

Yuandong

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

We are manufacturer specialized in producing Aluminum alloy castings since 1989, and we had produced some parts of pneumatic actuators and pneumatic components parts for many years, such we had started to produce the rack and pinion style pneumatic actuators and pneumatic components since 2003 year. We have Hawks series pneumatic actuators, cylinders, solenoid valves, air treatment components, gearboxes, hand levers, also limit switches, electrical pneumatic postponers, etc products.

Meanwhile our company has own young teams of design, production, inspection and sales, such we are ability to continue developing the new series pneumatic products to meet different customers request.

There are many advanced and precision equipments and machines in our company, such as numerically controlled lathes and milling machines, new machine centre, auto painting production line, non-ferrous smelting stoves, high and low pressure casting machines, metallic gravity casting machines, etc.

Focused on maintaining the products standard and performance stability, our company not only obtained ISO 9001: 2000 quality system certificate, but also has a lots of test and guaranty methods, such as lab of physical performance test and chemical components analysis, torque test control by computer, lift performance test, water resistance of paints and coatings, etc.

Looking forward to hearing from your any enquiries, we hope to develop with you in the future, and welcome you to visit our manufactory located in port city Ningbo in any time.



Designing Features of Y&H 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 safety and corrosion resistance, longer cycle life.

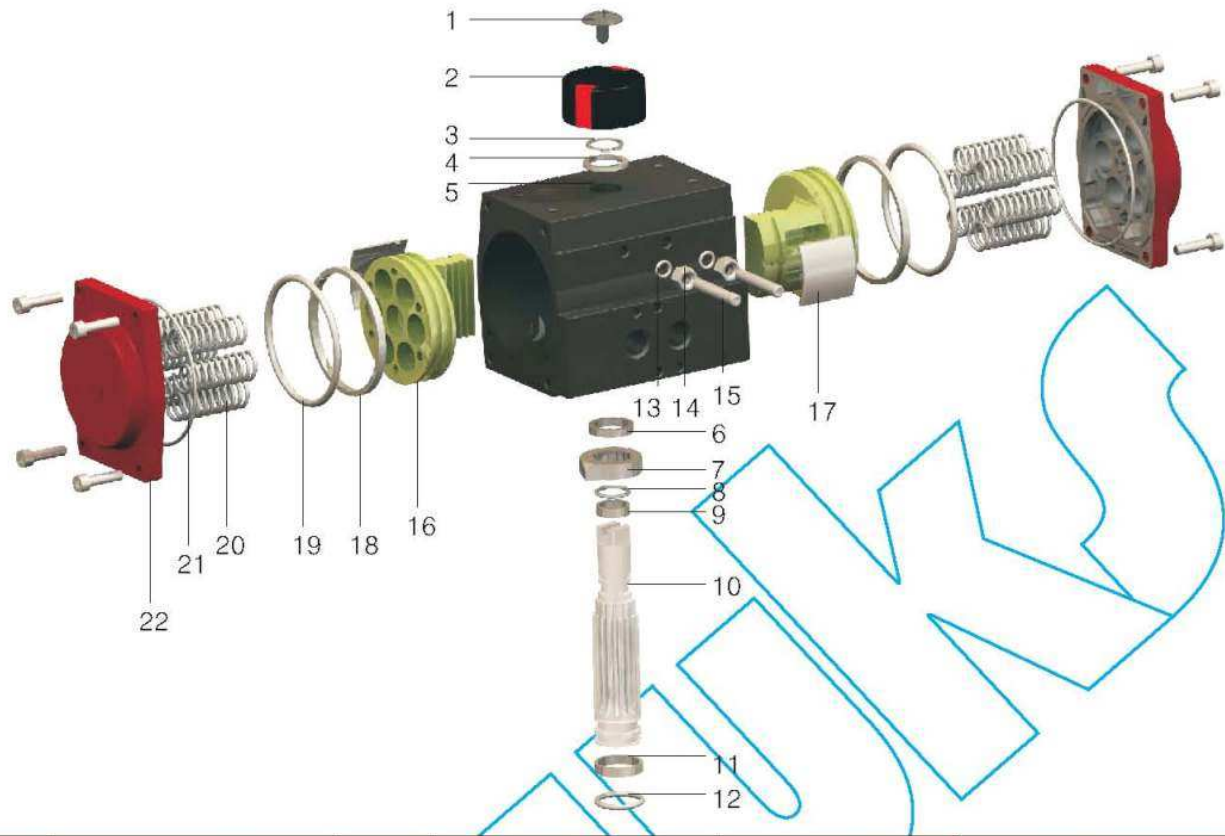
Fully machined teeth on piston and pinion for accurate low backlash rack and pinion engagement, maximum efficiency.

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	Carbon Steel	Nickel Plated	Stainless Steel
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	Carbon Steel/Stainless Steel	Nickel Plated	Stainless Steel
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	Carbon Steel	Nickel Plated	Stainless Steel
15	Adjust Screw	2	Carbon Steel	Nickel Plated	Stainless Steel
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	Carbon Steel	Nickel Plated	Stainless Steel

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's needs.

Air Volume (cm³)

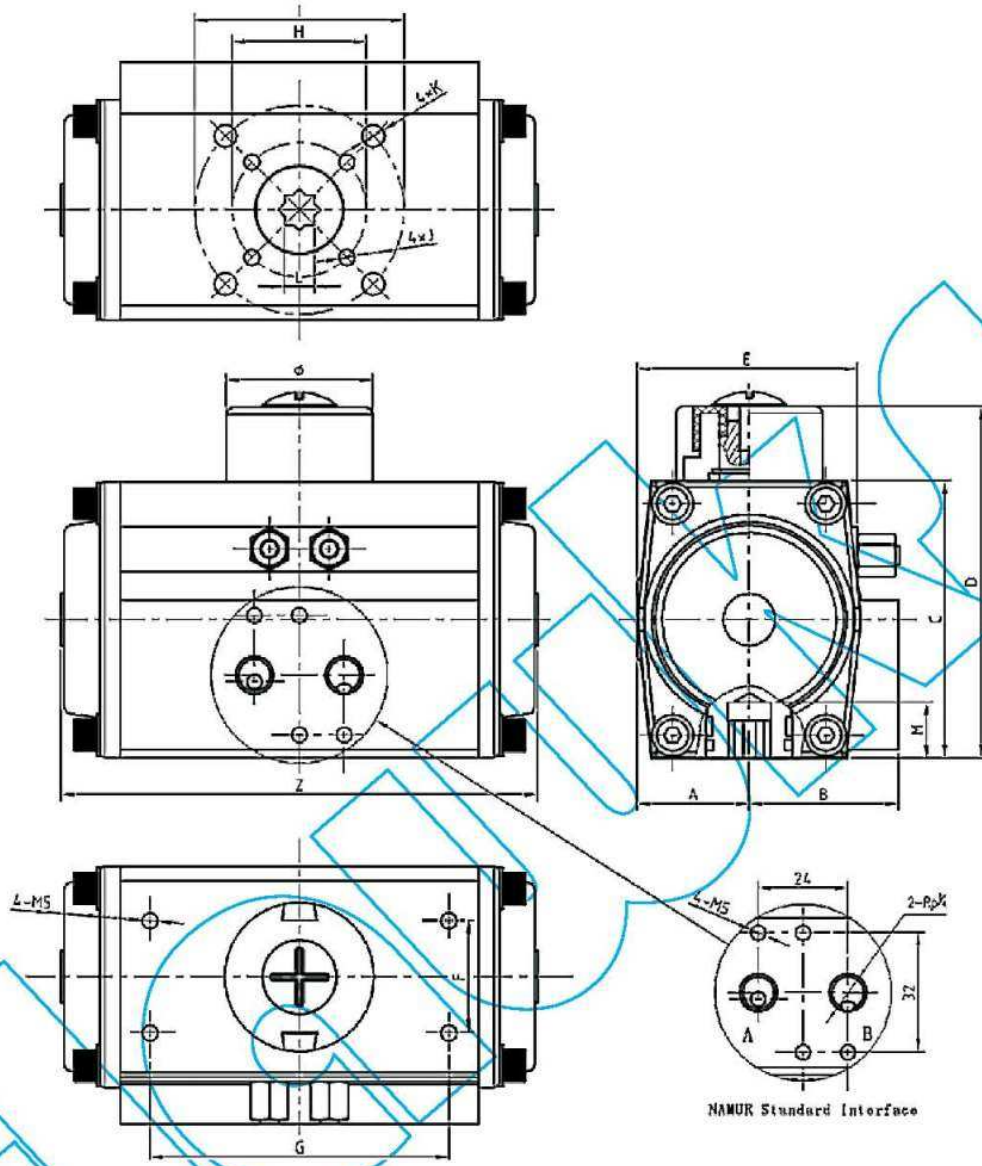
Model	32	40	52	63	75	83	92	105	127	140	160	190	210	240	270
CW	40	65	135	220	350	540	760	1100	2150	2950	4260	5900	8200	12800	17900
CCW	30	43	110	160	270	410	570	860	1590	2100	3080	4200	5700	9000	12600

Weight (kgs)

Model	32	40	52	63	75	83	92	105	127	140	160	190	210	240	270
DA	0.5	0.75	1.1	1.96	2.4	2.9	3.95	5.8	9.3	14.5	17.5	39	44	59	94
SR			1.6	2.1	3.0	3.9	5.4	8.1	12.9	18.7	23.5	46	53	73	116

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

Dimension Table

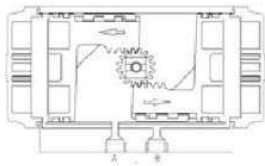


Model	A	B	C	D	E	F	G	H	I	J	K	L	M	Z	Ø	Air joint
10032DA	20	25	45	65		30	50	Ø36		M5*8		9*9	12	100	40	NAMUR Rp1/8"
10040DA	25	32	60	80	50	30	50	Ø36	Ø50	M5*8	M6*8	9*9	12	108	40	NAMUR Rp1/8"
10052DA/SR	30	40	74.3	95	59	30	80	Ø36	Ø50	M5*8	M6*8	11*11	15	135	40	NAMUR Rp1/8" or 1/4"
10063DA/SR	36	44	88	107.5	74	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	186	30	130	Ø102	Ø140	M10*16	M16*25	36*36	40	466	80	NAMUR Rp1/4"
10210DA/SR	113	113	255	285	202	30	130	Ø102	Ø140	M10*16	M16*25	36*36	40	502	80	NAMUR Rp1/4"
10240DA/SR	129	129	290	320	233	30	130	Ø125	Ø165	M12*20	M20*25	46*46	50	605	80	NAMUR Rp1/4" or 3/8"
10270DA/SR	146	146	320	350	264	30	130		Ø165		M20*25	46*46	50	715	80	NAMUR Rp1/4" or 1/2"

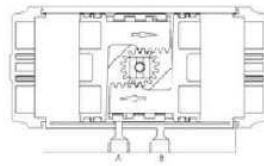
Operating Principle and Condition

Double Acting Operating Principle

CCW



CW



CCW

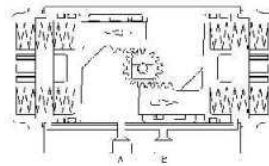
Input the compressed air from the A, the left and right plungers move reversely, the output pinion rotates counter-clockwise, and the air at the sides of the both plungers exhausts from B.

CW

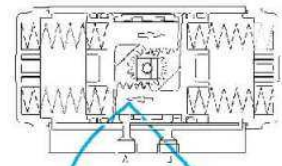
Input the compressed air from the B, the left and right plungers move to the center, the output pinion rotates clockwise, and the air between the two plungers exhausts from A.

Single Acting Operating Principle

CCW



CW



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

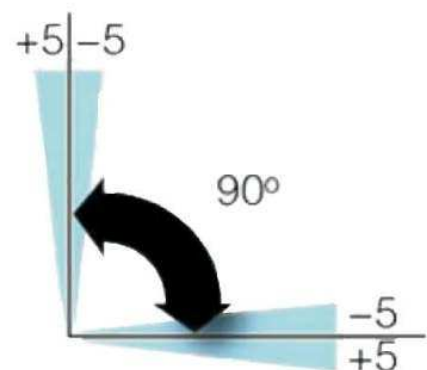
Standard: $-20^{\circ}\text{C} \sim +80^{\circ}\text{C}$
Low temperature: $-35^{\circ}\text{C} \sim +80^{\circ}\text{C}$ (can be customized)
High temperature: $-15^{\circ}\text{C} \sim +150^{\circ}\text{C}$ (can be customized)

4. Travel Adjustment

Have adjustment range of ± 5 degree for the rotation at 0 and 90 degree

5. Application

Either indoor or outdoor



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		490.0	597.8	686.0	784.0	882.0	980.0	1078.0	1176.0	1372.0	1568.0
10210DA		592.5	722.9	829.5	948.0	1066.5	1185.0	1303.5	1422.0	1659.0	1896.0
10240DA		1040.0	1268.8	1456.0	1664.0	1872.0	2080.0	2288.0	2496.0	2912.0	3328.0
10270DA		1650.0	2013.0	2310.0	2640.0	2970.0	3300.0	3630.0	3960.0	4620.0	5280.0

TYPE: Double acting pneumatic actuator

The suggested safe factor for double acting actuators under normal working conditions is 20%~30%.

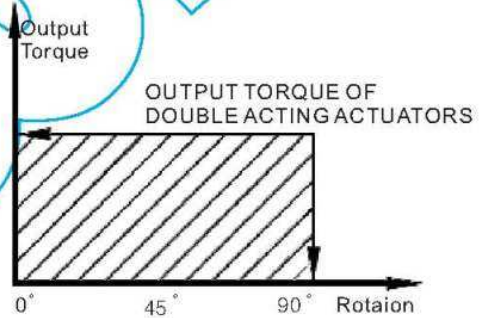
Example:

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
10032DA	6.3				9	F03
10040DA	9.85				9	F03/05
10052DA	19.7	40	2"	9	9	F05/07
10063DA	29	65	2.5"	11	11	F05/07
10075DA	49.5	80	3"	20	14	F05/07
10083DA	70.5	100	4"	29	17	F05/07
10092DA	99	100	4"	47	17	F05/07
10105DA	161	125	5"	82	22	F07/10
10127DA	283	150	6"	130	22	F07/10
10140DA	430	250	10"	360	27	F10/12
10160DA	562	250	10"	360	27	F10/12
10190DA	980	300	12"	475	36	F10/14
10210DA	1185	350	14"	760	36	F10/14
10240DA	2080	400	16"	1300	46	F12/16
10270DA	3300	500	20"	2340	46	F16

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.

