JUHANG.CN

PNEUMATIC ACTUATOR



TAIZHOU JUHANG AUTOMATION EQUIPMENT TECHNOLOGY CO.,LTD

Puqing industrial areas,Damaiyu avenue,Yuhuan city,
Taizhou,Zhejiang province,China.
Tel:+86-576-87208157 Fax:+86-576-87208537
E-mail:juhang@juhangkj.com.cn Website:www.tzjhkj.com
Edition: 2024/06 Doc NO.: QR/JS-07-01

TAIZHOU JUHANG AUTOMATION EQUIPMENT TECHNOLOGY CO.,LTD

We regard scientific and technological innovation as the inexhaustible source of life for the development of the company.

JUHANG.CN



"J" Jaunty

"U" Unexpected

"H" Hanker

"A" Amelioration

"N" Natty

"G" Genesis

CONTENTS

Product construction 08

Parts and material 09

Operating principle 10

Product characteristics 11

Mounting standard 12

Output torque of double acting actuators 13

Output torque of single acting actuators 14

Selection 18

Dimensions for JHA0012 20

Dimensions for JHA0020 to JHA8000 21

Weight and volume 22

Ordering code 23

JHM series 24

Specification of JHM series 25

Connecting shaft data 27

Internal adaptor 28

The function and usage of the actuator and the parts 29

QUALIFICATION AND HONOR





COMPANY PROFILE

Taizhou Juhang Automation Equipment Technology Co.,Ltd is an enterprise with a solid technical background specializing in the R&D manufacturing and sales of pneumatic actuators，declutchable manual override,gear operators and scotch yoke pneumatic actuator for industrial valves requiring a rotary quarter-turn movement such as ball valves，butterfly valves plug valves and dampers.

The company has high-precision CNC machining equipment and sophisticated testing equipment and has set up and advanced product performance inspection and test center.Relying on a complete quality management system and internal orderly management the quality of JUHANG Actuators is highly ensured.The company strictly follows the ISO9001:2015 management system ISO5211,NAMUR and EN-57141 international standards and specifications,and has obtained CE certification,ATEX certification,SIL3 certification issued by TUV Rheinland,Bureau veritas,LIoyd's,and other renowned certification bodies,Under the guidance if"Innovation is the gate if the future",the company insists on independent innovation and is honored to announce that a number if advanced technologies have been awarded national patents,Excellent product quality,professional technical team,and timely service enable us to reach friendly and happy cooperation with many companies all over the world.

Profession cast quality,and service creates values.We sincerely look forward to your patronage and provide you with our amazing products and fabulous service.





Corporate Spirit

Value,Profession,Quality,Service,Innovation

Corporate Value

Excellent enterprises are always in imprioving,do better,supply the best products and quality service.

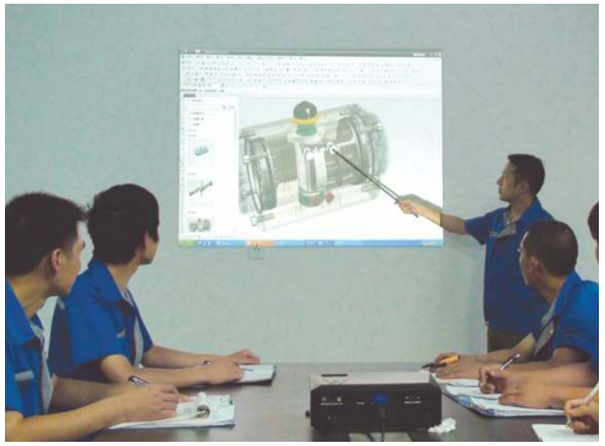
Service To Create Value

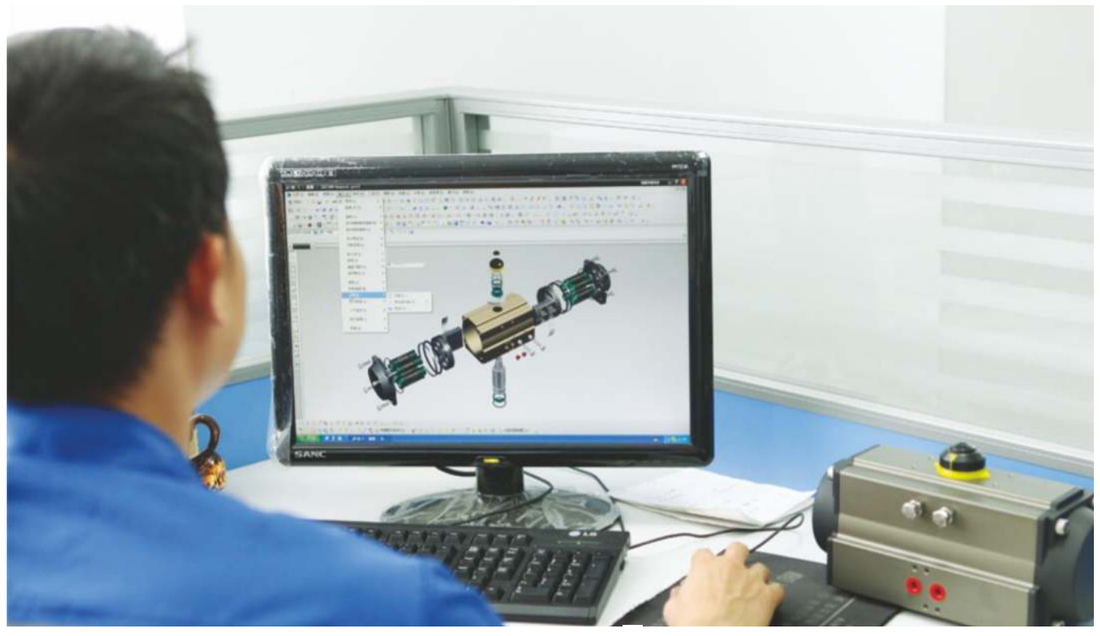
The maximum value is reflected in the customer's acceptance,excellent product ultimately vest user.In order to provide the highest quality service to customers around the world,JUHANG selected the most outstanding employees to made up service center for 24-hour service,provide customers with pre-sales and after-sales service and so on.



PRODCT RESEARCH AND DEVELOPMENT

We are sure that all products can exert their performance in the effective life by our perfect design,research and development and after-sales service,using new managing concept and strong professional technology force to produce high quality products that conform with international standard.















PRODUCT INSPECTION

JUHANG does strict test to every product.Inspectors are highly responsible in each component.with the most advanced testing equipment and strict scientific management makes every product endure customers' picking. We promise every product that left our factory is up to the factory standard.It is also the recipe of salable for our products.









ADVANCED PROCESSING EQUIPMENTS

We have advanced processing equipment： high-precision CNC machine tools， for-axis machining center with advanced technology， the accuracy in a harsh products are guaranteed.Our company also has a laboratory of high-precision testing instruments.Sophisticated technology and strict quality management system,and gathered a professional team and technical elite and advanced level technology and make full use of new technologies,new processes,new materials to ensure product stability and reliability. Our product's quality taken from the advanced manufacturing methods,quality consciousness comes from constant innovation.



PRODUCT CONSTRUCTION

Travel adjustment

The two independent extemal travel stop adjustment bolts can adjust ±5°at both open and close directions easily and precisely.

Indicator

Field visual standard indicator

High performance springs

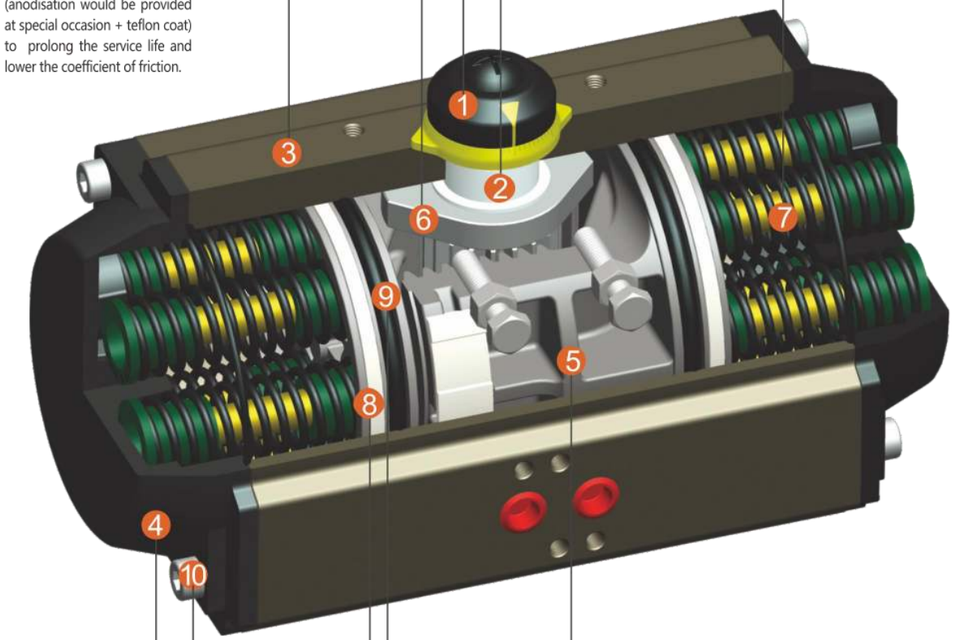
It has a strong corrosion resistance and service life by use high-quality imported materials, coating processing, pre-pressure assembly, which can be demounted single acting actuator safely and conveniently to satisfy different requirements of torque by changing quantity of springs.

Pinion

The pinion is high-precision and integrative, made from nickelled-alloy steel, full conform to the latest standards of ISO5211、DIN3337, the dimensions can be customized and the stainless steel material is available.

Actuator Body

The extruded cylinder body is made of high quality aluminum alloy with fine machined socket and hard anodized outer surface (anodisation would be provided at special occasion + teflon coat) to prolong the service life and lower the coefficient of friction.



End caps

Die-casting aluminum surface with metal powder painted in different colours, or sprayed in PTFE or nickel plated.

Fasteners

All the fasteners are made of stainless steel for long-term anti-corrosion.

Bearings&Guides

Made from low friction, long-life compound material to avoid the direct contact between metals. The maintenance and replacement are easy and convenient.

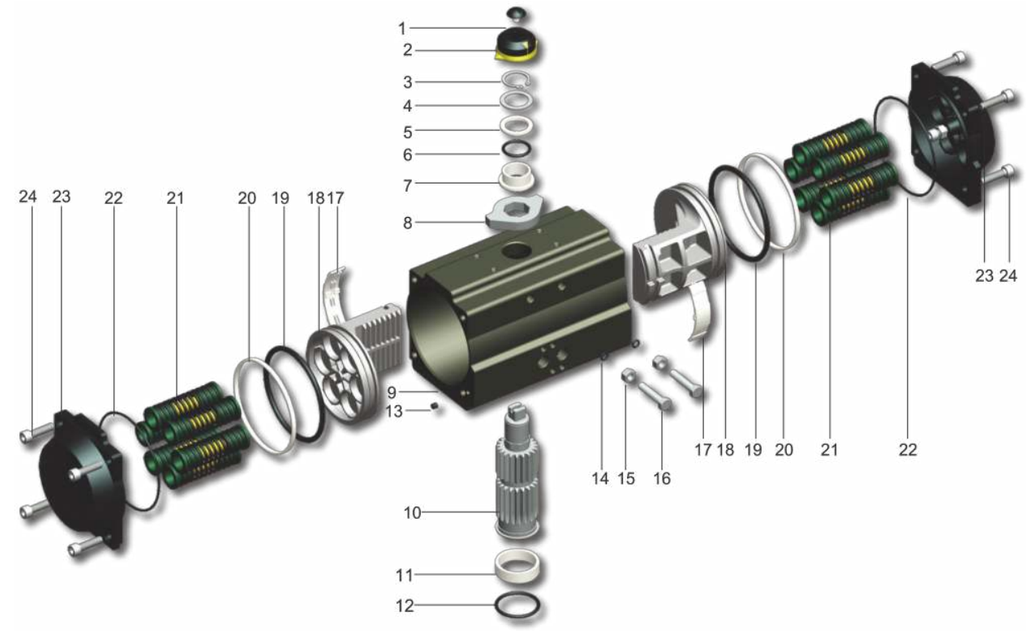
Seals

NBR for standard temperature, for high and low temperature applications use Viton or Silicone.

Pistons

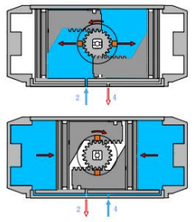
The twin rack pistons are made from high quality die-casting aluminum treated with hard anodized, symmetrical mounting position, rapid operation, impact resistance, wear resistance, long service life, simply reverse the piston can change the rotation direction of pinion.

PARTS AND MATERIAL

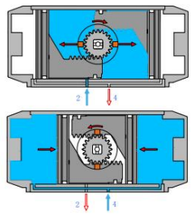


NO.	Description	Qty	Material	NO.	Description	Qty	Material
1	Indicator Screw	1	Engineering Plastics	13	Plug	2	NBR/Viton
2	Indicator	1	Engineering Plastics	14	O-ring（Adjust screw）	2	NBR/Viton
3	Circlip	1	Stainless Steel	15	Nut（Adjust screw）	2	Stainless Steel
4	Washer	1	Stainless Steel	16	Adjust Screw	2	Stainless Steel
5	Outside Washer	1	Engineering Plastics	17	Guide（Piston）	2	Engineering Plastics
6	O-ring（Pinion top）	1	NBR/Viton	18	Piston	2	Aluminium Alloy
7	Inside Washer	1	Engineering Plastics	19	O-ring（Piston）	2	NBR/Viton
8	Cam	1	Carbon Steel	20	Bearing（Piston）	2	Wear-resistant composite materials
9	Cylinder	1	Aluminium Alloy	21	Spring	0-12	Spring Steel
10	Pinion	1	Carbon Steel	22	O-ring（End cap）	2	NBR
11	Bearing（Pinion bottom）	1	Engineering Plastics	23	End Cap	2	Aluminium Alloy
12	O-ring（Pinion bottom）	1	NBR/Viton	24	Cap Screw	8	Stainless Steel

OPERATING PRINCIPLE OF DOUBLE ACTING ACTUATORS



CW type double acting

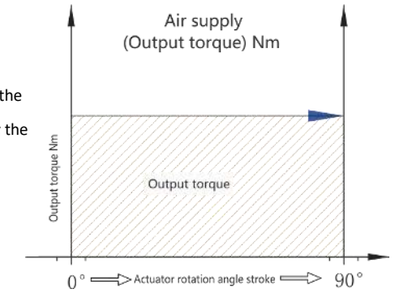


CCW type double acting

When the compressed air comes into the space between the two pistons from port A that the pistons move toward the end cap,the air between the pistons and end caps were discharged from port B,meanwhile the rack from pistons drive the output shaft to rotate counterclockwise (0°~90°).

When the compressed air comes into the space between the pistons and end caps from port B that the pistons move toward the center,and the air between the pistons were discharged from port A,meanwhile the rack from pistons drive the output shaft to rotate clockwise (90°~0°).

If the piston is assembled in different direction for each,the output shaft will rotate in the opposite direction,namely the double acting reverse "CCW"type.

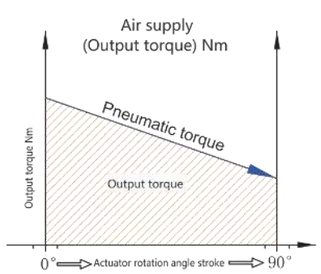


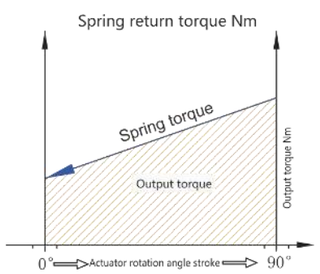
OPERATING PRINCIPLE OF SPRING RETURN ACTUATORS

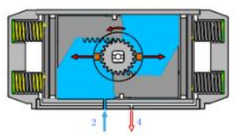
When the compressed air comes into the space between the two pistons from port A that the pistons move toward the end cap and compress the springs,the air between the pistons and end caps were discharged from port B,meanwhile the rack from pistons drive the output shaft to rotate counterclockwise (0°~90°).

When the actuator lost the air supply,spring return and push the pistons move to ward the center,the air between the pistons were discharged from port A,meanwhile the rack from pistons drive the output shaft to rotate clockwise (90°-0°).

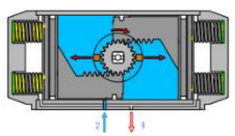
If the piston is assembled in different direction for each,the output shaft will rotate in the opposite direction,namely the double acting reverse "CCW"type.







CW type single acting operating principle



CCW type single acting operating principle

PRODUCT CHARACTERISTICS

JHA series rack and pinion type pneumatic actuator with high quality,low friction,long use life,the open and close time can reach more than 1 million times,high stability.
JUHANG pneumatic actuator combines with numbers of advanced technology to face different harsh environmental challenges,the excellent reliability and safety can meet your strict requirements of automatic control.

●Output torque:8Nm-10000Nm
●Control air source:Through filtered compressed air,no need lubricate oil,the oil must suit for NBR when in lubricated condition.
●Air supply pressure:The minimum air supply pressure is 3 bar (40 psi),the maximum air supply pressure is 8 Bar(120 psi).



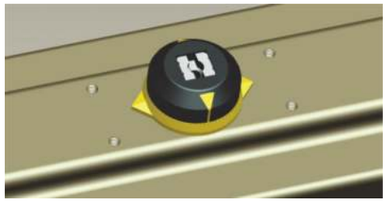
●Applicable ambient temperature:
Standard:-20℃~+80℃
Low temperature:-40℃~+80℃
High temperature:-20℃~+150℃

●Rotate stroke:90°、120°、135°、180°double direction ±5 adjustment
● Mounting flange standard:DIN/ISO5211
●The max air supply pressure less than 10Bar(145psi)
●Standard type:Aluminum shell hard anodized treatment,Nickel plated,Hardanodized +Epoxy polyester,Hard anodized +PTFE coating etc available according to the different environment
●The whole series in line with IEC61508,and passed safe level certification SIL 3.
●Passed ATEX,CE authentications which issued by Germany rheinland TUV authentication body.

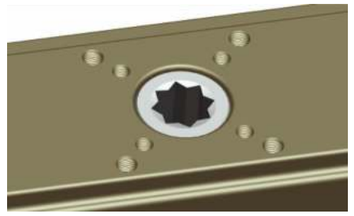
MOUNTING STANDARD



Air source connection is designed in accordance with NAMUR Standard to install solenoid valves simply.



The top mounting in line with VDI/VDE3845 standard,convenient for assembly of accessories such as positioner,limit switch and so on.



Bottom mounting face (valve connection face)is designed in accordance with ISO5211,standards for direct mounting with clutch type manual override or valve.

SPRING MOUNTING STANDARD FOR SPRING RETURN ACTUATORS



The qty of spring return pneumatic actuator can choose economic qty according to the valve torque,the assembly position of different springs' qty according to the above table(red part is position for putting springs')



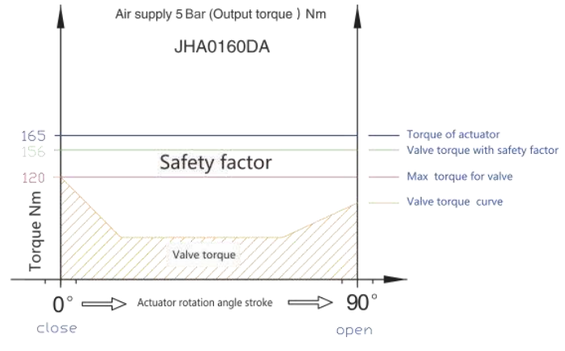
OUTPUT TORQUE OF DOUBLE ACTING ACTUATORS

Model	Air Pressure（Unit:bar） Output Torque(Unit:N.m)									
	2	2.5	3	4	4.5	5	5.5	6	7	8
JHA0012DA	5	6	7	10	11	12	13	14	17	19
JHA0020DA	8	10	12	16	18	20	22	24	28	32
JHA0035DA	14	18	22	29	32	36	40	43	50	57
JHA0050DA	20	25	31	41	46	51	56	61	71	81
JHA0075DA	31	39	47	62	70	78	86	94	109	125
JHA0110DA	46	57	69	92	103	115	126	138	161	184
JHA0160DA	67	83	100	133	150	166	183	200	233	266
JHA0255DA	101	126	151	201	226	251	276	302	352	402
JHA0435DA	172	215	258	344	387	430	473	516	602	688
JHA0665DA	268	334	401	535	602	669	736	803	937	1070
JHA1000DA	427	533	640	854	960	1067	1174	1280	1494	1707
JHA1200DA	532	665	798	1064	1198	1331	1464	1597	1863	2129
JHA1800DA	774	968	1161	1548	1742	1935	2129	2322	2709	3096
JHA2700DA	1176	1470	1763	2351	2645	2939	3233	3527	4115	4703
JHA3800DA	1545	1932	2318	3091	3477	3863	4250	4636	5409	6181
JHA5700DA	2314	2892	3471	4628	5206	5784	6363	6941	8098	9255
JHA8000DA	3297	4121	4945	6594	7418	8242	9066	9890	11539	13187

SELECTION CHART OF DOUBLE ACTING ACTUATORS

Under normal operating conditions,opening valve need to consider the safety torque for the valve.Safety torque is equal to valve torque plus safety factor,generally increase by 30~50%as the safety factor.

Example:
Valve torque =120NmThe safety torque=120x(1+30%)=156Nm



As figure,the minimum model for sizing double acting pneumatic actuator isJHA0160DA,torque is 166Nm at 5 Bar.

OUTPUT TORQUE OF SINGLE ACTING ACTUATORS

Model	Output Torque(Unit:N.M)																			
	Spring			2.5bar		3bar		4bar		5bar		5.5bar		6bar		7bar		8bar		
	Qty	90°	0°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	
JHA0012SR	2	7.0	5.0					4.6	2.5	6.9	4.9	8.1	6.1	9.3	7.3	11.7	9.7	14.1	12.1	
JHA0020SR	5	6.2	4.2	5.8	3.8	7.9	5.9													
	6	7.5	5.1	5.0	2.6	7.0	4.6	11.1	8.7											
	7	8.7	5.9	4.1	1.3	6.2	3.4	10.2	7.4	14.2	11.4	16.3	13.5							
	8	10.0	6.8			5.3	2.1	9.4	6.2	13.4	10.2	15.4	12.2	17.4	14.2					
	9	11.2	7.6			4.5	0.9	8.5	4.9	12.5	8.9	14.6	11.0	16.6	13.0	20.6	17.0			
	10	12.5	8.5					7.7	3.7	11.7	7.7	13.7	9.7	15.7	11.7	19.8	15.8			
	11	13.7	9.3					6.8	2.4	10.8	6.4	12.9	8.5	14.9	10.5	18.9	14.5	23.0	18.6	
	12	15.0	10.2							10.0	5.2	12.0	7.2	14.0	9.2	18.1	13.3	22.1	17.3	
JHA0035SR	5	10.6	6.9	10.9	7.2	14.5	10.7	21.6	17.9											
	6	12.7	8.2	9.6	5.1	13.1	8.6	20.2	15.7	27.3	22.8									
	7	14.8	9.6	8.2	3.0	11.7	6.5	18.9	13.6	26.0	20.7	29.5	24.3							
	8	16.9	11.0			10.4	4.4	17.5	11.5	24.6	18.6	28.2	22.2	31.7	25.7	38.8	32.8			
	9	19.1	12.3			9.0	2.3	16.1	9.4	23.2	16.5	26.8	20.0	30.3	23.6	37.5	30.7			
	10	21.2	13.7					14.7	7.3	21.9	14.4	25.4	17.9	29.0	21.5	36.1	28.6	43.2	35.7	
	11	23.3	15.1					13.4	5.1	20.5	12.3	24.0	15.8	27.6	19.4	34.7	26.5	41.8	33.6	
	12	25.4	16.4							19.1	10.1	22.7	13.7	26.2	17.3	33.3	24.4	40.5	31.5	
JHA0050SR	5	14.6	10.5	14.6	10.6	19.7	15.6	29.8	25.7											
	6	17.6	12.7	12.5	7.6	17.6	12.7	27.7	22.8	37.7	32.8									
	7	20.5	14.8	10.4	4.7	15.5	9.7	25.5	19.8	35.6	29.9	40.7	34.9							
	8	23.4	16.9			13.4	6.8	23.4	16.9	33.5	27.0	38.6	32.0	43.6	37.1	53.7	47.1			
	9	26.3	19.0			11.2	3.9	21.3	14.0	31.4	24.1	36.4	29.1	41.5	34.1	51.6	44.2			
	10	29.3	21.2					19.2	11.0	29.3	21.1	34.3	26.2	39.4	31.2	49.5	41.3	59.5	51.4	
	11	32.2	23.2					17.1	8.1	27.2	18.2	32.2	23.2	37.3	28.3	47.3	38.4	57.4	48.4	
	12	35.1	25.3							25.1	15.3	30.1	20.3	35.2	25.4	45.2	35.4	55.3	45.5	
JHA0075SR	5	23.3	15.8	22.8	15.3	30.5	23.0	45.9	38.4											
	6	28.0	19.0	19.6	10.6	27.3	18.3	42.8	33.8	58.2	49.2									
	7	32.6	22.1	16.5	6.0	24.2	13.7	39.6	29.1	55.0	44.5	62.7	52.3							
	8	37.3	25.3			21.0	9.0	36.4	24.4	51.9	39.9	59.6	47.6	67.3	55.3	82.7	70.7			
	9	41.9	28.4			17.8	4.4	33.3	19.8	48.7	35.2	56.4	42.9	64.1	50.6	79.6	66.1			
	10	46.6	31.6					30.1	15.1	45.5	30.6	53.3	38.3	61.0	46.0	76.4	61.4	91.8	76.8	
	11	51.2	34.8					27.0	10.5	42.4	25.9	50.1	33.6	57.8	41.3	73.2	56.8	88.7	72.2	
	12	55.9	37.9							39.2	21.2	46.9	29.0	54.7	36.7	70.1	52.1	85.5	67.5	

JUHANG.CN

OUTPUT TORQUE OF SINGLE ACTING ACTUATORS

Model	Output Torque(Unit:N.M)																			
	Spring			2.5bar		3bar		4bar		5bar		5.5bar		6bar		7bar		8bar		
	Qty	90°	0°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	
JHA0110SR	5	34.8	23.3	33.5	22.1	44.9	33.5	67.7	56.2											
	6	41.7	28.0	28.9	15.1	40.2	26.5	63.0	49.3	85.7	72.0									
	7	48.7	32.7	24.2	8.2	35.6	19.6	58.3	42.3	81.1	65.1	92.4	76.4							
	8	55.6	37.4			30.9	12.6	53.6	35.4	76.4	58.1	87.8	69.5	99.1	80.9	122	103			
	9	62.6	42.0			26.2	5.7	49.0	28.4	71.7	51.2	83.1	62.5	94.5	73.9	117	96.7			
	10	69.5	46.7					44.3	21.5	67.1	44.2	78.4	55.6	89.8	67.0	112	89.7	135	113	
	11	76.5	51.4					39.6	14.5	62.4	37.3	73.8	48.6	85.1	60.0	108	82.8	131	106	
	12	83.4	56.0							57.7	30.3	69.1	41.7	80.5	53.0	103	75.8	126	98.5	
JHA0160SR	5	50.0	32.0	51.0	33.0	67.0	49.0	100	82.0											
	6	60.0	38.0	44.0	23.0	61.0	39.0	94.0	72.0	127	105									
	7	70.0	44.0	38.0	13.0	54.0	29.0	87.0	62.0	120	95.0	137	111	153	128					
	8	80.0	51.0			48.0	19.0	81.0	52.0	114	85.0	130	101	147	118	180	151			
	9	90.0	57.0			42.0	9.0	75.0	42.0	108	75.0	124	91.0	141	108	173	141			
	10	100	63.0					68.0	32.0	101	65.0	118	81.0	134	98.0	167	131	200	164	
	11	110	70.0					62.0	22.0	95.0	55.0	111	72.0	128	88.0	161	121	194	154	
	12	120	76.0							89.0	45.0	105	62.0	122	78.0	155	111	187	144	
JHA0255SR	5	80.0	52.0	75.0	48.0	101	74.0	152	125											
	6	95.0	63.0	63.0	30.0	88.0	55.0	138	106	188	156									
	7	111	73.0	52.0	14.0	77.0	39.0	128	90.0	178	140	203	165	228	190					
	8	127	84.0			67.0	24.0	117	74.0	167	124	192	149	218	174	268	225			
	9	143	94.0			56.0	8.0	107	58.0	157	108	182	133	207	158	257	209			
	10	159	105					96.0	42.0	146	92.0	171	117	197	143	247	193	297	243	
	11	175	115					86.0	26.0	136	76.0	161	101	186	127	236	177	287	227	
	12	191	126							125	60.0	150	86.0	176	111	226	161	276	211	
JHA0435SR	5	130	86.0	129	85.0	172	128	258	214											
	6	156	103	112	59.0	155	102	241	188	327	274									
	7	182	120	95.0	33.0	138	76.0	224	162	310	248	353	291	396	334					
	8	208	138			120	50.0	206	136	292	222	335	265	378	308	464	394			
	9	234	155			103	24.0	189	109	275	195	318	238	361	281	447	367			
	10	261	172					172	83.0	258	169	301	212	344	255	430	341	516	427	
	11	287	189					155	57.0	241	143	284	186	327	229	413	315	499	401	
	12	313	206							224	117	267	160	310	203	396	289	482	375	

OUTPUT TORQUE OF SINGLE ACTING ACTUATORS

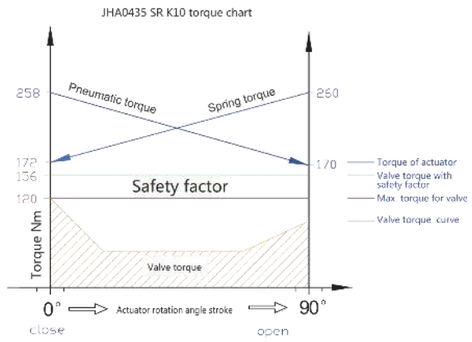
Model	Output Torque(Unit:N.M)																		
	Spring			2.5bar		3bar		4bar		5bar		5.5bar		6bar		7bar		8bar	
	Qty	90°	0°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
JHA0665SR	5	211	139	193	121	260	188	393	321										
	6	254	167	165	79.0	232	146	365	279	498	412								
	7	296	195	137	37.0	204	103	337	236	470	369	537	436						
	8	338	223			176	61.0	309	194	442	327	509	394	575	460	709	593		
	9	381	251			148	19.0	281	152	414	285	481	351	548	418	681	551		
	10	423	279					253	109	387	243	453	309	520	376	653	509	786	642
	11	465	307					226	67.0	359	200	425	267	492	333	625	466	758	600
	12	508	335							331	158	397	225	464	291	597	424	730	557
JHA1000SR	5	312	200	333	221	440	328	654	541										
	6	375	240	293	159	400	265	614	479	827	692								
	7	437	280	253	96.0	360	203	574	416	787	630	894	736						
	8	500	320			320	140	534	354	747	567	854	674	960	781	1174	994		
	9	562	360			280	78.0	494	291	707	505	814	611	920	718	1134	931		
	10	625	400					454	229	667	442	774	549	880	656	1094	869	1307	1082
	11	687	440					414	166	627	380	734	486	840	593	1054	806	1267	1020
	12	750	480							587	317	694	424	800	531	1014	744	1227	957
JHA1200SR	5	385	275	390	281	523	414	789	680										
	6	462	330	335	204	468	337	734	603	1001	869								
	7	539	385	280	127	413	260	679	526	946	792	1079	925						
	8	616	440			358	183	624	449	891	715	1024	848	1157	981	1423	1247		
	9	693	495			303	106	569	372	836	638	969	771	1102	904	1368	1170		
	10	770	550					514	295	781	561	914	694	1047	827	1313	1093	1579	1359
	11	846	605					459	218	726	484	859	617	992	750	1258	1016	1524	1282
	12	923	660							671	407	804	540	937	673	1203	939	1469	1206
JHA1800SR	5	572	411	552	390	745	583	1130	968										
	6	687	493	470	276	663	469	1048	854	1433	1239								
	7	801	575	388	162	580	354	965	739	1351	1124	1543	1317						
	8	915	657			498	240	883	625	1268	1010	1461	1202	1653	1395	2038	1780		
	9	1030	739			416	125	801	510	1186	895	1379	1088	1571	1280	1956	1665		
	10	1144	821					719	396	1104	781	1297	973	1489	1166	1874	1551	2259	1936
	11	1259	903					637	281	1022	666	1215	859	1407	1051	1792	1437	2177	1822
	12	1373	985							940	552	1133	745	1325	937	1710	1322	2095	1707

JUHANG.CN

OUTPUT TORQUE OF SINGLE ACTING ACTUATORS

Model	Output Torque(Unit:N.M)																		
	Spring			2.5bar		3bar		4bar		5bar		5.5bar		6bar		7bar		8bar	
	Qty	90°	0°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
JHA2700SR	5	860	602	859	602	1152	894	1737	1479										
	6	1032	723	739	430	1031	722	1616	1307	2201	1892								
	7	1204	843	618	258	911	550	1496	1135	2080	1720	2373	2012						
	8	1736	964			790	378	1375	963	1960	1548	2252	1840	2545	2133	3129	2717		
	9	1548	1084			670	206	1255	791	1839	1376	2132	1668	2424	1961	3009	2545		
	10	1720	1205					1134	619	1719	1204	2011	1496	2304	1789	2888	2373	3473	2958
	11	1892	1325					1014	447	1598	1032	1891	1324	2183	1617	2768	2201	3353	2786
	12	2064	1446							1478	860	1170	1152	2063	1445	2647	2029	3232	2614
JHA3800SR	5	1143	787	1145	788	1531	1175	2304	1947										
	6	1372	944	987	560	1374	946	2147	1719	2919	2491								
	7	1601	1102			1216	717	1989	1490	2762	2263								
	8	1829	1259			1059	489	1832	1261	2604	2034	2991	2420	3377	2807	4150	3579		
	9	2058	1416					1674	1033	2447	1805	2833	2192	3220	2578	3992	3351		
	10	2287	1574					1517	804	2290	1577	2676	1963	3062	2349	3835	3122	4608	3895
	11	2515	1731					1360	575	2132	1348	2519	1734	2905	2121	3678	2893	4450	3666
	12	2744	1888							1975	1119	2361	1506	2748	1892	3520	2665	4293	3437
JHA5700SR	5	1797	1238	1654	1095	2232	1674	3389	2831										
	6	2156	1486	1406	736	1985	1314	3142	2471	4298	3628								
	7	2516	1734			1737	955	2894	2112	4051	3269								
	8	2875	1981			1489	595	2646	1752	3803	2909	4382	3488	4960	4066	6117	5223		
	9	3235	2229					2399	1393	3555	2550	4134	3128	4712	3707	5869	4864		
	10	3594	2477					2151	1034	3308	2190	3886	2769	4465	3347	5622	4504	6778	5661
	11	3953	2724							3060	1831	3639	2409	4217	2988	5374	4145	6531	5302
	12	4313	2972							2812	1472	3391	2050	3969	2629	5126	3785	6283	4942
JHA8000SR	7	2872	1931	2190	1249	3014	2073	4662	3721										
	8	3283	2207	1914	838	2738	1662	4387	3311	6035	4959	6859	5783						
	9	3693	2483			2462	1252	4111	2901	5759	4549	6583	5373						
	10	4103	2759			2186	842	3835	2490	5483	4139	6307	4963	7132	5787	8780	7435		
	11	4514	3035					3559	2080	5207	3728	6032	4552	6856	5377	8504	7025		
	12	4924	3311					3283	1669	4931	3318	5756	4142	6580	4966	8228	6615	9877	8263

SELECTION CHART OF SINGLE ACTUATORS



Under normal operating conditions,opening valve need to consider the safety torque for the valve.Safety torque is equal to valve torque plus safety factor,generally increase by 30~50%as the safety factor.

Example:

▲ Valve torque =120Nm

▲The safety torque=120x(1+30%)=156Nm

▲ Air supply=5bar

According to the table of spring return actuators' output torque,the torque of JHA0435SR K10 as follows:Output torque of Air stroke O°=258NmOutput torque of Air stroke 90°=170NmOutput torque of Spring stroke 0°=172NmOutput torque of Spring stroke 90°=260Nm

SELECTION CHART OF SINGLE ACTING ACTUATORS

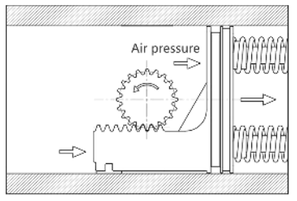
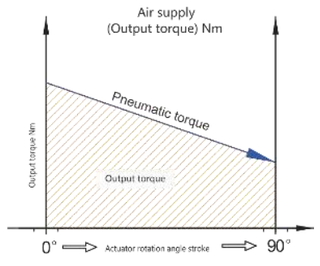


Figure1



FigureA

(As figure 1,figure A)Output torque of Air stroke:When the air comes into the cylinder body between the two pistons,the piston is urged against both sides to force the spring to compress,in this case,forces by the air supply pressure push the piston minus the reaction force by the spring compression,so the output torque gradually decreasing from 0°maximum value to 90°minimum value.

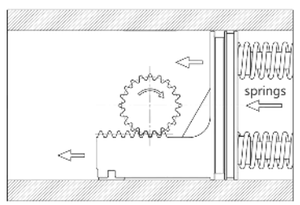
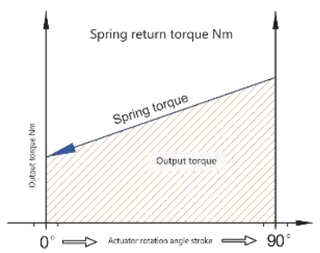


Figure2



FigureB

(As figure 2,figure B)Output torque of Spring stroke:When Actuator is in loss of air,the output torque by restoring force of both sides springs push the pistons.Because of the increase of springs,the output torque gradually decreasing from 0°maximum value to 90°minimum value.

SELECTION REFERENCE DATA FOR PNEUMATIC ACTUATORS

The purpose of this data is to help customers select JHA actuators properly before assembling actuators to valves,the following factors must be taking into account:

● Air supply rated pressure

● Actuator type double acting or single acting(spring return)and output torque under related air supply.

● The rotation of actuator and fail mode(fail close or fail open).

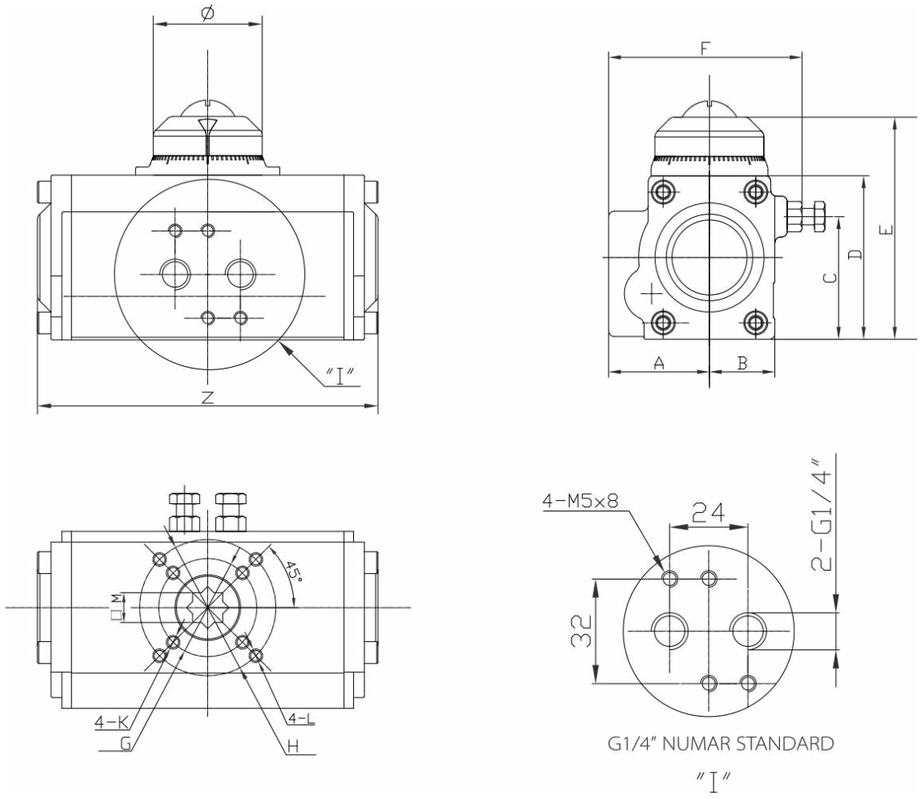
● It is very important to choose the actuator correctly.If the actuator is too large,the stem may be over stressed and on the contrary the actuator is small and can not produce enough torque to open the valve.We believe that the torque required to operate the valve normally comes from the friction between the valve metal parts(such as the core,the valve disk)and the seal (seat).According to the valve working occasion,operating temperature,operating frequency, management and pressure difference,the transmission medium (lubrication,drying,mud)and many other factors will affect the torque.

●Safety value should be added to the basis of valve torque when selecting the pneumatic actuator.Cleaning low frictional lubricant medium Add 20 %safety value Vapor or non-lubricant liquor medium Add 25 %safety value Non-lubricant pasting liquor medium Add 30 %safety Value Non-lubricant dry air medium Add 40 %safety value Non-lubricant particle medium delivered by air Add more than 50 %safety value.

Attention: The above safety value is recommend by our company's theory,for reference only.



DIMENSIONS(mm) FOR JHA0012



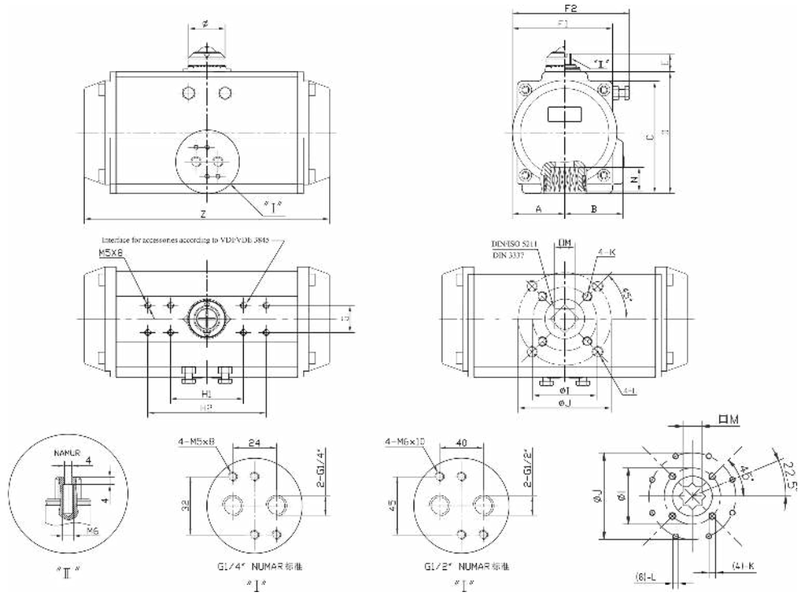
MODEL	A	B	C	D	E	F	G	H	K	L	□M	Z	ϕ	Air Connection
JHA0012DA	37	24	45	60	81.5	65.5	Φ36	Φ50	M5	M6	11	125	40	NAMUR G1/4"
JHA0012SR	37	24	45	60	81.5	65.5	Φ36	Φ50	M5	M6	11	150	40	NAMUR G1/4"

WEIGHT AND AIR CONSUMPTION FOR JHA0012

MODEL	Weight (Kg)	Air Volume Opening (L)	Air Volume Closing (L)
JHA0012DA	1.0	0.072	0.078
JHA0012SR	1.1	0.072	0.072



DIMENSIONS FOR JHA0020 TO JHA8000



DIMENSION TABLE (mm)

Model	A	B	C	D	E	F1	F2	G	H1	H2	ΦI	ΦJ	K	L	□M	N	Z	ϕ	Air Connection
JHA0020	30.5	41.5	65.5	72.0	20	65.5	80.5	30	80		36	50	M5X8	M6X10	11	14	150	40	NAMUR G1/4"
JHA0035	36.0	47.0	81.0	88.0	20	72.5	88.2	30	80		50	70	M6X10	M8X13	14	19	172	40	NAMUR G1/4"
JHA0050	42.5	53.0	94.0	100.0	20	81.5	94.4	30	80		50	70	M6X10	M8X13	14	19	188	40	NAMUR G1/4"
JHA0075	46.0	57.0	98.5	109.0	20	92.0	116.7	30	80		50	70	M6X10	M8X13	17	23	221	40	NAMUR G1/4"
JHA0110	50.0	58.5	111.0	117.0	20	98.0	124.0	30	80		50	70	M6X10	M8X13	17	23	268	40	NAMUR G1/4"
JHA0160	58.0	64.0	123.5	134.5	20	110.0	131.0	30	80		70	102	M8X13	M10X16	22	31	279	40	NAMUR G1/4"
JHA0255	68.0	75.0	146.0	156.5	30	128.0	149.0	30	80	130	70	102	M8X13	M10X16	22	31	322	55	NAMUR G1/4"
JHA0435	76.0	77.0	161.5	173.5	30	138.5	163.5	30	80	130	102	125	M10X16	M12X20	27	35	406	55	NAMUR G1/4"
JHA0665	87.5	87.5	185.5	198.5	30	159.0	184.5	30	80	130	102	125	M10X16	M12X20	27	35	475	55	NAMUR G1/4"
JHA1000	103.5	103.5	216.5	231.0	30	189.5	223.5	30	130			140		M16X25	36	40	544	80	NAMUR G1/4"
JHA1200	113.5	113.5	236.0	256.0	30	211.0	245.0	30	130			140		M16X25	36	40	562	80	NAMUR G1/4"
JHA1800	130.5	130.5	266.5	292.0	30	246.5	288.0	30	130			165		M20X25	46	58	642	80	NAMUR G1/4"
JHA2700	147.5	147.5	302.0	331.0	30	274.0	315.5	30	130			165		M20X25	46	58	740	80	NAMUR G1/2"
JHA3800	162.0	173.0	329.0	352.0	30	312.0	361.0	30	130			165		M20X25	46	55	774	80	NAMUR G1/2"
JHA5700	190.0	195.0	382.0	408.0	30	362.0	426.0	30	130		165	254	M20X25	M16X25	46	55	912	80	NAMUR G1/2"
JHA8000	260.0	260.0	440.0	464.0	30	450.0	514.0	30	130		165	254	M20X25	M16X25	55	60	945	80	NAMUR G1/2"

WEIGHT TABLE FOR JHA0020 TO JHA8000

Model	DA	SR	Model	DA	SR
	Weight(Kg)			Weight(Kg)	
JHA0020	1.35	1.45	JHA0665	20.25	23.50
JHA0035	2.15	2.30	JHA1000	31.35	36.00
JHA0050	2.60	2.80	JHA1200	45.70	53.65
JHA0075	3.40	3.70	JHA1800	54.50	65.60
JHA0110	4.55	5.15	JHA2700	79.00	98.40
JHA0160	5.90	6.60	JHA3800	99.00	122.00
JHA0255	9.20	10.35	JHA5700	156.00	197.00
JHA0435	12.0	14.10	JHA8000	212.00	255.00

VOLUME FOR JHA0020 TO JHA8000

Model	DA		SR	
	Air Volume Opening（L）	Air Volume Closing（L）	Air Volume Opening（L）	Air Volume Closing（L）
JHA0020	0.12	0.17	0.12	0.14
JHA0035	0.21	0.29	0.21	0.24
JHA0050	0.29	0.43	0.29	0.37
JHA0075	0.42	0.65	0.42	0.55
JHA0110	0.68	0.97	0.68	0.81
JHA0160	0.92	1.35	0.92	1.14
JHA0255	1.47	2.13	1.47	1.84
JHA0435	2.37	3.57	2.37	2.83
JHA0665	3.77	5.42	3.77	4.49
JHA1000	5.90	8.36	5.90	7.47
JHA1200	7.26	11.52	7.26	10.56
JHA1800	10.70	17.44	10.70	16.07
JHA2700	15.90	25.60	15.90	23.86
JHA3800	23.50	28.00	23.50	26.50
JHA5700	34.50	45.20	34.50	42.40
JHA8000	52.20	56.00	52.20	54.00

Air consumption rest with air supply.Open and close stoke,air volume and action cycle times,expressions:

L/Min=Air volume(Air volume opening +Air volume closing) x [Action cycle x (Air supply(Kpa)+101.3)/101.3] x times/min

NOTE FOR ORDER

- Pneumatic actuators:Double acting or spring return (Failed Close,Failed Open);
- The valve operating temperature:Standard (-20℃~+80℃),Low temperature (-40℃~+80℃),High temperature (-20℃~+150℃);The valve operating torque:Medium type and the required torque for on/off action;
- Valve operating torque:Medium and the required torque for opening and closing.
- Solenoid valve:Dual control or single control,operating voltage,exploding or not.
- Signal feedback:Mechanical or approachable switch,operating voltage,current-output and exploding or not.
- Positioner: Pneumatic positioner or electric positioner,current signal,voltage signal,electric-pneumaticity switch,exploding or not.
- FRL Combination(air Filter+pressure regulator+lubricator).
- Clutch type manual valve actuator.
- Special customization.
- The accessories should be advised domestic or import.

Model	JHA0012	JHA0020	JHA0035	JHA0050	JHA0075	JHA0110	JHA0160	JHA0255	JHA0435
Cylinder Size (MM)	Φ40	Φ52	Φ63	Φ75	Φ83	Φ92	Φ105	Φ125	Φ140

Model	JHA0665	JHA1000	JHA1200	JHA1800	JHA2700	JHA3800	JHA5700	JHA8000	-
Cylinder Size (MM)	Φ160	Φ190	Φ210	Φ240	Φ270	Φ300	Φ350	Φ400	-

ORDERING CODE

JHA - 0160 - DA - K10 - F10 - S

- Operating temperature: S=Standard operating temperature（-20℃ to +80℃） H=High operating temperature（-20℃ to +150℃） L=Low temperature（-40℃ to +80℃ ）
- Connection size: In line with ISO5211(F05-F25)
- The qty of the spring: The quantity of two sides 5-12pcs （only spring return type）
- Mode of action: DA=Double Acting SR=Spring Return
- Cylinder size code: 0012 to 8000 （Please confirm the above table for details）
- Series code: JHA=Rack and pinion Pneumatic actuator

JHM SERIES DECLUTCHABLE MANUAL OVERRIDE GEAR OPERATOR

Our company's JHM series part rotary clutch type manual override is widely used for pneumatic ball valve which is rotated90°,butterfly valve and plug valve in the system installation,commissioning,and when the system loses gas and powder,it will be converted into a manual operation device.The JHM series manual clutch worm gearbox also has a security control function of the total gas source,and the valve control can be operated much safer.This is an indispensable part of the pneumatic valve control system.It's designed and manufactured according to the ISO5211 standard,with a reasonable structure and reliable performance.



- Totally-sealed box,internal is based on the grease filling to make the useful life of worm gearbox longer.
- Protected steel input shaft (stainless steel is for your option)
- There are ductile iron,WCB,stainless shell for option,durable structure.
- Stroke:0-90°mechanical limit.
- Convenient conversion,lift the limit pin,rotate eccentric device 100°,limit pin limit automatically to achieve pneumatic;on the contrary,to manual.
- It can be installed with total gas safe control function and cutoff the air source and exhaust automatically.

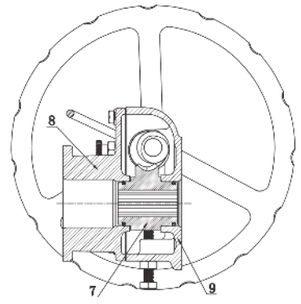


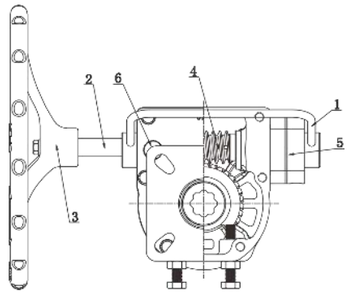
Working environment instructions:
Shell protection ordinary type:IP65 seal,applicable to the standard environment.The special environment can be customized to IP67 and IP68.
Temperature:
Standard operating temperature：-20℃~+80℃
Low operating temperature:-40℃~+80℃
High operating temperature:-20℃~+120℃

Surface:Special coating (for option)suitable In extreme working environments and marine environments.



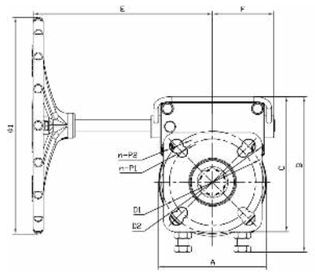
PARTS AND MATERIAL FOR JHM

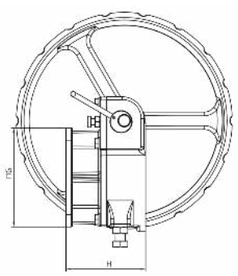


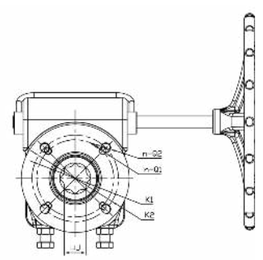


NO.	Description	Qty	Materials	NO.	Description	Qty	Materials
1	Handle	1	Stainless Steel	6	Position Lock Pin	1	Stainless Steel
2	Worm Shaft	1	Carbon Steel or Stainless Steel	7	Worm Wheel	1	Ductile Iron
3	HandWheel	1	Ductile Iron	8	Top Cover Plate	1	Ductile Iron
4	Worm	1	Carbon Steel	9	Housing	1	Ductile Iron
5	Safety Valve	1	Aluminum Alloy	-	-	-	-

DIMENSIONS AND TORQUE

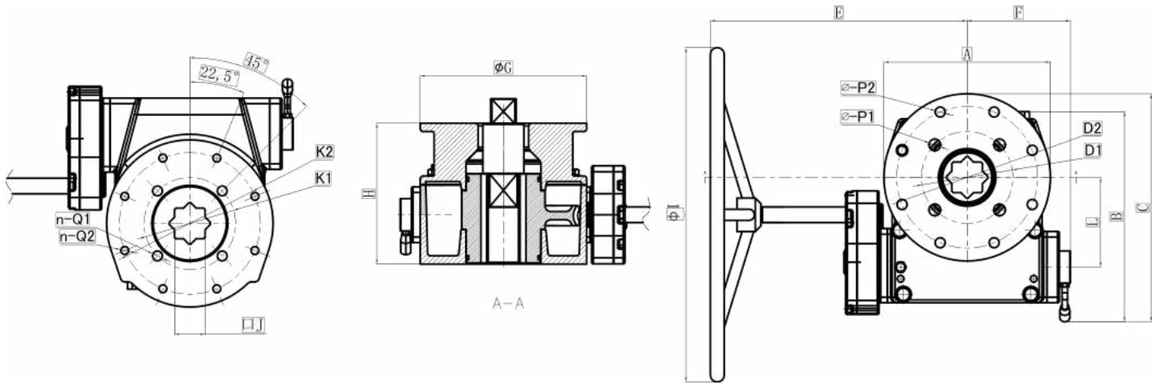






Model	Flange Connection Data									Dimension							Speed	Torque（N.m）		Handwheel	Valve	Actuator
	□ J	K1	K2	n-Q1	n-Q2	D1	D2	n-P1	n-P2	A	B	C	E	F	□ G	H	Ratio	Input	Output	ϕ	Connection	Connection
JHM40	17	Φ50	Φ70	4-M6	4-M8	Φ50	Φ70	4-ϕ7	4-ϕ9	85.0	129.0	116	146.0	54.5	70	98.0	40:1	25	155	150	F05/F07	F05/F07
JHM28	22	Φ70		4-M8		Φ70	Φ102	4-ϕ9	4-ϕ11	112.0	170.0	146	187.0	77.0	100	114.5	28:1	50	350	200	F07	F07/F10
JHM32	22	Φ70	Φ102	4-M8	4-M10	Φ102	Φ125	4-ϕ11	4-ϕ14	138.0	183.5	160	193.5	85.5	120	125.0	32:1	80	550	200	F07/F10	F10/F12
JHM50	27	Φ102	Φ125	4-M10	4-M12	Φ102	Φ125	4-ϕ11	4-ϕ14	150.0	212.5	185	235.0	90.0	120	133.0	50:1	95	1200	300	F10/F12	F10/F12
JHM62	36	Φ125	Φ140	4-M12	4-M16	Φ140	Φ165	4-ϕ18	4-ϕ22	175.0	251.5	218.5	291.0	99.5	160	134.0	62:1	130	2100	350	F14	F14/F16
JHM70	46	Φ165		4-M20		Φ140	Φ165	4-ϕ18	4-ϕ22	246.5	320.5	285.5	324.0	111.0	160	189.0	70:1	150	2800	400	F16	F14/F16

DIMENSIONS

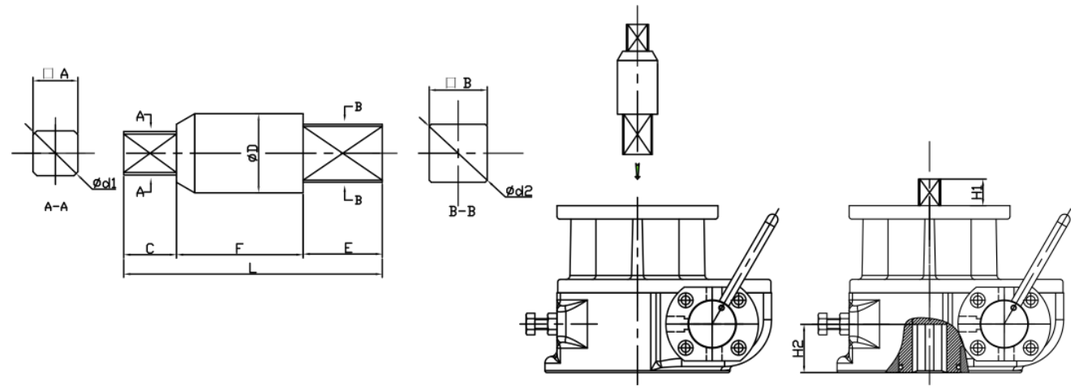


Model	Connection								
	□ J	K1	K2	n-Q1	n-Q2	D1	D2	n-P1	n-P2
JHM85	46	Φ165	/	4-M20	/	Φ165	/	4-ϕ22	/
JHM210	55	Φ165	Φ254	4-M20	8-M16	Φ165	Φ254	4-ϕ22	8-ϕ18
JHM495	75	Φ254	Φ298	4-M16	8-M20	Φ254	/	8-ϕ18	/

Model	Dimension								
	A	B	C	E	F	ΦG	H	ΦI	L
JHM85	292	300	315	332	146	162	196	600	160
JHM210	306	409	375	494	186	300	196	600	161
JHM495	355	451	410	576	203	352	271	600	180

Model	Speed Ratio	Torque		Valve Connection	Actuator Connection
		Input	Output		
JHM85	85:1	190	4,000	F16	F16
JHM210	210:1	160	8,000	F16/F25	F16/F25
JHM495	495:1	160	19,000	F25/F30	F25

CONNECTING SHAFT DATA

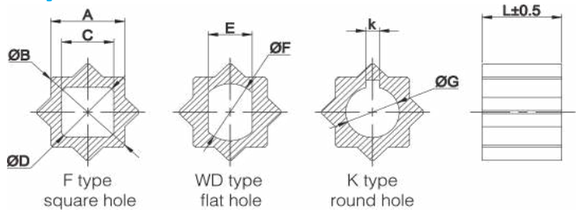


Connecting Shaft Data Sheet For JHM Clutch Type Manual Override												
Model	Match Pneumatic Actuator Model	□ A	□ B	ϕ D	Φ d1	Φ d2	C	E	F	L	H1	H2
JHM40	JHA0020	11	17	22.0	14	22	12	22	48	82	11	26
	JHA0035/JHA0050	14	17	22.0	18	22	15	22	48	85	14	26
	JHA0075/JHA0110	17	17	22.0	22	22	20	22	48	90	19	26
JHM28	JHA0035/JHA0050	14	22	28.0	18	28	15	30	46	91	14	35
	JHA0075/JHA0110	17	22	28.0	22	28	20	30	46	96	19	35
	JHA0160	22	22	28.0	28	28	27	30	46	103	26	35
JHM32	JHA0160/JHA0255	22	22	28.0	28	28	27	30	57	114	27	36
	JHA0435	27	22	39.0	36	28	30	30	57	117	27	36
JHM50	JHA0435/JHA0665	27	27	39.0	36	36	30	30	61	121	25	38
JHM62	JHA1000/JHA12000	36	36	49.0	48	48	38	38	54	130	37	40
JHM70	JHA1000/JHA1200	36	46	64.5	48	60	38	45	90	173	36	50
	JHA1800	46	46	64.5	60	60	45	45	90	180	42	50
JHM85	JHA2700/JHA3800	46	46	64.5	60	60	45	45	70	160	43	79
JHM210	JHA3800/JHA5700	46	55	74.0	60	72	45	60	90	195	44	102
JHM495	JHA8000	55	75	99.0	72	98	60	75	103	238	59	92

INTERNAL ADAPTOR (mm)

Product features:

- High strength cold forging steel,Super impact resistance
- Many kinds of hole type
- Special sizes can be customized



ITEM NO.		F type square hole				WD type flat hole		K type round hole		L
		A	Φ B	C	Φ D	E	Φ F	K	Φ G	
JT14	1	14	18	9	12.5					16
	2	14	18	11	15.2					16
JT17	1	17	22	11	15.2					19
	2	17	22	14	19.2					19
	3	17	22			10.00	14.10			19
	4	17	22			11.00	16.10			19
	5	17	22					3	12.80	19
JT19	1	19	25	11	15.2					21
	2	19	25	14	19.2					21
	3	19	25	17	23.2					21
	4	19	25			11.00	16.10			21
	5	19	25					3	12.80	21
JT22	1	22	28	14	19.2					24
	2	22	28	17	23.2					24
	3	22	28	19	26.2					24
	4	22	28			11.00	16.10			24
	5	22	28			13.00	19.10			24
	6	22	28					5	15.90	24
	7	22	28					5	19.05	24
JT27	1	27	36	17	23.2					29
	2	27	36	19	26.2					29
	3	27	36	22	29.2					29
	4	27	36			13.00	19.10			29
	5	27	36			16.00	22.10			29
	6	27	36					5	19.05	29
	7	27	36					5	22.20	29
JT36	1	36	48	19	26.2					38
	2	36	48	22	29.2					38
	3	36	48	27	37.2					38
	4	36	48			16.00	22.1			38
	5	36	48			22.00	30.1			38
	6	36	48					8	28.70	38
	7	36	48					8	31.80	38
JT46	1	46	60	27	37.2					48
	2	46	60	36	49.2					48
	3	46	60					8	31.8	48
	4	46	60					10	33.3	48
	5	46	60					10	38.1	48
	6	46	60					12	41.4	48

Ordering code:JT22 - F - 2

- 2 — Code for adaptor spec
- F — Code for hole type:"F" means square hole;"WD"means flat hole;"K"means round hole with keyway.
- JT22 — Code for item main NO.

THE FUNCTION AND USAGE OF THE ACTUATOR AND THE PARTS



- Double acting actuator: Control valve opening and closing.
- Single acting actuator (Spring return): When air or power is cut-off or broken,the actuator will close or open the valve automatically.
- Double control solenoid valve: When a coil is energized,the valve opens and the other coil turns off the valve when power is applied.With memory function(can be used for explosion-proof).
- Limit switch box (MONITORING SWITCH):Remotely passes the signal of the valve's opened and closed status (available for explosion-proof).
- Mechanical positioner: According to the air pressure to control the valve medium flux (available for explosion-proof).
- Intelligent positioner: Through the system set the valve position signal,after the calculation process of the control software,thus controlling the intake and exhaust of pneumatic actuator,drive valve position to the set point.
- Clutch type manual valve actuator.Able to use manual operation for opening and closing valve in the event of loss of air or power.



Limit Switch



Solenoid Valve



Mechanical Positioner



Explosion-Proof Limit Switch