229	1653	1422	2038	1807	2422	2191
	9	998	739			608	349	800	541	993	734	1185	926	1377	1118	1570	1311	1955	1696	2339	2080
	10	1108	821					718	431	911	624	1103	816	1295	1008	1488	1201	1873	1586	2257	1970
	11	1219	903							829	513	1021	705	1213	897	1406	1090	1791	1475	2175	1859
	12	1330	985									939	594	1131	786	1324	979	1709	1364	2093	1748
270	4	631	448	1306	1123	1599	1416	1891	1708	2184	2001	2476	2293	2768	2585	3061	2878	3646	3463	4230	4047
	5	787	560	1194	967	1487	1260	1779	1552	2072	1845	2364	2137	2656	2429	2949	2722	3534	3307	4118	3891
	6	943	672	1082	811	1375	1104	1667	1396	1960	1689	2252	1981	2544	2273	2837	2566	3422	3151	4006	3735
	7	1101	783	971	653	1264	946	1556	1238	1849	1531	2141	1823	2433	2115	2726	2408	3311	2993	3895	3577
	8	1258	895	859	496	1152	789	1444	1081	1737	1374	2029	1666	2321	1958	2614	2251	3199	2836	3783	3420
	9	1416	1007			1040	631	1332	923	1625	1216	1917	1508	2209	1800	2502	2093	3087	2678	3671	3262
	10	1572	1119					1220	767	1513	1060	1805	1352	2097	1644	2390	1937	2975	2522	3559	3106
	11	1730	1231							1401	902	1693	1194	1985	1486	2278	1779	2863	2364	3447	2948
	12	1887	1342									1582	1037	1874	1329	2167	1622	2752	2207	3336	2791

Springs mounting from for spring return actuators:

5 pcs 6 pcs 7 pcs 8 pcs

9 pcs 10 pcs 11 pcs 12 pcs

Reference Selection

TYPE:
Single acting pneumatic actuator
The suggested safe factor for single acting actuators under normal working conditions is 20%~30%.
Example:
The torque needed by valve=100 Nm
The torque considered safe factor=100 (1+30%)=130 Nm
Air supply pressure=5Bar
According to the above table, we can choose the minimum model is 10140SR with full 6pcs spring.

Air Joint and Silencer

Straight

Model	Size	Model	Size
TPC4-M5	Ø4|M5	TPC8-04	Ø8|G1/2
TPC4-01	Ø4|G1/8	TPC10-02	Ø10|G1/4
TPC4-02	Ø4|G1/4	TPC10-03	Ø10|G3/8
TPC6-M5	Ø6|M5	TPC10-04	Ø10|G1/2
TPC6-01	Ø6|G1/8	TPC12-03	Ø12|G3/8
TPC6-02	Ø6|G1/4	TPC12-04	Ø12|G1/2
TPC8-02	Ø8|G1/4	TPC16-04	Ø16|G1/2
TPC8-03	Ø8|G3/8	TPC16-06	Ø 16|G1"

Fluid Type	Air vacuum
Operating Pressure	0-10.2kgf/cm2(0-1.0Mpa)
Negative Pressure	-750mmhg(10Torr)
Operating Temperature Range	0-60℃
Tube Material	PU/Nylon and Polyurethane

Quick Connecting Tube Fitting

Property

1.Simple and smart, kinds of models, so it meets and stringing pipe requirements.
2.Even it installed, plastic pipe can rotate at random.
3.Release ring adopts ellipse design, so removing for it is more convenient.
4.All taper pipe threads paints Teflon leakage-proof rubber, so seal property is good.
5.All TPC type directly connects hexagonal socket hole of grading belt, so it is convenient to install in the narrow.

Note

1. Install Tube

(1)The cut offside of the tube must be vertical. The outer surface of tube must not be scarred or be ellipse.
(2)When fitting the tube insure that it is inserted fully or leakage may occur.
(3)After fitting, ensure that the tube cannot disengage.

2.Install Fitting

(1)Ensure correct tools are used for fitting. A six - angled screwdriver must be used to lock the body.
(2)When fitting a gyre worm, do not over tighten or fit too loose. This may result in damage or leakage.
(3)The unit can be adjusted by twisting to adapt to the fittings.

3.Strip Fittings

(1)Ensure correct tools are used for fitting. A six - angle screwdriver must be used to strip the body.
(2)Remove scrap and clean before fitting or damage may occur.

Silencer

Type	Screw Size
BSLM-M5	M5
BSLM-01	G 1/8”
BSLM-02	G 1/4
BSLM-03	G 3/8”
BSLM-04	G 1/2”
BSLM-05	G 3/4”
BSLM-06	G 1”

ALS Series Limit Switch

1.Compact and Beautiful Design, Polyester powder coated aluminum diecasting housing or stainless steel (304/316) housing.
2.Higher level weather proof (IP67)
3.Certified for use in all hazardous areas(Class I, Div.1&2, Groups A,B,C and D,Ex d IIB T6, Ex d IIC T6).
4.Available for sensors of mechanical, Inductive and magnet.
5.Available for sensors communication card with ASi or Devicenet protocol.
6.Dual cable entries, 2xG1/2 (Standard) and M20x1.5, NPT1/2(Optional) Multipoint terminal strip, standard 8 points and enough strips for connection
7.(14 points for optional).Multiview visual Position Indicator, Secure waterproof, multi-angles visual
8.valve positions involving top and side view.
9."Quick-Set" Cam, spring loaded splined cam. no need to adjust again after initial setting and easy setting without tool.
Captive cover bolts, No worry to loose bolts while cover opens
Easy mounting, NAMUR and ISO5211 adjustable bracket same as for 30*80-130 H20-30. standard is steel plate and stainless steel (optional)
10.Easy mounting,NAMUR and ISO5211 adjustable bracket sames for 30*80-130 H20-30 standard is steel plate and stainless steel(optional)

ALS — 3 00 M1 F

F - with 4 ~20 mA Feedback (only for 300, 400)
Non - without Feedback

M1 - Mechanical Switches
M2 - Mechanical Switches
M3 - Mechanical Switches
M4 - Mechanical Switches
M5 - Mechanical Switches
P1 - Proximity sensors
P1 - Proximity sensors
Q1 - Magnetic Switches
D - Double Sensor (for 200)

2 - IP67 Mini type
3 - IP67 Big type
4 - IP67+Exd II CT6
5 - IP67+Exd II BT6
6 - IP67+Exd II BT6

Limit Switch Box Series

Model	ALS-200	ALS-300	ALS-400	ALS-500	ALS-600
Weather Proof	IP67				
Enclosure Exclusionproof	-		Exd 11 C T6	Exd 11 B T6	Exd 11 B T6
Temperature Range	-25℃ - 85℃				
Cable Entry	2*1/2G(BSPP),NPT,BSPT,M20-1.5		2*3/4G(BSPP),NPT,BSPT		
Terminal Strips	8-12	8-14	8-12	8-10	8-12
Position Indicator	0-90°				
	Open-Yellow;Close-Red				
Terminal Strips	5A125-250VAC	15A125-250VAC			
Proximity Sensor	DC 24V(10-30VDC),<=150mA				
Magnet Sensor	5-240VAC/DC,<=300mA				
Position Transmitter		Feedback 4-20mA			

Structure and Material

ALS-200

ALS-300

ALS-400

ALS-500

No.	Part Name	Qty.	Material
1	Box Cover	1	Aluminum Die Casting / Stainless Steel only for ALS-600
2	Box Body	1	Aluminum Die Casting / Stainless Steel only for ALS-600
3	Shaft	1	Stainless Steel
4	Indicator Cover	1	Polycarbonate
5	Indicator	1	ABS
6	Limit Switch	2	Mechanical/Proximity/ Magnet sensor
7	Terminal Strip	8-14	Polycarbonate, Tin Plated Brass, Stainless Steel
8	Cam	2	Polycarbonate
9	Spring	1	Stainless Steel
10	Cover Bolts	4	Stainless Steel
11	Shaft O-ring	2	NBR
12	Housing O-ring	1	NBR
13	Indicator O-ring	1	NBR
14	Bushing	2	Bronze
15	Earth Lug	1	Stainless Steel
16	E-ring	2	Stainless Steel

ALS-600

Hawks

Dimension

ALS200

ALS300

Easy Mounting (30 80,130H20,30)

Hawks

Dimension

ALS400

ALS500/600

Easy Mounting (30 80,130H20,30)

NEW

ISO Mounting Bracket

Model No.	Photo	Material		Application	
MB-1.0		Carbon Steel Polyester Powder coated	S.S.304-2mm	30x80 H:20 30x80 H:30	ALS200
MB-1.1		Carbon Steel Polyester Powder coated	S.S.304-2mm	30x130 H:30~50	ALS200
MB-2.3		Carbon Steel Polyester Powder coated	/	30x80-130 H:20~30	ALS200
MB-3.0		Carbon Steel Polyester Powder coated	S.S.304-3mm	30x80 H:20~30	ALS300
MB-3.1		Carbon Steel Polyester Powder coated	S.S.304-3mm	30x130 H:30~50	ALS300
MB-3.2		Carbon Steel Polyester Powder coated	S.S.304-3mm	30x80 H:20	ALS300 ALS400 ALS500/600
MB-3.3		Carbon Steel Polyester Powder coated	S.S.304-3mm	30x80-130 H:20~30 H:50	ALS300 ALS400 ALS500/600

HAWKS

ALP 1000 Series E-P valve positioner

Design and Features

Armed with the design ideas of block structure and Multi-port type, we produced the ALP-1000 series E-P valve positioner which has two types, one is Linear and another is rotary. The Linear one is used for linear operation of pneumatic linear valve actuator. The rotary one is used for rotary pneumatic actuator. They control valve stroke accurately, through pressure air, according to input signal of 4-20mA being input from electrical controller control system.

In addition, the internal Position transmitter and/or limit switches are easily to be assembled inside of the positioner in order to senses mechanical position change of stem being on the valve or similar device and converses to current signal of DC 4~20mA outputs for computers or Industry Processing Control System. It is flame proof type attached internally.

The ALP-1000 series E-P valve Positioner is provided with following features:
1. There is no resonance in the range of 5~200Hz.
2. Performing 1/2 Split Control without any other substitutes.
3. Easy to adjust zero and span.
4. Easy to convert from Reverse Action to Direct Action or vice versa.
5. Easy to convert from Spring Return to Double Action actuator or vice versa.
6. Easy Feedback Connection.
7. Fast and accurate response.
8. Low air consumption.
9. Easy to protect from hunting effect by using output orifice in small size of actuator.
10. Easy to install air tubing connection in any direction.

Ordering Symbols and Specifications

Sample: ALP 1000 RSBn 13 means a rotary, single acting and no explosion ALP valve positioner with internal limit switch box. The lever type of the positioner is M6x40L and the orifice type is over 180 cm^3

Technical Data

ALP-1000 Positioner		Internal Position Transmitter(optional)	
Description	**Technical Data**	**Description**	**Technical Data**
Input Signal	4-20mADC(5-15mADC)	Input Type	2Wire
Impedance	250±15Ω	Input Signal	0°-90°
Supply Pressure	1.4～7kgf/cm²（20～100psi)	Output Signal	4-20mA DC
Stroke	Rotary:0°-90°Linear:10-150mm	Load Resistance	0～600Ohm
Air Connection	G(NPT)1/4	Noise Range	50m Vp.p
Gauge Connection	G(NPT)1/8	Adjustable Range	Zero:±10% Span:60～110%
Conduit	G(NPT)1/2	Protection	IP66
Explosion Proof	Exdm Ⅱb(c)t6,Exia Ⅱbt6,Non-Explosion	Linearity	±1%
Protection	IP66	Sensitivity	±1.2%
Ambient Temperature	-20℃～70℃	Hysteresis	0.002
Linearity	±1%F.S±2%F.S	Supply Voltage	15～30V DC
Hysteresis	±1%F.S	Explosion Proof	Non-Explosion
Sensitivity	±0.2%F.S±0.5%F.S	Internal Mechanical Switches(optional)	
Repeatability	±0.5%	Description	Technical Data
Air consumption	3LPM(Sup=1.4kgf/cm²,20psi)	Supply Voltage	ZIPPY,5A125-250VAC
Flow Capacity	80LPM(Sup=1.4kgf/cm²,20psi)	Internal Proximity Sensors(optional)	
material	Aluminum alloy	Description	Technical Data
Weight	2.7kg(6lb)2.8kg(6.2lb)	Supply Voltage	(DC 24V(10-30VDC),<=150mA)

Mounting and Installation

Rotary type

Linear type

Packing Condition

Model	N.W.(kg)	G.W.(kg)	Meas(mm)
ALP-1000LD(S)n(i)	2.80	3.33	270×200×170
ALP-1000LD(S)m	2.80	3.25	270×200×170
ALP-1000RD(S)n(i)	2.60	4.00	270×200×170
ALP-1000RD(S)M	2.75	4.20	270×200×170

Dimensions

Technical Data

Item.Type	Technical Data
Connection Type	2Wire
Input Signal	0°-90°
Output Signal	4-20mA DC
Load Resistance	0～600Ohm
Supply Voltage	15～30V DC
Noise Range	50m Vp.p
Ambient Temp	-20℃～60℃(-4～140°F)
Linearity	±1%F.S
Hysteresis	±0.2F.S
Sensitivity	±0.2%F.S

Rotary type

Linear type

Wiring Instruction

Adjust Instruction

A. ZERO Adjustment

Clockwise adjustment enlarging electric current

B. SPAN Adjustment

Clockwise adjustment enlarging electric current

Assembly and Part List

Linear Type

NO.	Name Of Part
1	Feedback Lever
2	Shaft
3	Big Brass Gear
4	SS.Baffle
5	Hexagonal Shaft
6	Spring
7	Brass Connector
8	Small Brass Gear
9	Potentiometer
10	Position Transmitter PCB
11	Aluminum Plate
Remark:the rest unist are standard bolt and nut,the hexagonal shaft is installed on the body,and the hole would be made separately.	

Rotary Type

NO.	Name Of Part
1	Shaft
2	Big Brass Gear
3	Potentiometer
4	Small Brass Gear
5	Hexagonal Shaft
6	Spring
7	Hexagonal Shaft
8	Brass Block Connector
9	Position Transmitter PCB
10	Aluminum Plate
Remark:the rest unist are standard bolt and nut.	

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