



HITORK[®]

汉坤品质 驱动未来
Hankun quality driving the future



气动执行机构
Pneumatic Actuators

Address: Room 0501-516, No. 20 Xuanwumenwai Street, Xicheng District, 100052 BEIJING

Tel: 0086-(0)10-6326 0308

Fax: 0086-(0)10-6326 5409

Email: info@hankunchina.com

<http://www.hankunfluid.com>

汉坤（北京）流体控制技术有限公司
Hankun(Beijing)Fluid Control Technology Co. Ltd.



Company Introduction

Hankun Brand founded in 2007, mainly deals with actuators, valves, pumps and other fluid control equipment and services, focuses on the process industries and is committed to provide professional fluid control solutions for process industries, such as electric power, petrochemical, water treatment industries etc. We provide the end-users with safe, environmental-friendly and economical solutions. We will supply the equipment in strict accordance with the contract requirements and provide the guidance for clients' installation and commissioning.

Thanks to end-users' trust and through large numbers of field service, we effectively accumulated a lot of technical experience and can exactly understand the real needs of end-users and the market. Based on our own patent research, Hankun has developed HITORK series pneumatic actuators with the characteristics: durable, easy to use, reliable, cost-effective and service guaranteed.

Our differential advantages are close to clients, providing whole process and considerate service, escorting end-users' producing. HITORK series intelligent electric actuators and pneumatic actuators are provided with one years' warranty after installation.

Technical quality and commercial credit are the cornerstone and wheel that drive the development of our company. The sole criterion to evaluate and highlight our work effect and value is that end-users feel relieved, convenient and happy with our products.

Our clients distributing in thermal power, nuclear power, petrochemical, coal chemical, water treatment industries and other fields, our products are high quality and enjoy a high reputation in the market.

Corporate Culture

Corporate Values: Upright, Team Work, Excellence

Business Principle: Service Establishes Brand Reputation Determines Future

Products Overview

HITORK series pneumatic actuators, including four series, HPR series pinion-and-rack pneumatic actuators, HPL series linear pneumatic actuators, HPD series linear pneumatic diaphragm actuators and HPY series scotch yoke pneumatic actuators.

HPR series actuators' torque can reach up to 13024NM, HPL series actuators' thrust can reach up to 379200N, HPD series actuators' thrust can reach up to 26050N, and HPY series actuators' torque can reach up to 170000NM. By adding manual override and other pneumatic accessories, our pneumatic actuators can perfectly solve end-users' various needs.



HPR series pinion-and-rack pneumatic actuators



HPL series linear pneumatic actuators



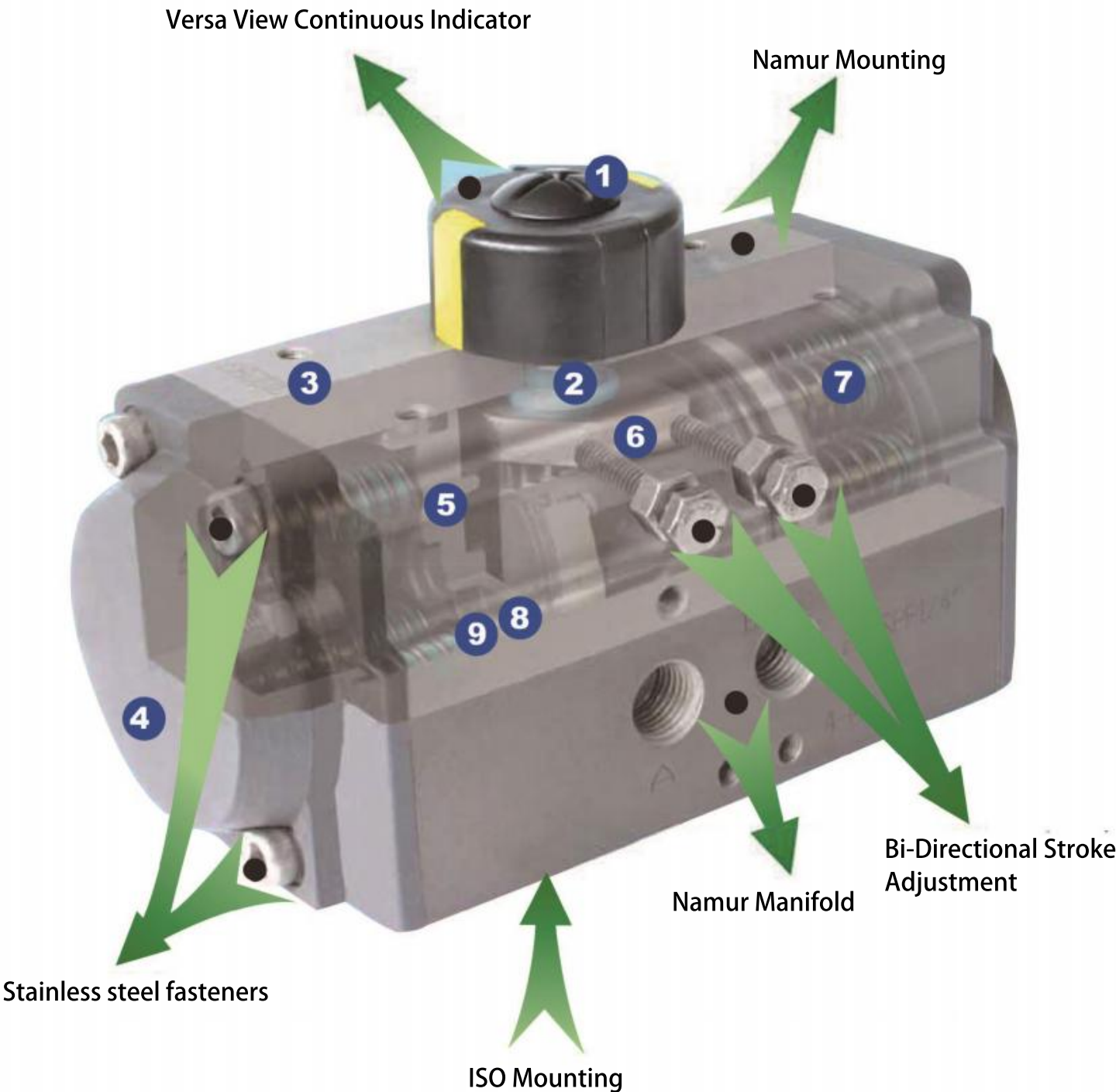
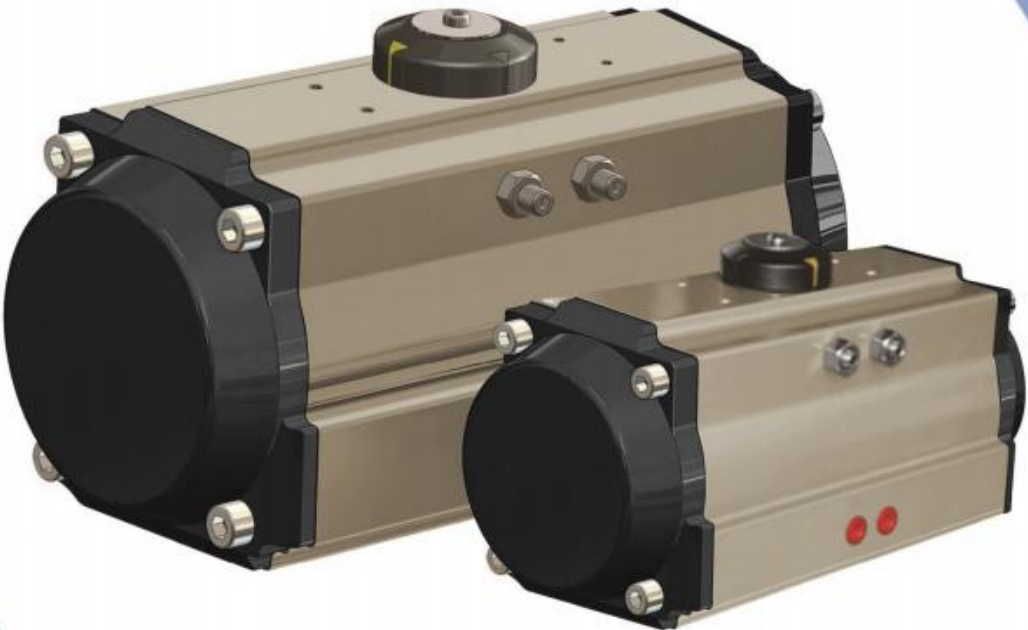
HPD series linear pneumatic diaphragm actuators



HPY series scotch yoke pneumatic actuators

Construction

HPR series
pinion-and-rack pneumatic actuators



1 Indicator

Position indicator with NAMUR is convenient for mounting accessories such as Limit Switch box, Positioner and so on.

2 Pinion

The pinion is high-precision and integrative, made from nickelled-alloy steel, full conform to the latest standards of NAMUR, ISO5211, DN3337. The dimensions can be customized and the stainless steel pinion is available.

3 Actuator Body

According to the different requirements, the extruded aluminum alloy ASTM6005 Body can be treated with hard anodized, powder polyester painted (different colours is available such as blue, orange, yellow etc), PTFE coated or Nickel plated.

4 End caps

With die-casting aluminum alloy surface, coated with various metal powder, PTFE or Nickel plated.

5 Pistons

The twin rack pistons are with die-cast aluminum hard oxidation or cast steel galvanized treatment, symmetric mounted, quick operation, long service life and fast operation, change the rotation direction by simply reversing the pistons.

6 Travel adjustment

Two independent external travel adjustment bolts can adjust the position at both on and off directions easily and precisely, the adjustment range is $\pm 5^\circ$.

7 High performance springs

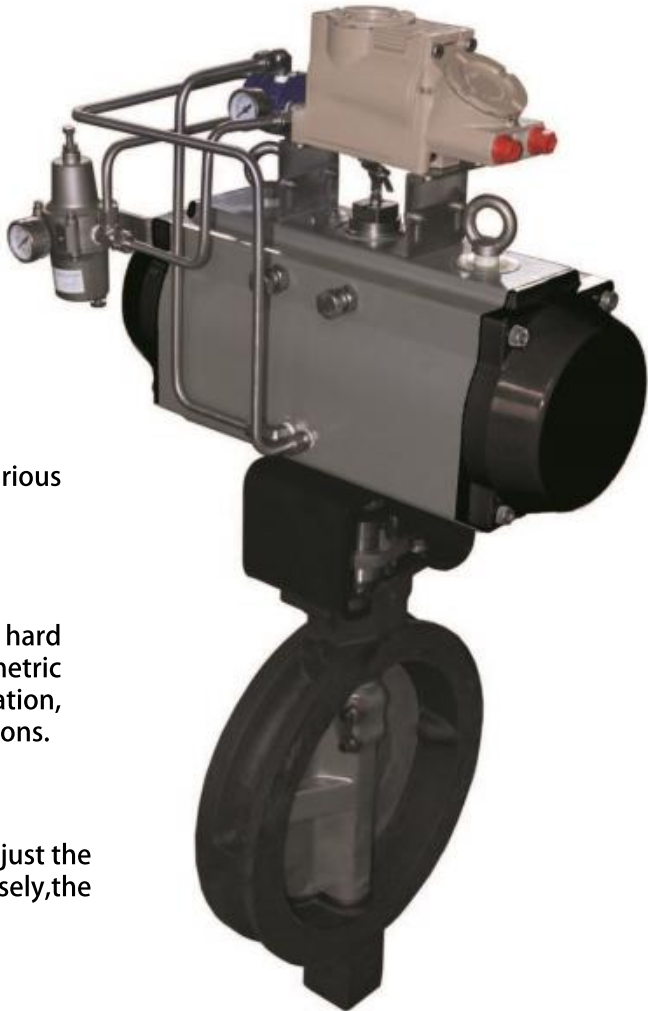
The spring adopts high quality material, coating treatment, and preload assembly. It has strong corrosion resistance and longer service life. It can disassembly single action actuators safely and simply, to meet different requirements of torque by changing the number of springs.

8 Bearings & Guides

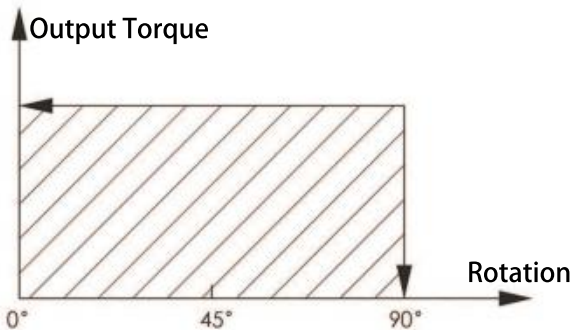
Adopt low friction, long-life compound material, to avoid the direct contact between metals. The maintenance and replacement are easy and convenient.

9 O-rings

NBR rubber O-rings provide trouble-free operation at standard temperature ranges. For high and low temperature applications Viton or Silicone rubber O-rings are the best choice.



Output Torque of Double Acting Actuators



Unit: Nm

Model	Air supply pressure (Unit: bar)									
	2	2.5	3	4	4.5	5	5.5	6	7	8
HPR007DA	3	4	5	6	7	8	8	9	11	12
HPR012DA	5	6	7	10	11	12	13	14	17	19
HPR020DA	8	10	12	16	18	20	22	24	28	32
HPR035DA	15	18	22	29	33	36	40	44	51	58
HPR050DA	20	25	30	40	45	50	55	60	70	80
HPR075DA	31	39	47	63	70	78	86	94	110	125
HPR110DA	45	56	68	90	102	113	124	135	158	181
HPR160DA	66	83	99	132	149	165	182	198	231	264
HPR255DA	100	125	150	200	226	251	276	301	351	401
HPR435DA	171	214	256	342	385	427	470	513	598	684
HPR665DA	266	332	399	532	598	665	731	798	931	1064
HPR1000DA	426	532	638	851	958	1064	1170	1277	1490	1702
HPR1200DA	532	665	798	1064	1197	1330	1463	1596	1862	2128
HPR1800DA	769	962	1154	1539	1731	1924	2116	2308	2693	3078
HPR2700DA	1170	1462	1754	2339	2632	2924	3216	3509	4094	4679
HPR3800DA	1526	1908	2289	3052	3434	3815	4197	4578	5341	6104
HPR5700DA	2285	2856	3427	4570	5141	5712	6283	6854	7997	9139
HPR8000DA	3256	4070	4884	6512	7326	8140	8954	9768	11396	13024

Sizing: Double Acting Actuator

The suggested safety factor for double acting actuators under normal working conditions is 120%-130%

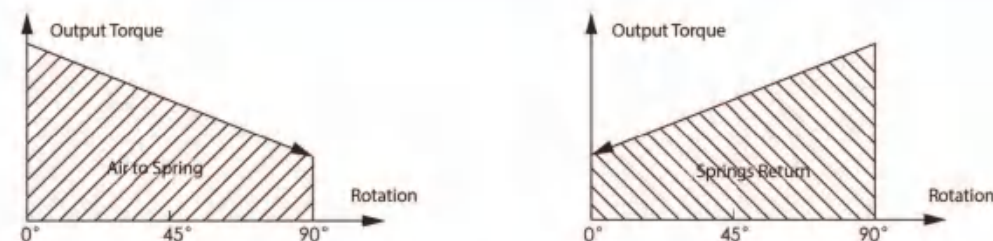
Example:

- The torque needed by valve = 100Nm
- The torque considered safety factor 130% = 130N.m
- Air Supply = 5Bar

According to the above table, we can choose the minimum model is HPR160DA.



Output Torque of Spring Return Actuators



Unit: Nm

		Output torque of air to springs																Springs' output	
Air pressure		2.5BAR		3BAR		4BAR		5BAR		6BAR		7BAR		8BAR					
Model	Spring Qty.	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End
HPR020SR	K5	5.7	3.8	7.6	5.7													208	140
	K6	4.9	2.5	6.9	4.5	10.9	8.5											250	168
	K7	4.0	1.3	6.0	3.3	9.8	7.3	14.0	10.4									292	196
	K8			5.2	2.0	9.2	6.0	13.2	9.1	17.2	14.1							333	223
	K9			4.3	0.8	8.3	4.8	12.3	7.9	16.3	12.8	20.3	16.8					375	251
	K10					7.4	3.6	11.5	6.7	15.5	11.6	19.5	15.6					417	279
	K11					6.6	2.3	10.6	5.4	14.6	10.4	18.6	14.3	22.6	18.3			458	307
HPR035SR	K5	11.4	7.7	15.0	11.4	22.3	14.9											500	335
	K6	10.1	5.7	13.6	9.3	20.9	16.6	28.3	23.9									542	360
	K7	8.6	3.6	12.5	7.2	19.5	14.5	26.8	21.9									584	396
	K8			10.9	5.1	18.2	12.4	25.5	19.8	32.8	27.0	40.1	34.3					626	422
	K9					16.8	10.4	24.1	17.7	31.4	24.9	38.7	32.2					668	444
	K10					1.4	8.2	22.8	15.6	30.0	22.8	37.3	30.1	44.7	37.4			710	466
	K11							21.5	13.5	28.7	20.7	36.0	28.0	43.3	35.3			752	508
HPR050SR	K5	14.5	10.6	19.4	15.5	29.5	25.7											834	554
	K6	12.4	7.6	17.3	12.6	27.4	22.7	37.5	32.8									876	596
	K7	10.4	4.8	15.2	9.7	25.3	19.9	35.4	29.9									918	618
	K8			13.1	6.8	23.1	16.9	33.3	27.0	43.2	37.0	53.3	47.0					960	660
	K9					21.0	14.1	31.2	24.1	41.1	34.1	51.2	44.2					1002	702
	K10					19.0	11.1	28.8	21.2	39.0	31.2	49.1	41.2	59.1	51.2			1044	744
	K11							27.0	18.3	37.0	28.3	47.0	38.4	57.0	48.4			1086	786
HPR075SR	K5	23.3	16.1	31.1	24.0	46.8	39.7											1168	798
	K6	20.1	11.5	28.0	19.3	43.7	35.1	59.4	50.7									1210	840
	K7	17.0	6.9	24.8	14.8	40.5	30.5	56.2	46.2									1252	882
	K8			21.7	10.1	37.4	25.8	53.1	41.5	68.8	57.2	84.5	72.9					1294	924
	K9					34.2	21.3	49.9	37.0	65.6	52.6	81.2	68.3					1336	966
	K10					31.0	16.6	46.7	32.3	62.4	48.0	78.1	63.7	93.8	79.3			1378	1008
	K11							43.6	27.7	59.3	43.4	75.0	59.1	90.6	74.8			1420	1050
HPR110SR	K5	33.1	22.0	44.2	33.2	66.8	55.9											1502	1022
	K6	28.4	15.2	39.6	26.4	62.2	49.0	84.8	71.6									1544	1064
	K7	23.8	8.2	34.9	19.4	57.5	42.1	80.2	64.7									1586	1106
	K8			31.3	12.6	52.9	35.2	75.5	57.9	98.1	80.5	120.7	103.0					1628	1148
	K9					48.2	28.4	70.9	51.0	93.5	73.6	116.0	96.1					1670	1190
	K10					43.6	21.5	66.2	44.1	88.8	66.7	111.3	89.2	134.0	111.8			1712	1232
	K11							61.5	37.2	84.1	59.9	106.6	82.4	129.2	105.0			1754	1274
HPR160SR	K5	51.0	33.4	67.5	49.9	100.6	83.0											1836	1316
	K6	44.7	23.5	61.1	40.0	94.2	73.2	127.3	106.2									1878	1358
	K7	38.4	13.7	54.9	30.3	87.9	63.4	121.0	96.4									1920	1400
	K8			48.5	20.4	81.6	53.5	114.7	86.5	147.7	119.6	180.8	152.7					1962	1442
	K9					75.3	43.7	108.4	76.8	141.5	109.8	174.5	142.9					2004	1484
	K10					68.9	33.4	102.0	66.5	135.1	99.6	168.2	132.6	201.2	165.7			2046	1526
	K11							95.7	57.0	128.7	90.1	161.8	123.1	194.8	156.2			2088	1568
HPR255SR	K5	73	47	98	72	148	122											2170	1610
	K6	63	31	88	56	138	107	188	157									2212	1652
	K7	52	15	77	40	127	90	178	141									2254	1694
	K8			67	25	117	75	167	125	217	176	268	226					2296	1736
	K9					107	59	157	109	207	159	257	210					2338	1778
	K10					96	44	146	94	196	144	247	194	297	245			2380	1820
	K11							136	78	186	128	236	178	286	228			2422	1862
HPR435SR	K5	128	85	171	127	256	213											2504	1944
	K6	111	59	154	102	239	187	325	273									2546	1986
	K7	94	33	137	76	222	162	308	247									2588	2028
	K8			120	50	205	136	291	221	376	307	462	392					2630	2070
	K9					187	110	273	196	358	281	444	367					2672	2112
	K10					170	84	256	169	341	255	427	340	512	426			2714	2154
	K11							238	143	324	229	409	314	495	400			2756	2196

Unit: Nm

		Output torque of air to springs																Springs' output	
Air pressure		2.5Bar		3Bar		4Bar		5Bar		6Bar		7Bar		8Bar					
Model	Spring Qty.	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End		
HPR665SR	K5	193	124	259	191	392	324											208	140
	K6	165	83	232	149	365	282	498	415									250	168
	K7	137	41	203	107	336	240	469	373									292	196
	K8			176	66	309	199	442	237	575	465	708	598					333	223
	K9					280	157	413	290	546	423	679	556					375	251
	K10					253	115	386	248	519	381	652	514	785	647			417	279
	K11							358	207	491	340	624	473	757	606			458	307
	K12							330	165	463	298	596	431	729	564			500	335
HPR1000SR	K5	332	222	438	329	651	542											309	200
	K6	292	161	398	267	611	480	824	693									371	240
	K7	252	99	358	205	571	418	784	631									433	280
	K8			318	143	531	356	744	569	957	782	1169	995					495	320
	K9					491	295	704	507	917	720	1130	933					557	360
	K10					451	233	664	446	877	658	1090	871	1302	1084			618	400
	K11							624	384	837	597	1050	809	1263	1022			680	440
	K12							584	322	797	535	1010	748	1223	960			742	480
HPR1200SR	K5	390	285	523	418	789	684											380	275
	K6	335	209	468	342	734	608	1000	874									456	330
	K7	280	133	413	266	679	532	945	798									532	385
	K8			358	190	624	456	890	722	1156	988	1422	1254					608	440
	K9					569	380	835	646	1101	912	1367	1178					684	495
	K10					514	304	780	570	1046	836	1312	1102	1578	1368			760	550
	K11							725	494	991	760	1257	1026	1523	1292			836	605
	K12							670	418	936	684	1202	950	1468	1216			912	660
HPR1800SR	K5	552	409	744	600	1129	985											554	410
	K6	470	297	662	489	1047	874	1432	1259									665	492
	K7	388	187	580	379	964	764	1349	1149									775	575
	K8			498	268	883	653	1267	1037	1652	1422	2037	1807					886	656
	K9					800	542	1185	926	1569	1311	1954	1696					998	739
	K10					718	431	1103	816	1488	1201	1872	1586	2257	1970			1108	821
	K11							1021	705	1406	1090	1791	1474	2176	1859			1219	903
	K12							939	594	1323	979	1708	1363	2093	1748			1330	985
HPR2700SR	K5	903	675	1195	968	1779	1552											787	560
	K6	790	519	1083	811	1667	1396	2252	1981									943	672
	K7	679	361	972	654	1556	1238	2141	1823									1101	783
	K8			860	497	1444	1081	2029	1666	2614	2252	3199	2836					1258	895
	K9					1332	923	1917	1509	2502	2094	3087	2678					1416	1007
	K10					1220	767	1805	1352	2390	1937	2974	2521	3560	3107			1572	1119
	K11							1693	1194	2278	1779	2862	2364	3448	2949			1730	1231
	K12							1582	1037	2167	1623	2751	2207	3336	2792			1887	1342
HPR3800SR	K5	1097	729															1061	730
	K6	935	494	1316	875													1273	876
	K7	772	258	1153	639	1916	1402											1485	1022
	K8			991	403	1754	1166	2517	1929									1697	1168
	K9					1592	930	2355	1693	3118	2456							1909	1314
	K10					1430	695	2193	1458	2956	2221	3719	2984	4482	3747			2122	1460
	K11							2030	1222	2793	1985	3556	2748	4319	3511			2334	1606
	K12							1868	986	2631	1749	3394	2512	4157	3275			2546	1752
HPR5700SR	K5	1553	964															1702	1173
	K6	1292	586	1863	1157													2043	1408
	K7	1031	208	1602	779	2745	1922											2383	1642
	K8			1341	401	2484	1544	3626	2686									2724	1877
	K9					2224	1165	3336	2307	4508	3449							3064	2112
	K10					1963	787	3105	1929	4247	3071	5390	4214	6532	5356			3405	2346
	K11							2844	1551	3986	2693	5129	3836	6271	4978			3745	2581
	K12							2584	1172	3726	2314	4869	3457	6011	4599			4086	2816
HPR8000SR	K7	2028	869															2880	1837
	K8	1736	411	2550	1225													3292	2100
	K9			2259	768	3887	2396											3703	2362
	K10			1967	311	3595	1939	5223	3567									4115	2624
	K11					3303	1482	4931	3110	6559	4738							4526	2887
	K12					3012	1025	4640	2653	6268	4281	7895	5908	9523	7536			4938	3149
	K13							4348	2195	5976	3823	7603	5450	9231	7078			5349	3412
	K14							4057	1738	5685	3366	7312	4993	8940	6621			5761	3674
	K15							3765	1281	5393	2909	7020	4536	8648	6164			6172	3937
	K16									5101	2452	6728	4079	8356	5707			6584	4199

Mounting Standard



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



The NAMUR standard pinion groove and the NAMUR standard top mounting connection permit direct installation of accessories such as limit switch box and positioner



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

HPL series
linear pneumatic actuators

Model Comparison

Unit: mm

Model	HPR007	HPR012	HPR020	HPR035	HPR050	HPR075	HPR110	HPR160	HPR255
Cylinder	Ø32	Ø40	Ø52	Ø63	Ø75	Ø83	Ø92	Ø105	Ø125

Model	HPR435	HPR665	HPR1000	HPR1200	HPR 800	HPR2700	HPR3800	HPR5700	HPR8000
Cylinder	Ø140	Ø160	Ø190	Ø210	Ø240	Ø270	Ø300	Ø350	Ø400

How to Order

Unit	1		2	3	4	5	6	Product code
Content	Series	-	Model	Acting Type	Spring Qty.	Travel	Custom-tailor	
Example	Aluminum Alloy	-	020	Spring Acting	10 PCS	None	None	HPR020SR K10
Code	HPR			SR	K10			

HPR Aluminum Alloy

007
012
020
.....

DA Double Acting
SR Spring Acting

K8 8 PCS
K9 9 PCS
K10 10 PCS
.....

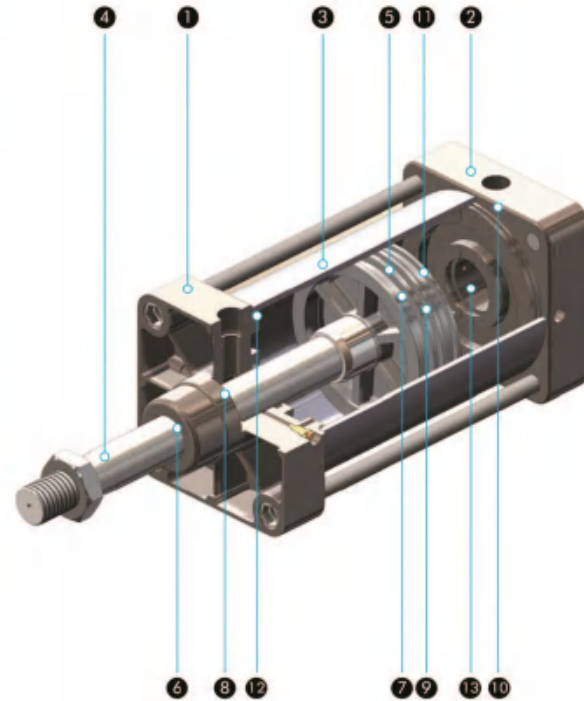
None 90° Rotation
120 120° Rotation
135 135° Rotation
180 180° Rotation

None Standard
FC Failure Close
FO Failure Open
3P Three Position
HC High Cycle
C Custom



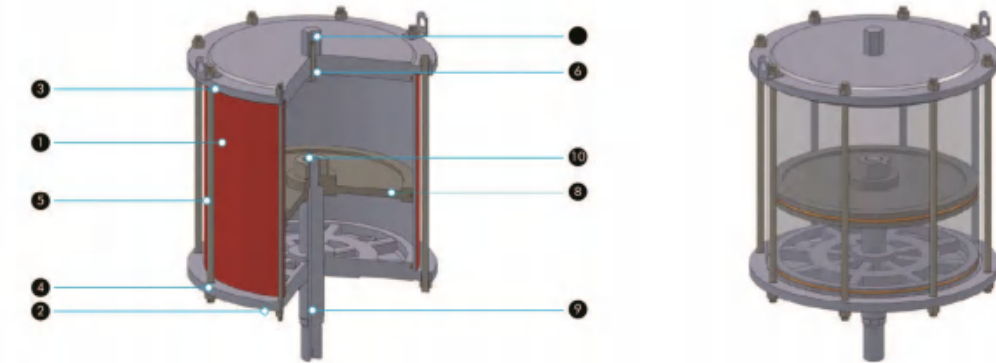
Product Features

1. Adjustable travel stop for the rod-retract position, piston bottoms out for the rod-extend position. Specific travel applications available, consult factory.
2. Spring rod nut is locked to prevent unauthorized disassembly of the spring cartridge
3. Pneumatic cylinder ranges $\varnothing 80 - \varnothing 320$, the material of body is hard anodized aluminum.
4. The material of drive rod is carbon steel with chrome plated. Optional material available like stainless steel ect.
5. The coating color are upon customer request.
6. Consult factory for customized thrust, travel and pressure requirements.



$\varnothing 80 - \varnothing 320$ Construction

No.	Description	Material	Protection	Qty.
1	Front Cap	Alluminum Alloy	Painted	1
2	End Cap	Alluminum Alloy	Painted	1
3	Body	Aluminum alloy	Hard Anodized	1
4	Piston Rod	Alloy Steel	Chrome Plated	1
5	Piston	Cast Alluminum	-	1
6	U-ring (piston rod)	NBR	-	1
7	Y-ring (piston)	NBR	-	2
8	Bearing	Surface Lubricating Bearing	-	1
9	Magnet	Plastic	-	1
10	Bufferscrew	Aolly Steel	-	2
11	Wear Ring	PTFE	-	1
12	O-ring (end cap)	NBR	-	2
13	Cushion Seal	NBR	-	2



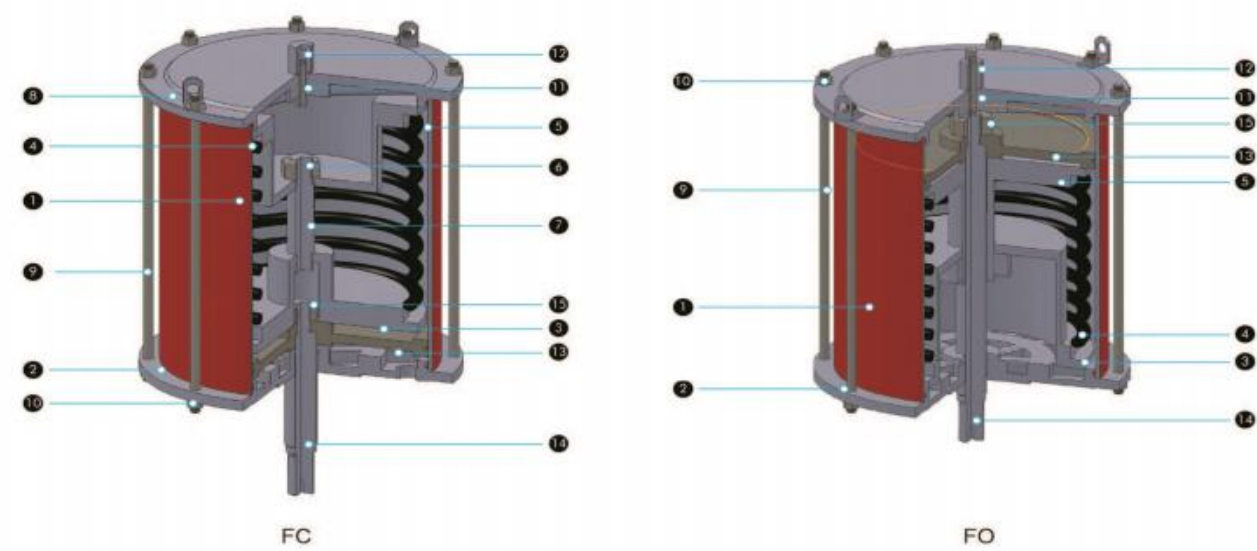
$\varnothing 280 - \varnothing 1000$ Construction of Double Acting Pneumatic Actuators

No.	Name	Material	Qty.
1	Body	Carbon Steel	1
2	Front Cap	Ductile Iron	1
3	End Cap	Ductile Iron	1
4	Nut	Carbon Steel	n
5	Bolt	Carbon Steel	n
6	Adjust screw	Carbon Steel	1
7	Nut	Carbon Steel	1
8	Piston	Ductile Iron	1
9	Stem	Alloy Steel	1
10	Lock Nut	Carbon Steel	1

Output Torque Table of Pneumatic Actuators with Double Acting

Cylinder bore mm	Output torque N Air pressure MPa													
	0.3		0.35		0.4		0.45		0.5		0.55		0.6	
	Trust N	Pull N	Trust N	Pull N	Trust N	Pull N	Trust N	Pull N	Trust N	Pull N	Trust N	Pull N	Trust N	Pull N
80	1507	1360	1758	1587	2010	1813	2261	2040	2512	2267	2763	2493	3014	2720
100	2355	2208	2748	2576	3140	2944	3533	3312	3925	3680	4318	4048	4710	4418
125	3680	3439	4293	4012	4906	4585	5520	5158	6133	5731	6746	6304	7359	6877
160	6029	5652	7034	6594	8033	7536	9043	8478	10048	9420	11053	10362	12058	11304
200	9420	9043	10990	10550	12560	12058	14130	13565	15700	15072	17570	16579	18840	18086
250	14719	14342	17172	16732	19625	19123	22078	21513	24531	23903	26984	26294	29438	28684
280	18463	18086	21540	21101	24618	24115	27695	27130	30772	30144	33849	33158	36926	36173
320	24115	23738	28134	27695	32154	31651	36173	35808	40192	39564	44211	43520	48230	47477
350	28849	28472	33657	33217	38465	37963	43273	42708	48081	47453	52886	52199	57698	56944
400	37680	37303	43960	43520	50240	49738	56520	55965	62800	62172	69080	68389	75360	74606
450	47689	47100	55637	54850	63585	62800	71533	70650	79481	78500	87429	86350	95378	94200
500	58875	58027	68688	67698	78500	77370	88313	87041	98125	96712	107988	106383	117750	116054
550	73853	73005	86162	85173	98470	97340	110779	109508	123088	121675	135397	133843	147706	146010
600	84780	83932	98910	97921	113040	111910	127170	125898	141300	139887	155430	153876	169560	167864
630	93470	92622	109048	108059	124627	123496	140205	138933	155783	154370	171362	169807	186940	185244
700	115395	114547	134628	133638	153860	152730	173083	171821	192325	190912	211558	210003	230790	229094
800	150720	149566	178540	174494	200960	199421	226060	224349	251200	249277	276320	274204	301440	299132
900	190755	189601	222548	221201	254340	252801	286133	284402	317925	316002	349718	347602	381210	379202

Construction of Spring Return Pneumatic Actuators



No.	Name	Material	Qty.
1	Body	Carbon Steel	1
2	Cap	Ductile Iron	1
3	Spring Seat	Carbon Steel	1
4	Spring	Spring steel	n
5	Spring Seat	Carbon Steel	1
6	Nut	Carbon Steel	1
7	Spring Stem	Aolly Steel	1
8	Cap	Ductile Iron	1
9	Bolt	Carbon Steel	n
10	Screw	Carbon Steel	n
11	Bolt	Carbon Steel	1
12	Nut	Carbon Steel	1
13	Piston	Ductile Iron	1
14	Stem	Aolly Steel	1
15	Lock Nut	Carbon Steel	1

Remark: The output torque of spring return actuator is based on actual stroke and spring force.

How to Order

UNIT单元	1	2	3	4	5	6	Product Code
CONTENT	Series	Cylinder	Stroke	Acting Type	Spring	Manual	HPL-500*100-SRC4+HM
CODE	HPL	500	100	SRC	4	HM	
EXAMPLE	HPL	500	100	SRC	4	HM	

HPL Series
Pneumatic Actuators

80-1000

Upon Customer Requirements

DA Double Actings

SRC Air to Open

SRO Air to Close

SM Screw Manual

GM Gear Manual

HM Hydraulic Manual

4 Spring Size

5 Spring Size

HPD series
Linear pneumatic diaphragm actuators



HPD Linear Pneumatic Diaphragm Actuators

Application

The HPD high performance linear pneumatic diaphragm actuator adopts multi-spring structure, which make it with light weight, small volume and large output force. Its working principle is the unit balances the force created when diaphragm is airpressured and the force of compressed spring, so that the output rod is controlled and placed at a set position. HPD series linear actuator is suitable for linear motion control valve, modulating and on-off valves, and other linear motion devices etc.

Features

- **Application Versatility**— Direct Action & Reverse Action in six sizes are available for an extensive variety of applications. Spring ranges, stroke limits, and manual overrides are available for nearly any control valve application.
- **Excellent Linearity Between Loading Pressure and Stroke** — A molded diaphragm travels in a deep diaphragm casing, the effective area of the diaphragm changes very small, which provides excellent linearity.
- **High Thrust Capability** — The molded diaphragm and cold stamping case allows high pressure supply and maximum thrust for given diaphragm size.
- **Long Service Life** — cold punched sheet metal casing cap and ductile iron construction provides increased stability and protection from corrosion and deformation should over-pressurization occur.
- **Cold Service Application** — Enhanced product specification for all sizes of HPD series diaphragm actuators allow performance to -40°C if required.
- **Positive Connections** — A split block stem connection provides a solid transfer of motion while allowing easy mounting. The absence of linkages helps to avoid lost motions and inaccurate valve positioning.
- **Compact & Light** — With the multiple springs and a high air supply pressure, HPD series are much more compact and light as compared with conventional actuators.



HPD Series Material of Main Parts

Diaphragm Case	Carbon Steel	
Diaphragm	Cloth embedded EPDM	
Piston Rod	A276-303	
O Ring	NBR or VITON	
Yoke	Φ 220、270、350、450	Ductile Iron: A5056BE-H112
	Φ 550、650	A216-WCB
Bolts & Nuts	Carbon steel with dacromet coating	

Table 1. Output Thrust

Actuator Size	Effective Diaphragm Area cm ²	Air Supply KPa G	Spring Range KPa G	Thrust Capabilities N
220	188.8	400	120~300	2,177
270	314.3	400	120~300	3,648
350	555.8	400	120~280	6,472
450	956.8	400	120~280	11,180
550	1,548.8	400	120~280	18,028
650	2,236.3	300	80~200	16,475
		400	120~280	26,050

Table 2. Standard Stroke and Volume (L)

Actuator Size	Stroke (mm)										
	20	25	30	40	50	60	70	80	90	100	110
220	0.70	—	—	—	—	—	—	—	—	—	—
270	1.31	1.46	1.60	—	—	—	—	—	—	—	—
350	2.25	2.52	2.78	3.30	—	—	—	—	—	—	—
450S	4.18	4.64	5.09	6.00	—	—	—	—	—	—	—
450L	—	—	—	—	7.28	8.1	9.0	10.00	10.91	—	—
550S	—	—	8.10	9.60	11.60	13.00	14.50	—	—	—	—
550L	—	—	—	—	—	—	—	16.00	17.40	19.10	21.00
650S	—	—	22.75	24.83	26.92	29.00	—	—	—	—	—
650L	—	—	—	—	—	—	32.67	34.75	36.83	38.92	41.00

Table 3. Weight without Accessories

Actuator Size	Code No.	Weight (Kg)	
		Without Manual Handle	With Manual Handle
220	HPD22	9	13
270	HPD27	15	25
350	HPD35	37	47
450S	HPD4S	65	77
450L	HPD4L	87	100
450E	HPD4E	87	100
450X	HPD4X	87	100
550S	HPD5S	120	145
550L	HPD5L	130	155
650S	HPD6S	192	232
650L	HPD6L	223	272

[illegible]

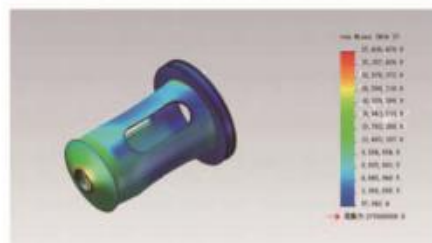
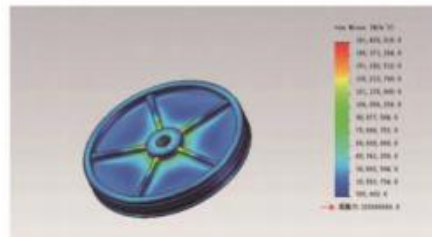
HPY Series Scotch Yoke Pneumatic actuator



Structural Features

Design and Construction

HPY series pneumatic and hydraulic actuators provide global customers the latest valve actuation design. It is a highly unique and reliable means of operating ball valves, butterfly valves or plug valves with 90 degree rotating mechanisms.



Modular Design

HPY series actuators share a modular construction design. The center body is available in ten sizes. A pneumatic or hydraulic cylinder can be attached to either or both sides. A spring cartridge can also be fitted to either side of the body for ESD (emergency shut down) applications. Modular design of components with replaceable, warehousing and other characteristics, can meet quick delivery time.

Robust and Lightweight Design

Totally enclosed weatherproof center-body fabricated in carbon steel or ductile iron provides an excellent strength to weight ratio. The mechanism of piston and yoke has an advantageous torque output.

Manual Override Options

A dependable manual override facility is an an important part in many valve/actuator applications. Hankun has variety of manual override options available to meet any requirement. Availabale options include open or enenclosed screws in both gear reducer and declutch override gear box, as well as a number of hydraulic override solutions.

Extensive Product Range

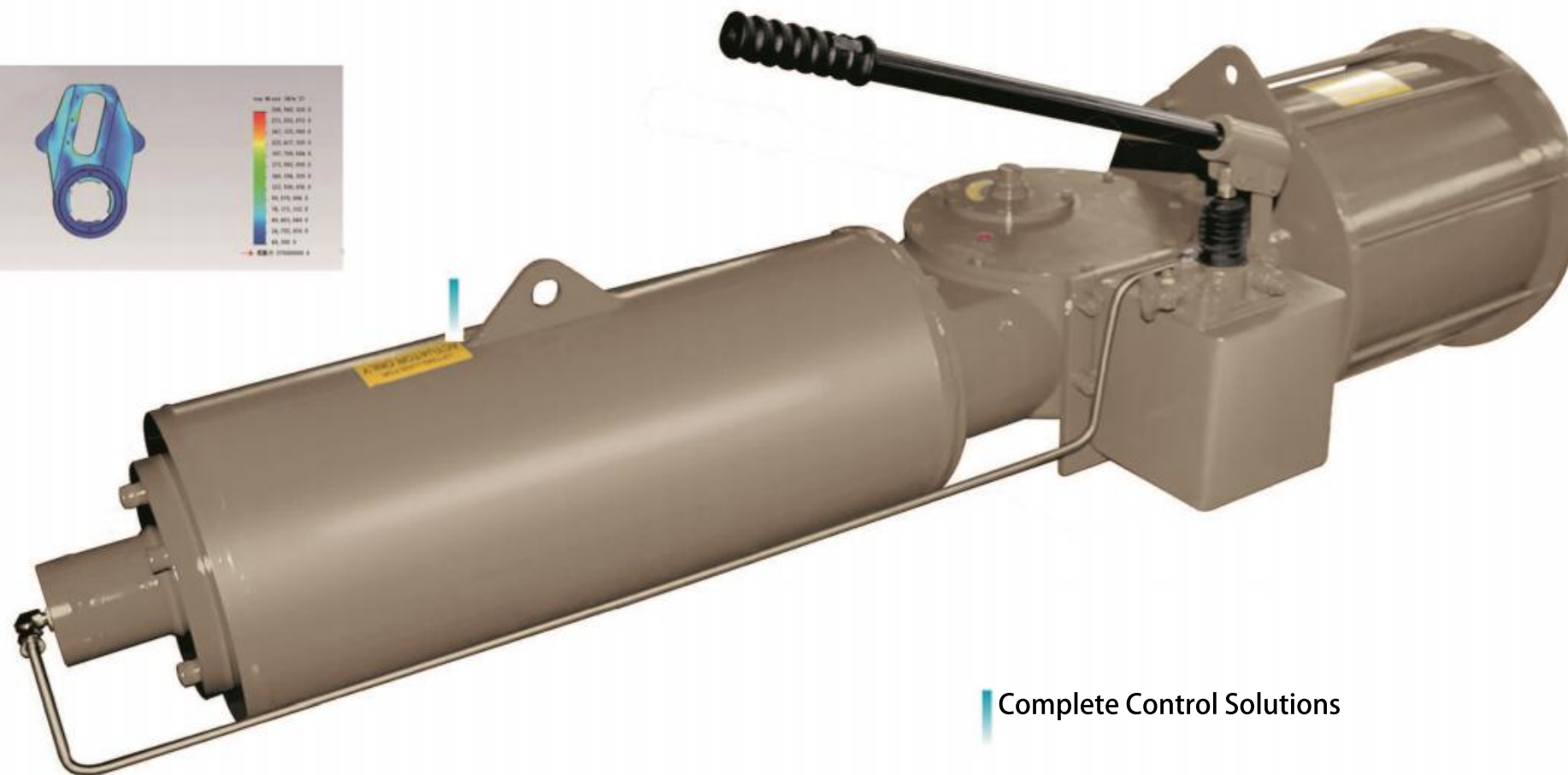
Hankun offers the most extensive line of fluid power valve actuators. Products include low and high pressure pneumatic, hydraulic and pneumatic-hydraulic actuators

Minimum Maintenance

Every HPY actuator is built to provide long and efficient service with minimum maintenance. The design, engineering and materials used in their construction ensure optimum performance even in the harshest environments.

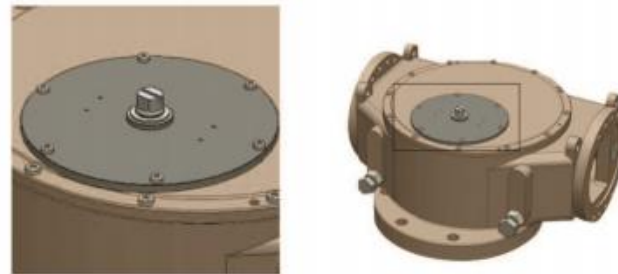
Complete Control Solutions

Air Control system are an important part of any actuator/valve installation. Hankun has extensive experience in the design and assembly of all types of air control systems to satisfy any customer's requirement for on/off, control or ESD service. Control units can be mounted on a panel or in a cabinet and mounted either on the actuator or at a remote location.

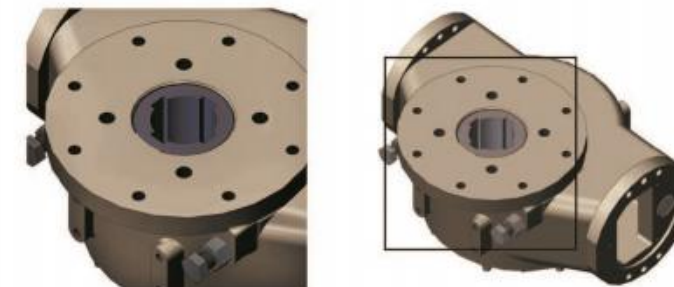


Performance Characteristics

The pinion shape conforms to the latest standards of ISO5211, NAMUR. The dimensions can be customized and the stainless steel is optionally available. A position indicator acc. to NAMUR is convenient for the assembly of accessories such as Limit Switch box, Positioner etc..

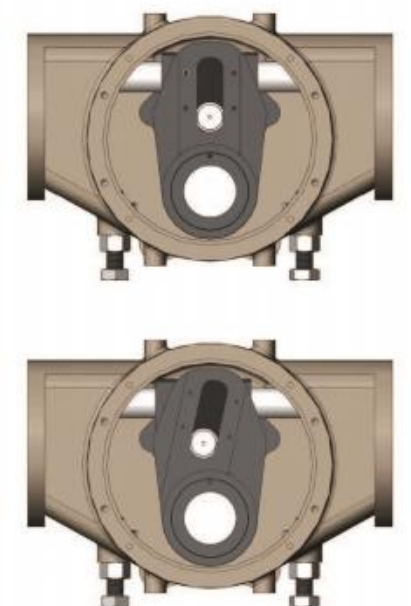


The Center body is made from low friction, long-life compound material, to avoid any direct contact between metals. The maintenance is easy and convenient.

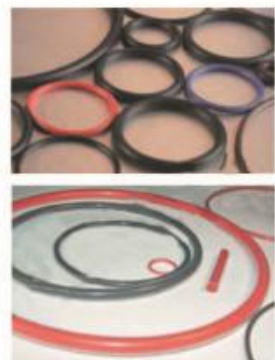


Mounting Flange according to standard of ISO 5211.

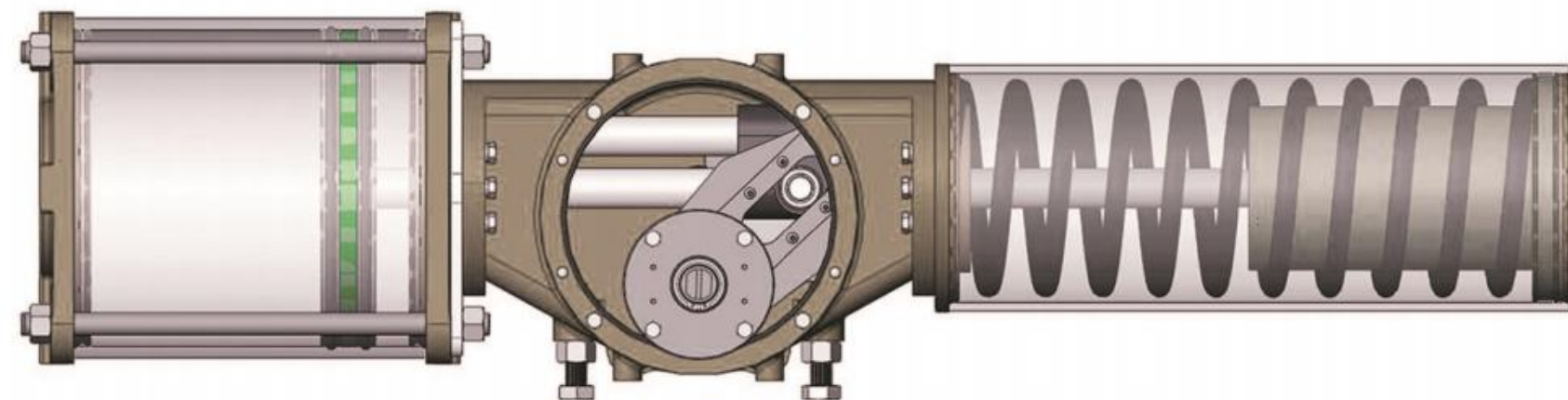
HPY actuators are available with either B or C body modules. B body modules provide a balanced torque ratio at both the on and off position, which is more consistent with the torque demand of similar ball valves. C body modules have a torque advantage in applications where higher open torque is needed to unseat the valve and less critical needs at the run or full open position, which is more consistent with the torque demand of similar butterfly valves.



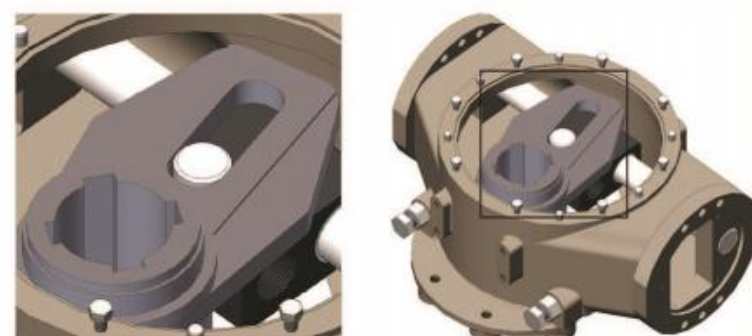
The dual-material (rubber and PFA) encapsulated O-rings can be applied to a wide range of temperature and conditions. A double O-ring and bearing design ensures the stability and dependability of the modular cylinder.



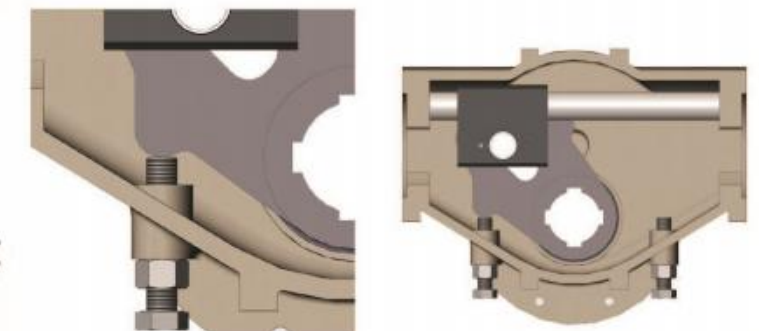
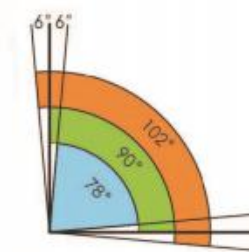
HPY actuators have torque outputs for spring-return models up to 110,000Nm and double-acting models up to 240,000Nm at operating pressures of 3-10 bar.



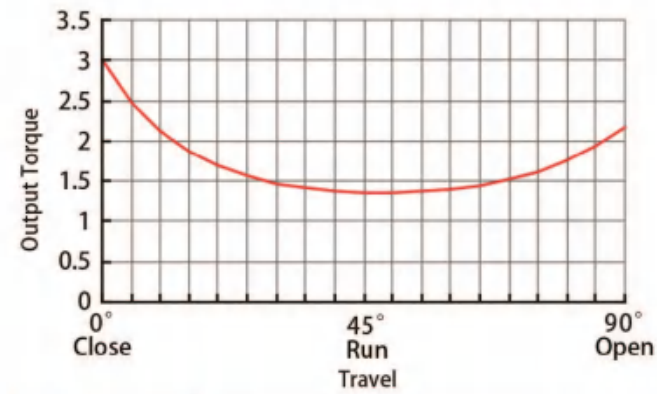
Operating Temperatures:
Standard: -20°C to +80°C
High Temperature: -15°C to +150°C
Low Temperature: -40°C to +80°C



Two independent external travel adjustment bolts can adjust the position at both on and off directions easily and precisely, the adjustment range is $\pm 6^\circ$.

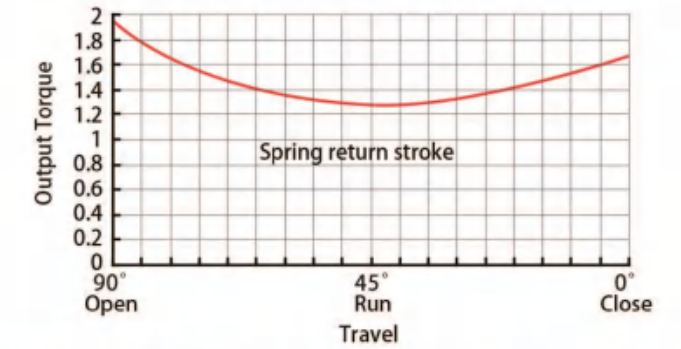
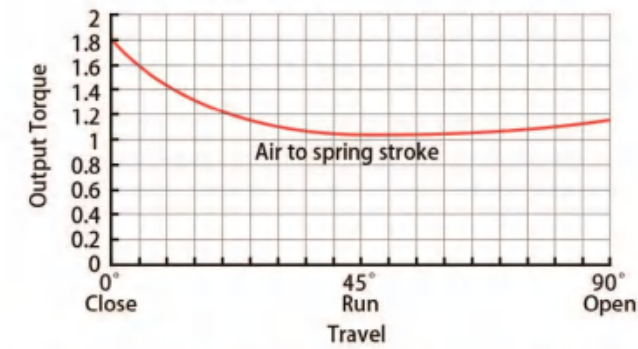


Output Torque of HPY-C Series Double Acting Actuator



Model	Output Torque (Nm)									Air Pressure (Mpa)		
	0.35			0.4			0.5			0.6		
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°
HPY-C06-201-DA	1523	663	1068	1741	758	1220	2176	948	1525			
HPY-C08-221-DA	2400	1045	1682	2743	1194	1922	3428	1493	2403	4114	1792	2883
HPY-C08-251-DA	3118	1358	2185	3564	1552	2498	4455	1940	3122			
HPY-C1-281-DA	4603	2005	3226	5261	2291	3687	6576	2864	4609	7891	3436	5531
HPY-C1-321-DA	6042	2631	4234	6905	3007	4839	8631	3759	6049			
HPY-C2-351-DA	8631	3759	6049	9864	4296	6913	12330	5369	8642	14796	6443	10370
HPY-C2-401-DA	11329	4933	7939	12947	5638	9074	16184	7047	11342	19420	8457	13610
HPY-C2-451-DA	14385	6264	10082	16441	7159	11522						
HPY-C3-451-DA	17168	7476	12032	19620	8544	13750	24525	10680	17188	29430	12816	20626
HPY-C3-501-DA	21267	9261	14905	24306	10584	17034	30382	13230	21293			
HPY-C3-561-DA	26757	11652	18752	30579	13316	21431						
HPY-C4-561-DA	32146	13998	22529	36738	15998	25747	45922	19997	32184	55107	23997	38621
HPY-C4-601-DA	36957	16093	25901	42237	18392	29601	52796	22990	37001	63355	27589	44401
HPY-C4-631-DA	40783	17760	28582	46610	20297	32666	58262	25371	40832			
HPY-C4-701-DA	50437	21963	35348	57643	25101	40398						
HPY-C5-701-DA	60479	26336	42386	69119	30099	48441	86399	37623	60551	103679	45148	72662
HPY-C5-562-DA	76974	33519	53946	87970	38307	61652	109963	47884	77065	131955	57461	92478
HPY-C5-801-DA	79181	34480	55492	90492	39406	63420	113115	49257	79275	135738	59109	95130
HPY-C5-602-DA	88544	38557	62054	101193	44065	70919	126491	55082	88649			
HPY-C5-632-DA	97744	42564	68503	111708	48644	78289						
HPY-C5-901-DA	100375	43709	70346	114714	49954	80396						
HPY-C6-801-DA	106337	46306	74525	121528	52921	85171	151911	66151	106464	182293	79381	127757
HPY-C6-901-DA	134869	58730	94520	154136	67120	108023	192669	83900	135029	231203	100680	162035
HPY-C6-702-DA	162326	70686	113763	185515	80784	130015	231894	100981	162519			
HPY-C6-1001-DA	166756	72616	116868	190579	82989	133564	238223	103737	166955			
HPY-C6-802-DA	212675	92611	149050	243057	105842	170342						

Output Torque of HPY-C Series Actuator with Spring Return (FC)

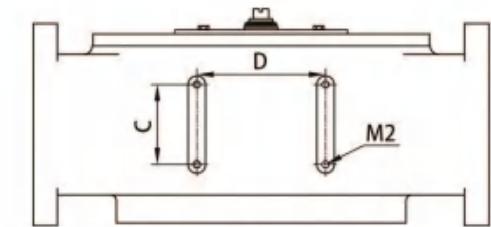
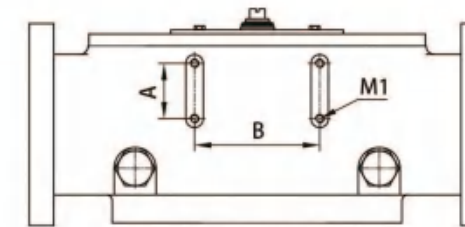


Model	Air to Spring (4Bar)			Spring			Air to Spring (5Bar)			Spring			Air to Spring (6Bar)			Spring		
	0°	45°	90°	90°	45°	0°	0°	45°	90°	90°	45°	0°	0°	45°	90°	90°	45°	0°
HPY-C06-201-SRC4	870	279	305	915	479	870	1306	468	610	915	479	870	1741	658	915	915	479	870
HPY-C06-201-SRC5							1088	348	381	1144	599	1088	1523	538	686	1144	599	1088
HPY-C06-201-SRC6													1290	409	440	1390	728	1322
HPY-C06-221-SRC4	1027	322	338	1144	599	1088	1556	552	708	1144	599	1088	2084	782	1079	1144	599	1088
HPY-C06-221-SRC5							1322	423	463	1390	728	1322	1851	653	833	1390	728	1322
HPY-C06-221-SRC6													1586	508	555	1668	874	1586
HPY-C08-221-SRC4	1353	427	460	1462	768	1390	2038	725	941	1462	768	1390	2724	1024	1421	1462	768	1390
HPY-C08-221-SRC5							1680	527	564	1838	966	1748	2366	826	1045	1838	966	1748
HPY-C08-221-SRC6													1887	561	541	2342	1230	2227
HPY-C08-251-SRC4	1816	586	659	1838	966	1748	2707	974	1284	1838	966	1748	3598	1362	1908	1838	966	1748
HPY-C08-251-SRC5							2227	710	780	2342	1230	2227	3118	1098	1404	2342	1230	2227
HPY-C08-251-SRC6													2606	814	865	2882	1513	2740
HPY-C08-281-SRC4	2262	725	804	2342	1230	2227	3385	1213	1591	2342	1230	2227	4507	1702	2377	2342	1230	2227
HPY-C08-281-SRC5							2872	930	1051	2882	1513	2740	3994	1419	1838	2882	1513	2740
HPY-C08-281-SRC6													3367	1073	1179	3541	1860	3367
HPY-C1-281-SRC4	2630	839	921	2766	1452	2630	3946	1411	1842	2766	1452	2630	5261	1984	2764	2766	1452	2630
HPY-C1-281-SRC5							3206	1003	1065	3544	1861	3370	4521	1576	1986	3544	1861	3370
HPY-C1-281-SRC6													3750	1150	1176	4355	2286	4141
HPY-C1-321-SRC4	3535	1146	1295	3544	1861	3370	5261	1898	2505	3544	1861	3370	6988	2650	3715	3544	1861	3370
HPY-C1-321-SRC5							4490	1472	1694	4355	2286	4141	6217	2224	2904	4355	2286	4141
HPY-C1-321-SRC6													5098	1606	1727	5532	2904	5260
HPY-C1-351-SRC4	4141	1320	1449	4355	2286	4141	6211	2222	2900	4355	2286	4141	8282	3123	4351	4355	2286	4141
HPY-C1-351-SRC5							5092	1604	1724	5532	2904	5260	7163	2506	3175	5532	2904	5260
HPY-C1-351-SRC6													5927	1823	1875	6832	3586	6496
HPY-C1-401-SRC4	5591	1821	2073	5532	2904	5260	8303	3002	3974	5532	2904	5260	11016	4184	5875	5532	2904	5260
HPY-C1-401-SRC5							7067	2320	2674	6832	3586	6496	9780	3501	4575	6832	3586	6496
HPY-C1-401-SRC6													8138	2595	2848	8559	4493	8138
HPY-C2-401-SRC4	6473	2064	2266	6808	3574	6473	9710	3474	4534	6808	3574	6473	12947	4883	6803	6808	3574	6473
HPY-C2-401-SRC5							7963	2509	2697	8645	4538	8220	11200	3919	4965	8645	4538	8220
HPY-C2-401-SRC6													9428	2941	3102	10508	5516	9992

Model	Air to Spring (4Bar)			Spring			Air to Spring (5Bar)			Spring			Air to Spring (6Bar)			Spring		
	0°	45°	90°	90°	45°	0°	0°	45°	90°	90°	45°	0°	0°	45°	90°	90°	45°	0°
HPY-C2-451-SRC4	8220	2621	2877	8645	4538	8220	12330	4411	5758	8645	4538	8220	16441	6201	8638	8645	4538	8220
HPY-C2-451-SRC5							10559	3433	3894	10508	5516	9992	14669	5223	6775	10508	5516	9992
HPY-C2-451-SRC6													12330	3932	4316	12967	6807	12330
HPY-C3-451-SRC4	9810	3127	3434	10317	5417	9810	14715	5263	6871	10317	5417	9810	19620	7399	10309	10317	5417	9810
HPY-C3-451-SRC5							12263	3909	4292	12896	6771	12263	17168	6045	7730	12896	6771	12263
HPY-C3-451-SRC6													14239	4428	4650	15976	8388	15191
HPY-C3-501-SRC4	12043	3813	4138	12896	6771	12263	18120	6459	8397	12896	6771	12263	24196	9105	12655	12896	6771	12263
HPY-C3-501-SRC5							15191	4842	5317	15976	8388	15191	21267	7489	9575	15976	8388	15191
HPY-C3-501-SRC6													17346	5324	5452	20100	10553	19112
HPY-C3-561-SRC4	15388	4928	5455	15976	8388	15191	23033	8257	10813	15976	8388	15191	30678	11586	16171	15976	8388	15191
HPY-C3-561-SRC5							19112	6092	6689	20100	10553	19112	26757	9421	12047	20100	10553	19112
HPY-C3-561-SRC6													23896	7842	9039	23108	12132	21973
HPY-C3-631-SRC4	19809	6396	7177	20100	10553	19112	29539	10633	13997	20100	10553	19112	39269	14870	20816	20100	10553	19112
HPY-C3-631-SRC5							23305	7191	7441	26656	13995	25346	33035	11428	14260	26656	13995	25346
HPY-C3-631-SRC6													29191	9305	10217	30699	16118	29191
HPY-C4-631-SRC4	21759	6584	6531	26135	13712	24851	33411	11658	14697	26135	13712	24851	45063	16732	22863	26135	13712	24851
HPY-C4-631-SRC5							29131	9297	10196	30636	16074	29131	40783	14371	18362	30636	16074	29131
HPY-C4-631-SRC6													33888	10566	11110	37888	19879	36027
HPY-C4-701-SRC4	28512	9027	9762	30636	16074	29131	42922	15302	19861	30636	16074	29131	57333	21578	29961	30636	16074	29131
HPY-C4-701-SRC5							36027	11497	12609	37888	19879	36027	50437	17773	22709	37888	19879	36027
HPY-C4-701-SRC6													41280	12719	13078	47519	24932	45184
HPY-C4-801-SRC4	39392	12963	14968	37888	19879	36027	58247	21173	28182	37888	19879	36027	77102	29384	41396	37888	19879	36027
HPY-C4-801-SRC5							49089	16120	18551	47519	24932	45184	67944	24331	31765	47519	24932	45184
HPY-C4-801-SRC6													56564	18052	19798	59487	31211	56564
HPY-C5-801-SRC4	45246	14438	15836	47584	24968	45246	67869	24289	31691	47584	24968	45246	90492	34141	47546	47584	24968	45246
HPY-C5-801-SRC5							55758	17606	18954	60321	31651	57357	78381	27457	34809	60321	31651	57357
HPY-C5-801-SRC6													65955	20601	21742	73388	38508	69783
HPY-C5-901-SRC4	57357	18302	20075	60321	31651	57357	86036	30791	40174	60321	31651	57357	114714	43279	60273	60321	31651	57357
HPY-C5-901-SRC5							73610	23934	27106	73388	38508	69783	102289	36423	47205	73388	38508	69783
HPY-C5-901-SRC6													86036	27454	30113	90481	47477	86036
HPY-C6-801-SRC4	60764	19336	21267	63904	33585	60764	91146	32566	42560	63904	33585	60764	121528	45796	63853	63904	33585	60764
HPY-C6-801-SRC5							74843	23555	25414	81050	42596	77068	105225	36785	46707	81050	42596	77068
HPY-C6-801-SRC6													88036	27284	28630	99127	52097	94257
HPY-C6-901-SRC4	77068	24524	26974	81050	42596	77068	115602	41304	53980	81050	42596	77068	154136	58084	80985	81050	42596	77068
HPY-C6-901-SRC5							98413	31803	35902	99127	52097	94257	136946	48583	62908	99127	52097	94257
HPY-C6-901-SRC6													113847	35815	38615	123420	64864	117357
HPY-C6-1001-SRC4	96322	30893	34437	99127	52097	94257	143967	51640	67828	99127	52097	94257	191611	72387	101219	99127	52097	94257
HPY-C6-1001-SRC5							120867	38872	43535	123420	64864	117357	168511	59620	76926	123420	64864	117357
HPY-C6-1001-SRC6													142934	45483	50027	150319	79001	142934

The torque of the springs can be customized to your needs.

Body Connecting Dimension



Body No.	AxB	CxD	M1 Screw Hole	M2 Screw Hole
B06/C06	50x90	80x125	4-M12 deep 18	4-M12 deep 18
B08/C08	50x125	80x125	4-M12 deep 18	4-M12 deep 18
B1/C1	50x125	80x125	4-M12 deep 18	4-M12 deep 18
B2/C2	80x125	95x155	4-M12 deep 18	4-M12 deep 18
B3/C3	80x180	115x185	4-M12 deep 18	4-M12 deep 18
B4/C4	80x220	115x230	4-M12 deep 18	4-M12 deep 18
B5/C5	80x220	140x310	4-M12 deep 18	4-M12 deep 18
B6/C6	100x220	180x400	4-M12 deep 18	4-M12 deep 18

How to Order

UNIT	1	2	3	4	5	6	7	8	Product code
CONTENT	Series	Structure	Body	Cylinder	Acting Type	Spring	Manual	Specific Requirements	HPY-C1-501
CODE	HP	Y	C1	501	SR	O4	HM	LT	-SRO4+HM+LT
EXAMPLE	HP	Y	C1	501	SR	O4	HM	LT	

Y: Yoke	B06 C06 B08 C08 B1 C1 ... B6 C6	DA Double Acting SR Spring Return	SM Screw Manual GM Gear Manual HM Hydraulic Manual	O Failure Open C Failure Close 4 Spring Size 5 Spring Size	LT Low Temperature (-40°C to +80°C) HT High Temperature (-20°C to +150°C) HC High Cycle C Custom
---------	---	--------------------------------------	--	---	---