

About Us

BITEBI is one of the leading cylinders manufactures and suppliers in China. Welcome to buy our high-quality with high competitive price products from cylinders, pneumatic cylinders OEM service and ODM from your factory or company.

Our production capacity, comprehensive services as well as abundant experience enable us to be your best choice. We look forward to your reply and to establish mutually beneficial trading relations with you.

Working Process

● Mold Design and Manufacturing

Able to design and produce Die Casting Mold.
Software: Pro

● Die Casting

Fully equipped with high pressure cold chamber die casting machines
All the die casting machines are with automatic feed, spraying, fetch robot arms.

● CNC Machining

We tailor our machining approach for either low-volume or higher-volume production runs. Secondary machining such as tapping, milling, boring, surfacing, drilling, and threading are performed to your specifications.

● Assembling End Product

Able to assemble various cylinders.
Able to assembly big bore cylinder up to 320mm.
Own testing equipment for cylinders.

BITEBI®

Pneumatic Actuator Stainless Steel Actuator



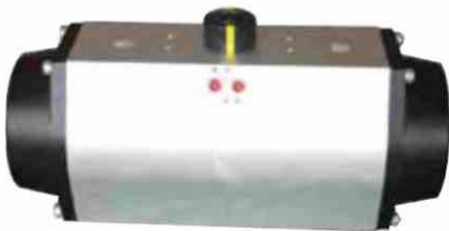
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无锡比特比机械科技有限公司
WUXI BITEBI MACHINERY TECHNOLOGY CO.,LTD

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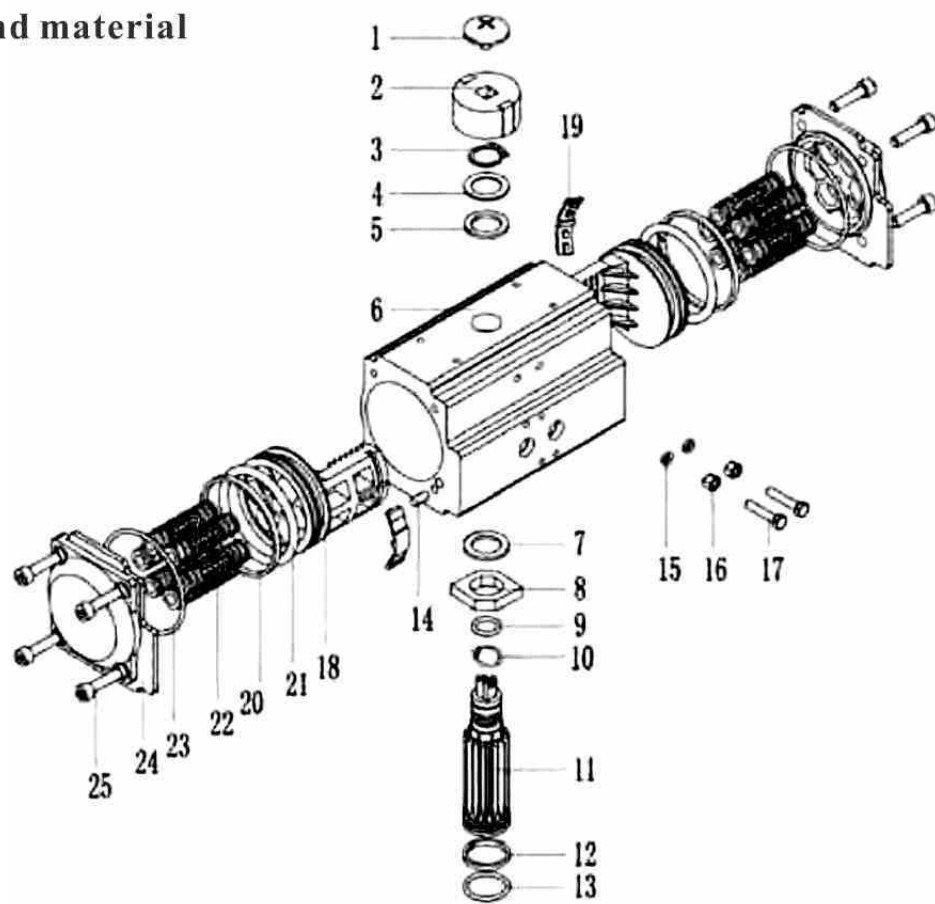
PNEUMATIC ACTUATOR & STAINLESS STEEL ACTUATOR



Product description

- 1. Indicator:** Position indicator with NAMUR is convenient for mounting accessories such as limit switch box, positioner.
- 2. Pinion:** The pinion is high-precision and integrative, made from nickelled-alloy steel, full conform to the latest standards of ISO5211, DIN3337, NAMUR. The dimensions can be customized and the stainless steel 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 or Nickel plated.
- 4. End caps:** Die-casting aluminum powder polyester painted in different colours, PTFE or Nickel plated.
- 5. Pistons:** The twin rack pistons are made from Die-casting aluminum treated with hard anodized or made from cast steel with galvanization. Symmetric mounting position, long cycle life and fast operation, reversing rotation by simply inverting the.
- 6. Travel adjustment:** The two independent external travel stop adjustment bolts can adjust 5 degree at both open and close directions easily and precisely.
- 7. High performance springs:** Preloaded coating springs are made from the high quality material for resistant to corrosion and longer service lift, which can be demounted safely and conveniently to satisfy requirement of torque by changing quantity of springs.
- 8. Bearing & Guides:** Made from 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.

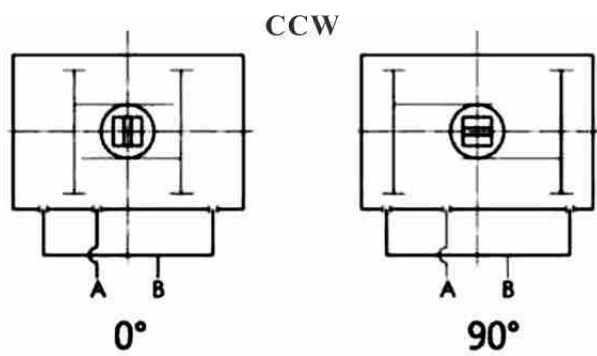
Parts and material



NO.	Description	Qty	Standard material	Protection	Optional material
1	Indicator screw	1	Plastic		
2	Indicator	1	Plastic	PS3/4"	PS1"
3	Axis block	1	Stainless steel		
4	Metal gasket	1	Stainless steel		
5	Outside washer	1	Engineering plastics		
7	Inside washer	1	Engineering plastics		
10	Shaft support ring	1	Engineering plastics	230CC	
12	Lower shaft support ring	1	Engineering plastics		
20	Piston support ring	1	Engineering plastics		
9	Bearing(Pinion top)	1	NBR		
13	Bearing(Pinion bottom)	1	NBR		Viton/Silicone
15	O-ring(Adjusting bolt)	2	NBR		Viton/Silicone
21	O-ring(Piston)	2	NBR		Viton/Silicone
23	Plug	2	NBR		Viton/Silicone
14	Plugs	2	NBR		Viton/Silicone
16	Screw nut	2	Stainless steel		Viton/Silicone
17	Adjusting bolt	2	Stainless steel		
18	Piston	2	Die-casting aluminum		
19	Piston guides	2	Stainless steel	Hard anodized etc.	
6	Body	1	Aluminum		
8	Cam	1	Alloy steel	Hard anodized etc.	
11	Axis	1	Alloy steel		
22	Spring	0~12	Spring steel	Nickel plated	Stainless steel
24	End cap	2	Die-casting aluminum	Dip coating	
25	End can fastening bolt	8	Stainless steel	Power polyster painted	

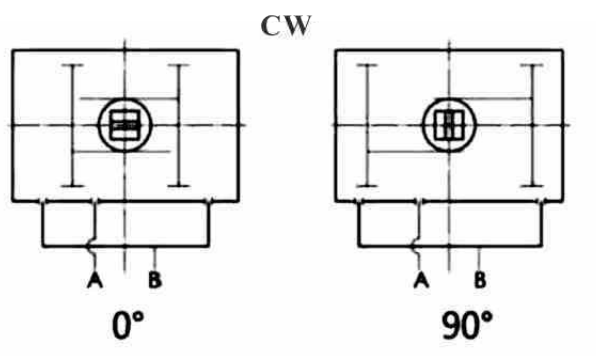
Operating Principle

Double Acting Actuators



Air to Port A forces the pistons outwards, causing the pinion to turn counterclockwise while the air is being exhausted from Port B.

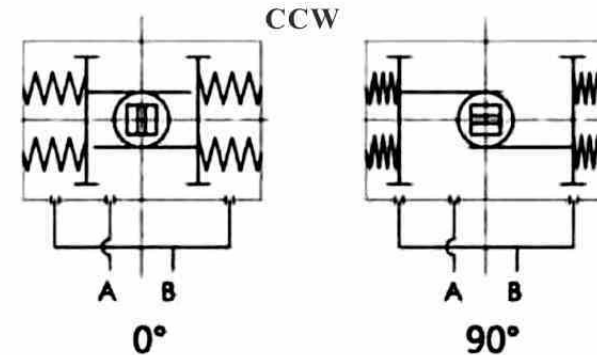
Air to Port B forces the pistons inwards, causing the pinion to turn clockwise while the air is being exhausted from Port A.



Air to Port A forces the pistons outwards, causing the pinion to turn clockwise while the air is being exhausted from Port B.

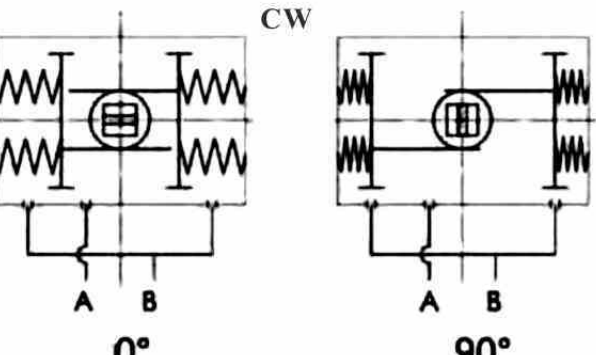
Air to Port B forces the pistons inwards, causing the pinion to turn counterclockwise while the air is being exhausted from Port A.

Spring Return Actuators



Air to Port A forces the pistons outwards, causing the springs to compress. The pinion turns counterclockwise while air is being exhausted from Port B.

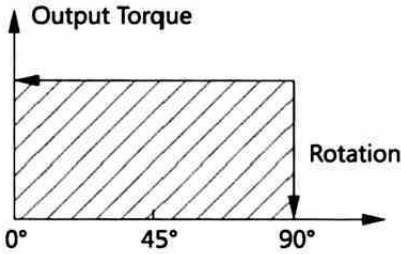
Loss of air pressure on Port A, the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from Port A.



Air to Port B forces the pistons outwards, causing the springs to compress. The pinion turns counterclockwise while air is being exhausted from Port B.

Loss of air pressure on Port A, the stored energy in the springs forces the pistons inwards. Then pinion turns clockwise while air is being exhausted from Port A.

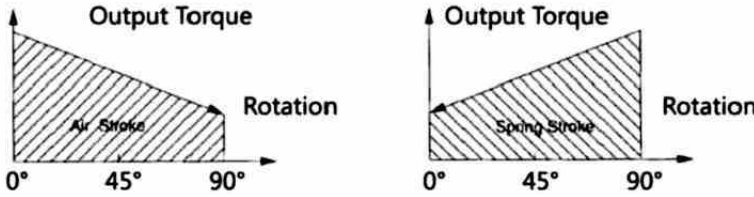
Output Torque Of Double Acting Actuators



Model	Air supply pressure(Unit: bar)									
	2	2.5	3	4	4.5	5	5.5	6	7	8
DA-32	3	4	5	6	7	8	8	9	11	12
DA-40	5	6	7	10	11	12	13	14	17	19
DA-52	8	10	12	16	18	20	22	24	28	32
DA-63	15	18	22	29	33	36	40	55	51	58
DA-75	20	25	30	40	45	50	55	60	70	80
DA-83	31	39	47	63	70	78	86	94	110	125
DA-92	45	56	68	90	102	113	124	135	158	181
DA-105	66	83	99	132	149	165	182	198	231	264
DA-125	100	125	150	200	226	251	276	301	351	401
DA-140	171	214	256	342	385	427	470	513	598	684
DA-160	266	332	399	532	598	665	731	798	931	1064
DA-190	426	532	638	851	958	1064	1170	1277	1490	1702
DA-210	532	665	798	1064	1197	1330	1463	1596	1862	2128
DA-240	769	962	1154	1539	1731	1924	2116	2308	2693	3078
DA-270	1170	1462	1754	2339	2632	2924	3216	3509	4094	4679
DA-300	1526	1908	2289	3052	3434	3815	4197	4578	5341	6104
DA-350	2285	2856	3427	4570	5141	5712	6283	6854	7997	9139
DA-400	3256	4070	4884	6152	7326	8140	8954	9768	11396	13024

Sizing: Double Acting Actuator
The suggested safety factor for double acting actuators under normal working conditions is 20%~30%.
Example:
● The torque needed by valve=100N.m
● The torque considered safety factor(1+30%)=130N.m
● Air Supply=5Bar
According to the above table, we can choose the minimum model is DA105.

Output Torque Of Spring Return Actuators



Output torque of air to springs																	
Air pressure		2.5Bar		3Bar		4Bar		5Bar		6Bar		7Bar		8Bar		Springs' output	
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	90° Start	0° End
SR-52	K5	5.7	3.8	7.6	5.7											6.2	4.3
	K6	4.9	2.5	6.9	4.5	10.9	8.5									7.4	5.0
	K7	4.0	1.3	6.0	3.3	9.8	7.3	14.0	10.4							8.6	5.9
	K8			5.2	2.0	9.2	6.0	13.2	9.1	17.2	14.1					9.9	6.7
	K9			4.3	0.8	8.3	4.8	12.3	7.9	16.3	12.8	20.3	16.8			11.1	7.6
	K10					7.4	3.6	11.5	6.7	15.5	11.6	19.5	15.6			12.4	8.5
	K11					6.6	2.3	10.6	5.4	14.6	10.4	18.6	14.3	22.6	18.3	13.6	9.3
SR-63	K5	11.4	7.7	15.0	11.4	22.3	14.9									10.4	6.8
	K6	10.1	5.7	13.6	9.3	20.9	16.6	28.3	23.9							12.5	8.2
	K7	8.6	3.6	12.5	7.2	19.5	14.5	26.8	21.9							14.6	9.6
	K8			10.9	5.1	18.2	12.4	25.5	19.8	32.8	27.0	40.1	34.3			16.7	10.9
	K9					16.8	10.4	24.1	17.7	31.4	24.9	38.7	32.2			18.8	12.3
	K10					1.4	8.2	22.8	15.6	30.0	22.8	37.3	30.1	44.7	37.4	20.9	13.7
	K11							21.5	13.5	28.7	20.7	36.0	28.0	43.3	35.3	22.9	15.0
SR-75	K5	14.5	10.6	19.4	15.5	29.5	25.7									14.5	10.5
	K6	12.4	7.6	17.3	12.6	27.4	22.7	37.5	32.8							17.4	12.7
	K7	10.4	4.8	15.2	9.7	25.3	19.9	35.4	29.9							20.3	14.8
	K8			13.1	6.8	23.1	16.9	33.3	27.0	43.2	37.0	53.3	47.0			23.2	16.9
	K9					21.0	14.1	31.2	24.1	41.1	34.1	51.2	44.2			26.1	19.0
	K10					19.0	11.1	28.8	21.2	39.0	31.2	49.1	41.2	59.1	51.2	29.0	21.1
	K11							27.0	18.3	37.0	28.3	47.0	38.4	57.0	48.4	31.9	23.2
SR-83	K5	23.3	16.1	31.1	24.0	46.8	39.7									23.0	15.8
	K6	20.1	11.5	28.0	19.3	43.7	35.1	59.4	50.7							27.6	19.0
	K7	17.0	6.9	24.8	14.8	25.3	30.5	56.2	46.2							32.2	22.1
	K8			21.7	10.1	37.4	25.8	53.1	41.5	68.8	57.2	84.5	72.9			36.8	25.3
	K9					34.2	21.3	49.9	37.0	65.6	52.6	81.2	68.3			41.4	28.5
	K10					31.0	16.6	46.7	32.3	62.4	48.0	78.1	63.7	93.8	79.3	46.0	31.6
	K11							43.6	27.7	59.3	43.4	75.0	59.1	90.6	74.8	50.6	34.8
SR-92	K5	33.1	22.0	44.2	33.2	66.8	55.9									34.4	23.3
	K6	28.4	15.2	39.6	26.4	62.2	49.0	84.8	71.6							41.2	28.0
	K7	23.8	8.2	34.9	19.4	57.5	42.1	80.2	64.7							48.1	32.7
	K8			31.3	12.6	52.9	35.2	75.5	57.9	98.1	80.5	120.7	103.0			55.0	37.3
	K9					48.2	28.4	70.9	51.0	93.5	73.6	116.0	96.1			61.9	42.0
	K10					43.6	21.5	66.2	44.1	88.8	66.7	111.3	89.2	134.0	111.8	68.7	46.7
	K11							61.5	37.2	84.1	59.9	106.6	82.4	129.2	105.0	75.6	51.4
SR-92	K12							56.8	30.4	79.4	53.0	101.9	75.5	124.5	98.1	82.5	56.0

Pneumatic actuators

DA/SR Series

BITEBI®

Pneumatic actuators

DA/SR Series

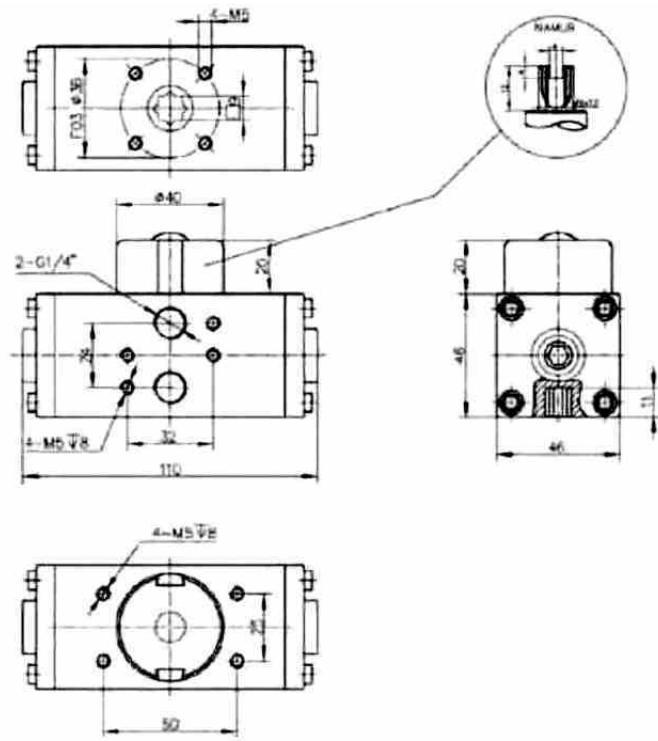
BITEBI®

Output torque of air to springs																	
Air pressure		2.5Bar		3Bar		4Bar		5Bar		6Bar		7Bar		8Bar		Springs' output	
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	Start	End
SR-105	K5	51.0	33.4	67.5	49.9	100.6	83.0									49.2	31.6
	K6	44.7	23.5	61.1	40.0	94.2	73.2	127.3	106.2							59.1	38.0
	K7	23.8	13.7	54.9	30.3	87.9	63.4	121.0	96.4							68.9	44.3
	K8			48.5	20.4	81.6	53.5	114.7	86.5	147.7	119.6	180.8	152.7			78.7	50.6
	K9					75.3	43.7	108.4	76.8	141.5	109.8	174.5	142.9			88.6	56.9
	K10					68.9	33.4	102.0	66.5	135.1	99.6	168.2	132.6	201.2	165.7	98.4	63.3
	K11							95.7	57.0	128.7	90.1	161.8	123.1	194.8	156.2	108.3	69.6
	K12							89.4	47.5	122.5	80.6	155.5	113.6	188.6	146.7	118.1	75.9
SR-125	K5	73	47	98	72	148	122									79	52
	K6	63	31	88	56	138	107	188	157							94	63
	K7	52	15	77	40	127	90	178	141							110	73
	K8			67	25	117	75	167	125	217	176	268	226			125	84
	K9					107	59	157	109	207	159	257	210			141	94
	K10					96	44	146	94	196	144	247	194	297	245	157	105
	K11							136	78	186	128	236	178	286	228	173	115
	K12							125	63	176	113	226	163	276	213	188	125
SR-140	K5	128	85	171	127	256	213									129	86
	K6	111	59	154	102	239	187	325	273							155	103
	K7	94	33	137	76	222	162	308	247							181	120
	K8			120	50	205	136	291	221	376	307	462	392			206	137
	K9					187	110	273	196	358	281	444	367			232	155
	K10					170	84	256	169	341	255	427	340	512	426	258	172
	K11							238	143	324	229	409	314	495	400	284	189
	K12							221	118	307	203	392	289	478	374	310	206
SR-160	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	337	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
SR-190	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
SR-210	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

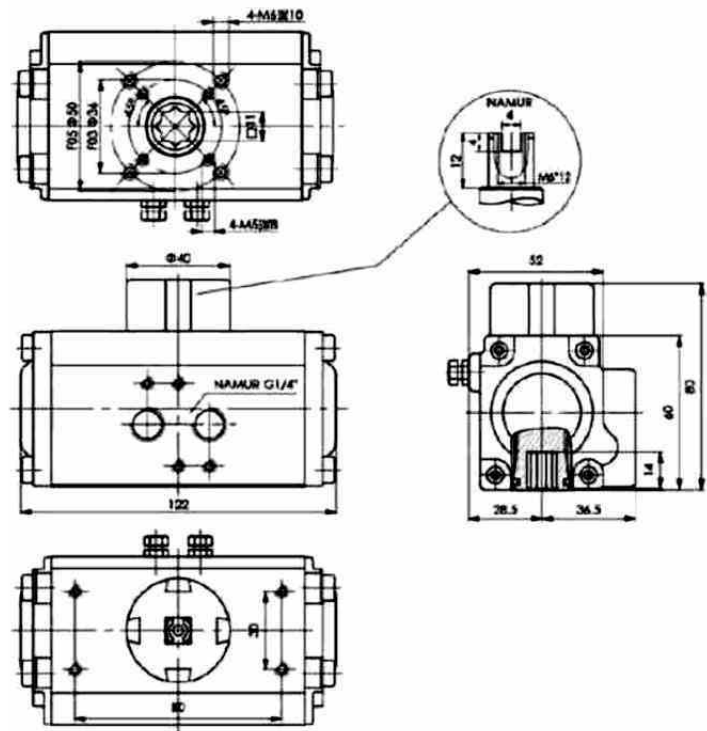
Output torque of air to springs																	
Air pressure		2.5Bar		3Bar		4Bar		5Bar		6Bar		7Bar		8Bar		Springs' output	
Model	Spring Qty.	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	0° Start	90° End	Start	End
SR-240	K5	552	409	774	600	1129	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	2039	1748	1330	985
SR-270	K5	903	675	1195	968	1779	1552									787	560
	K6	790	519	1083	811	1667	1396	2252	1981							943	672
	K7	679	13.7	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
SR-300	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
SR-350	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	201653	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
SR-400	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	34

■ Dimensions

DA/SR-32



DA/SR-40



■ Sizing: Spring Return Actuators

The suggested safety factor for spring return actuator under normal working conditions is 30~50%

Example:

The torque needed by valve=80N.m

The torque consider safety factor(1+30%)=104N.m

Air Supply=5Bar

According to the table of spring return actuators' output, we find out torque of Sr140 K7 is:

Air stroke 0°=308N.m

Air stroke 90°=247N.m

Spring stroke90°=181N.m

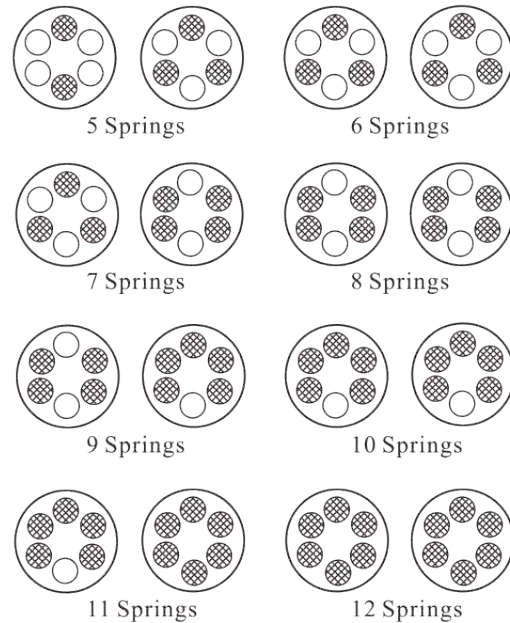
Spring stroke0°=120N.m

All the output torque is large than we needed.

Attention:

During the restoration, the spring return actuators' output will not be affected by the inputting air from the port B. On the contrary, it will help the restoration of springs.

■ Spring mounting form for spring return Actuators



During selecting the spring return actuators, we can choose the morn reasonable and more economical actuators, if we know the different torque needed by the valve working at opening, operating and closing.

Example:

The max torque needed by the butterfly valve=104N.m

The torque after opened(operating)104X30%=32N.m

Air supply=5Bar

We can select the SR125K11 output torque is:

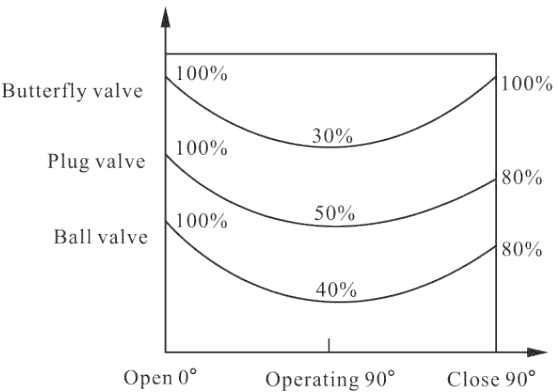
Air stroke 0°=136N.m>104N.m

Air stroke 90°=78N.m>32N.m

Spring stroke 90°=173N.m>32N.m

Spring stroke 0°=115N.m>104N.m

The above dates show the actuator's torque can satisfy the requirement of the butterfly valve.

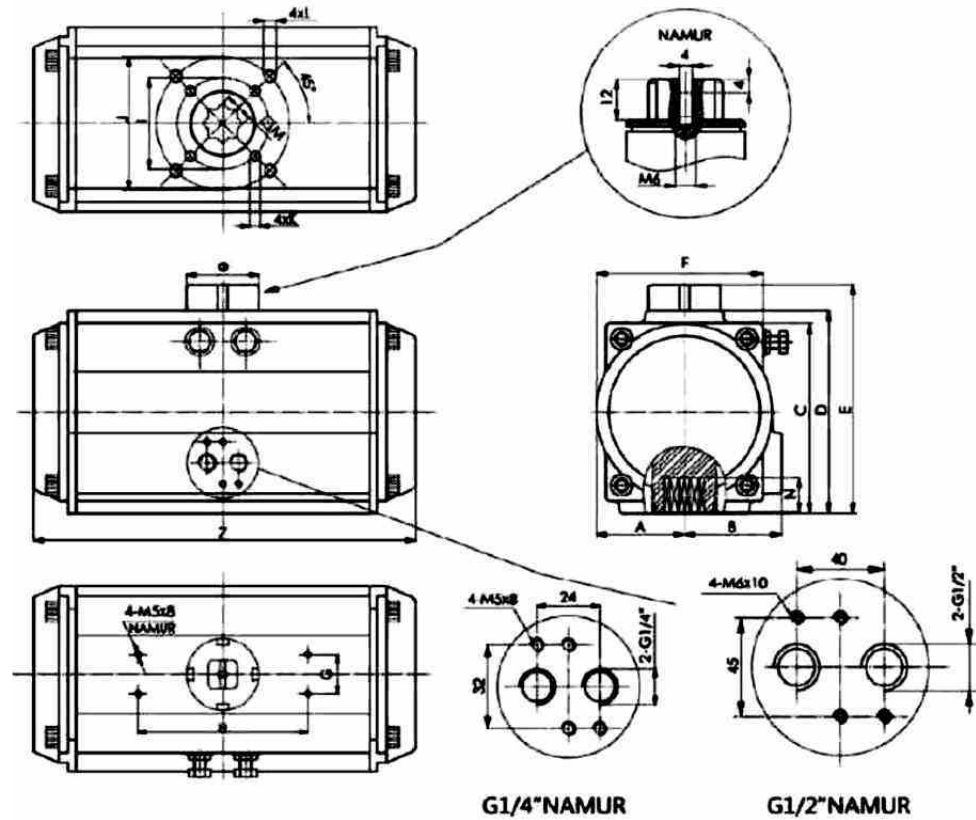


Note

Make sure that the torque necessary to operate the valve is compatible with the actuator torque(it depends on both actuator type and air supply).

Please note that the requested torque depends not only on the valve, but on the working conditions and the safety margins of the plant in question, too.

DA/SR-52 and over



Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Z	Φ	Air Connection
DA/SR-32	23	23	46	46	66	46	25	50		Φ36		M5X8	9	11	110	Φ40	NAMUR G1/8"
DA/SR-40	28.5	36.5	60	60	80	52	30	80	Φ36	Φ50	M5X8	M6X10	11	14	122	Φ40	NAMUR G1/4"
DA/SR-52	30	41.5	65.5	72	92	65	30	80	Φ36	Φ50	M5X8	M6X10	11	14	147	Φ40	NAMUR G1/4"
DA/SR-63	36	47	81	88	108	72	30	80	Φ50	Φ70	M6X10	M8X13	14	18	168	Φ40	NAMUR G1/4"
DA/SR-75	42	53	94	99.5	119.5	81	30	80	Φ50	Φ70	M6X10	M8X13	14	18	184	Φ40	NAMUR G1/4"
DA/SR-83	46	57	98.5	108.7	128.7	92	30	80	Φ50	Φ70	M6X10	M8X13	17	21	204	Φ40	NAMUR G1/4"
DA/SR-92	50	58.5	111	116.5	136.5	98	30	80	Φ50	Φ70	M6X10	M8X13	17	21	262	Φ40	NAMUR G1/4"
DA/SR-105	57.5	64	122.5	133	153	109.5	30	80	Φ70	Φ102	M8X13	M10X16	22	26	268	Φ40	NAMUR G1/4"
DA/SR-125	67.5	74.5	145.5	155	185	127.5	30	130	Φ70	Φ102	M8X13	M10X16	22	26	301	Φ55	NAMUR G1/4"
DA/SR-140	75	77	161	172	202	137.5	30	130	Φ102	Φ125	M10X16	M12X20	27	31	390	Φ55	NAMUR G1/4"
DA/SR-160	87	87	184	197	227	159	30	130	Φ102	Φ125	M10X16	M12X20	27	31	458	Φ55	NAMUR G1/4"
DA/SR-190	103	103	215	230	260	189	30	130		Φ140		M16X25	36	40	525	Φ80	NAMUR G1/4"
DA/SR-210	113	113	235.5	255	285	210	30	130		Φ140		M16X25	36	40	532	Φ80	NAMUR G1/4"
DA/SR-240	130	130	264.5	289	319	245	30	130		Φ165		M20X25	46	50	602	Φ80	NAMUR G1/4"
DA/SR-270	147	147	299	326	356	273	30	130		Φ165		M20X25	46	50	718	Φ80	NAMUR G1/2"
DA/SR-300	162	174	333	350	380	312	30	130		Φ165		M20X25	46	50	760	Φ80	NAMUR G1/2"
DA/SR-350	190	195	483	410	440	365	30	130	Φ165	Φ254	M20X25	8XM16X25	46	50	920	Φ80	NAMUR G1/2"
DA/SR-400	260	260	466	466	496	298	30	130	Φ165	Φ254	M20X25	8XM16X25	46	50	940	Φ80	NAMUR G1/2"

Weight Table

Model	32	40	52	63	75	83	92	105	125	140	160	190	210	240	270	300	350	400
DA	0.7kg	1kg	1.4kg	2kg	2.7kg	3.1kg	4.6kg	6.8kg	8.9kg	13kg	20kg	31kg	47kg	67kg	97kg	110kg	186kg	289kg
SR	-	1.1kg	1.5kg	2.1kg	2.9kg	3.6kg	5.2kg	6.9kg	10.1kg	15kg	24kg	35kg	55kg	80kg	118kg	130kg	234kg	360kg

Note: The SR series is 12 springs. The weight in the table is the net weight.

Air Consumption

Air Volume Opening & Closing

Model	Air volume opening(L)	Air volume Closing(L)
DA/SR-32	0.04	0.05
DA/SR-40	0.08	0.11
DA/SR-52	0.12	0.16
DA/SR-63	0.21	0.23
DA/SR-75	0.30	0.34
DA/SR-83	0.43	0.47
DA/SR-92	0.64	0.73
DA/SR-105	0.95	0.88
DA/SR-125	1.60	1.40
DA/SR-140	2.50	2.20
DA/SR-160	3.70	3.20
DA/SR-190	5.90	5.40
DA/SR-210	7.50	7.50
DA/SR-240	11.00	9.00
DA/SR-270	17.00	14.00
DA/SR-300	23.80	29.70
DA/SR-350	35.10	46.30
DA/SR-400	52.60	56.00

Air consumption rest with Air Supply. Air volume and Action cycle times, expressions:

L/Min=Air volume(Air volume Opening+ Air volume closing)

$$X[\frac{\text{Air supply(kpa)}+101.3}{101.3}] \times \text{Action cycle times/min.}$$

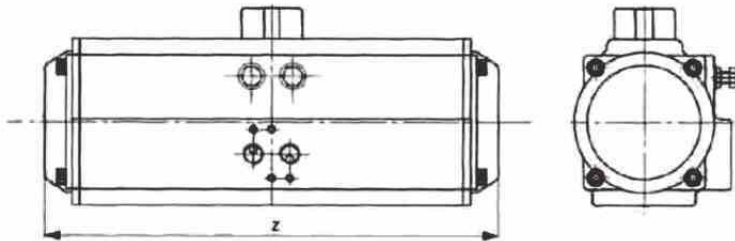
120°, 135°, 180° Double Acting And Spring Return

In order to meet the special requirements of control valve, we produced special strokes actuators on consumer request(e.g. 120°, 135°, 180° etc.)

Output Torque

Output Torque of double acting actuators please refer to the torque of 90° actuators.

180° Double Acting dimensions(Length of DAX180°)



Size	52	63	75	83	92	105	125	140	160	190	210
Z(mm)	213	243	258	298	362	386	429	569	652	756	760

If you enquire any further information of spring return actuators, please do not hesitate to contact us.

Three Position Pneumatic Actuator

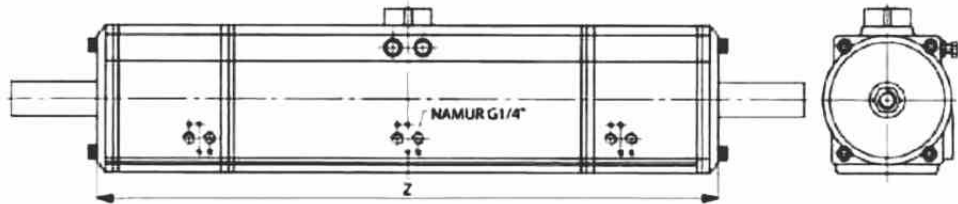
Three position actuator provide on operation of 0°, 45°, 90° or 0°, 90°, 180°. The midway position is achieved by a mechanical stop of movement on the 2 auxiliary pistons. This midway stop adjustable. Example:

90° actuator can provide 20°, 30°, 40°, 50°, 70° etc.

Output Torque

Output Torque of double acting actuators please refer to the torque of 90° actuators.

90° three position dimensions (Length of DA-3P (90°))

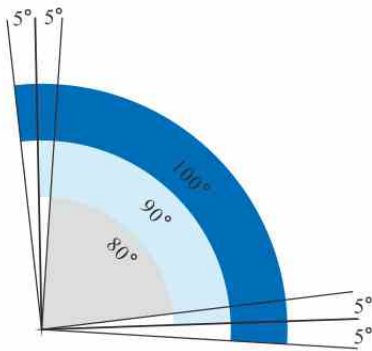


Size	52-3P	63-3P	75-3P	83-3P	92-3P	105-3P	125-3P	140-3P	160-3P	190-3P	210-3P
Z(mm)	266	303	336	298	394	410	456	570	646	788	788

If you enquire any further information of spring return actuators, please do not hesitate to contact us.

Operating Conditions

- Operating media**
Dry or lubricated air, or the non-corrosive gases
The maximum particle diameter must be less than 30µm.
- Air supply pressure**
The minimum supply pressure is 2.5Bar
The maximum supply pressure is 8 Bar
- Operating temperature**
Standard: -20°C~+80°C
Low temperature: -35°C~+80°C
High temperature: -15°C~+150°C
- Travel adjustment**
Have adjustment range of ±5° for the rotation at 0° and 90°.
- Application**
Either indoor or outdoor.



Mounting Standard



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



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



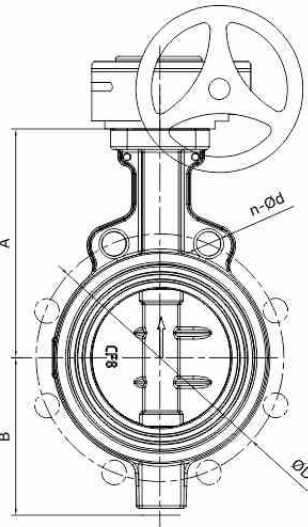
Bottom mounting connection is designed in accordance with ISO5211 and DIN3337 standards for direct mounting with valve gear boxes or mounting brackets.

Other Service

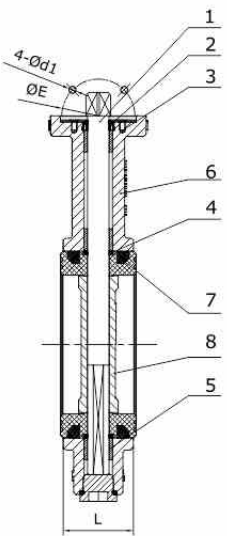
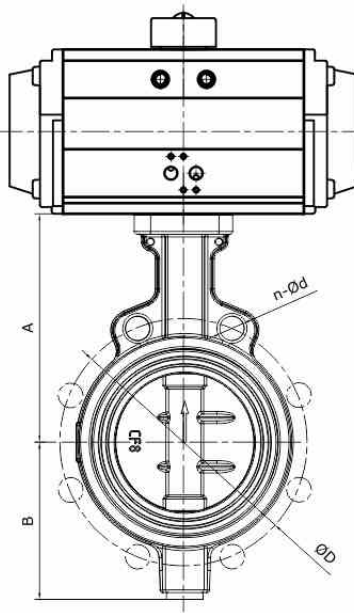
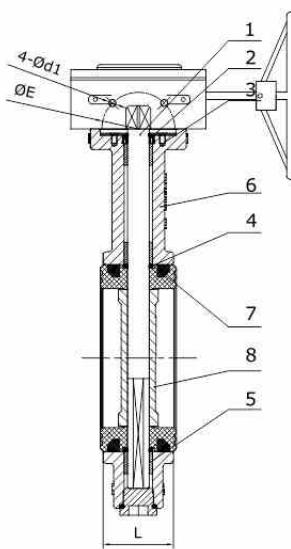


DN	A	B	L	ISO 5211 FLANGE			PN10		PN16		Class150	
				ISO	φE	φd1	φD	n-φd	φD	n-φd	φD	n-φd
50	126	76	43	F05	50	8	125	4-18	125	4-18	120.6	4-18
65	144	82	46	F05	50	8	145	4-18	145	4-18	139.7	4-18
80	158	96	46	F05	50	8	160	8-18	160	8-18	152.4	4-18
100	167	110	52	F07	70	10	180	8-18	180	8-18	190.5	8-18
125	180	127	56	F07	70	10	210	8-18	210	8-18	215.9	8-22
150	203	142	56	F07	70	10	240	8-22	240	8-22	241.3	8-22
200	234	172	60	F10	102	12	295	8-22	295	12-22	298.5	8-22
250	276	203	68	F10+F12	102+125	12+14	350	12-22	355	12-26	362	12-26
300	311	242	78	F10+F12	102+125	12+14	400	12-22	410	12-26	431.8	12-26

No	Name	Material	Qty
1	Shaft	SS420	1
2	Ring	SS304	1
3	Screw	SS304	2
4	O-ring	EPDM	3
5	Sleeve	PTEE & Graphite	3
6	Body	CF8	1
7	Seal	EPDM	1
8	Plate	CF8	1
Frame test		1.5 Mpa	
Sealing test		1.1 Mpa	
Pressure test		0.6 Mpa	
Medium		Water, Oil, Gas	
WORKING TEMPERATURE	NBR	-15~85°C	
	EPDM	-20~120°C	
	Viton	-15~180°C	



1. Butterfly Valve design follow GB/T 12238
2. Butterfly valve structure length follow GB/T 12221
3. Testing follow GB/T 13927
4. Connection follow ISO5211
5. Flange follow :GB/T 9124.

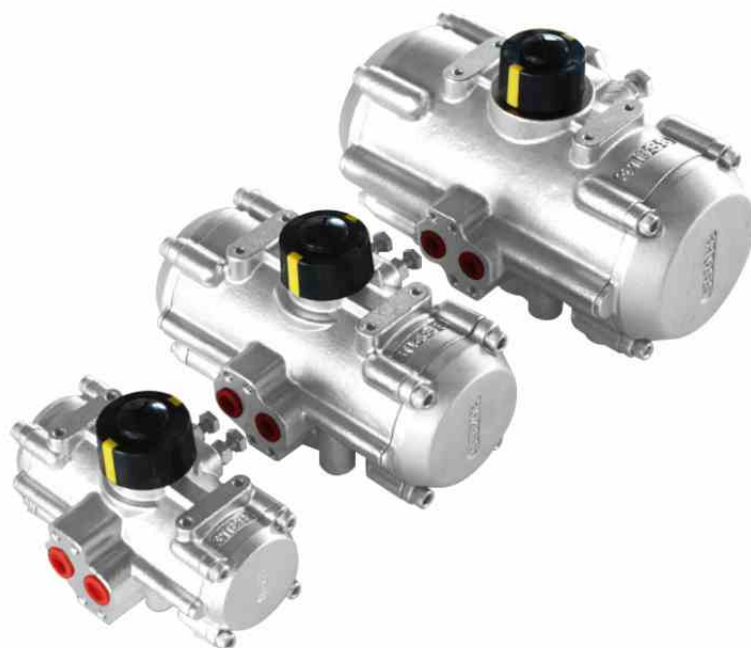


1. Butterfly Valve design follow API 609/EN593
2. structure length follow EN558 20series/DAP1609
3. Testing follow API598
4. Upper flange follow ISO5211
5. Flange follow: EN1092 PN10/PN16, ASME B16.5 Class 150.

No	Name	Material	Qty
1	Shaft	SS416/SS431	1
2	Ring	SS304/SS316	1
3	Screw	SS304/SS316	2
4	O-ring	EPDM/NBR/Viton	3
5	Sleeve	PTEE & Graphite	3
6	Body	CF8/WCB/GGG40	1
7	Seal	EPDM/NBR/Viton	1
8	Plate	CF8M/CF8	1
Body test		1.5 Mpa	
Seal test		1.1 Mpa	
Pressure test		0.6 Mpa	
Medium		Water, Oil, Gas	
WORKING TEMPERATURE	NBR	-15~85°C	
	EPDM	-20~120°C	
	Viton	-15~180°C	

DN	A	B	L	ISO 5211 FLANGE			PN10		PN16		Class150	
				ISO	φE	φd1	φD	n-φd	φD	n-φd	φD	n-φd
50	126	76	43	F05	50	8	125	4-18	125	4-18	120.6	4-18
65	144	82	46	F05	50	8	145	4-18	145	4-18	139.7	4-18
80	158	96	46	F05	50	8	160	8-18	160	8-18	152.4	4-18
100	167	110	52	F07	70	10	180	8-18	180	8-18	190.5	8-18
125	180	127	56	F07	70	10	210	8-18	210	8-18	215.9	8-22
150	203	142	56	F07	70	10	240	8-22	240	8-22	241.3	8-22
200	234	172	60	F10	102	12	295	8-22	295	12-22	298.5	8-22
250	276	203	68	F10+F12	102+125	12+14	350	12-22	355	12-26	362	12-26
300	311	242	78	F10+F12	102+125	12+14	400	12-22	410	12-26	431.8	12-26

Stainless Steel Pneumatic Actuator

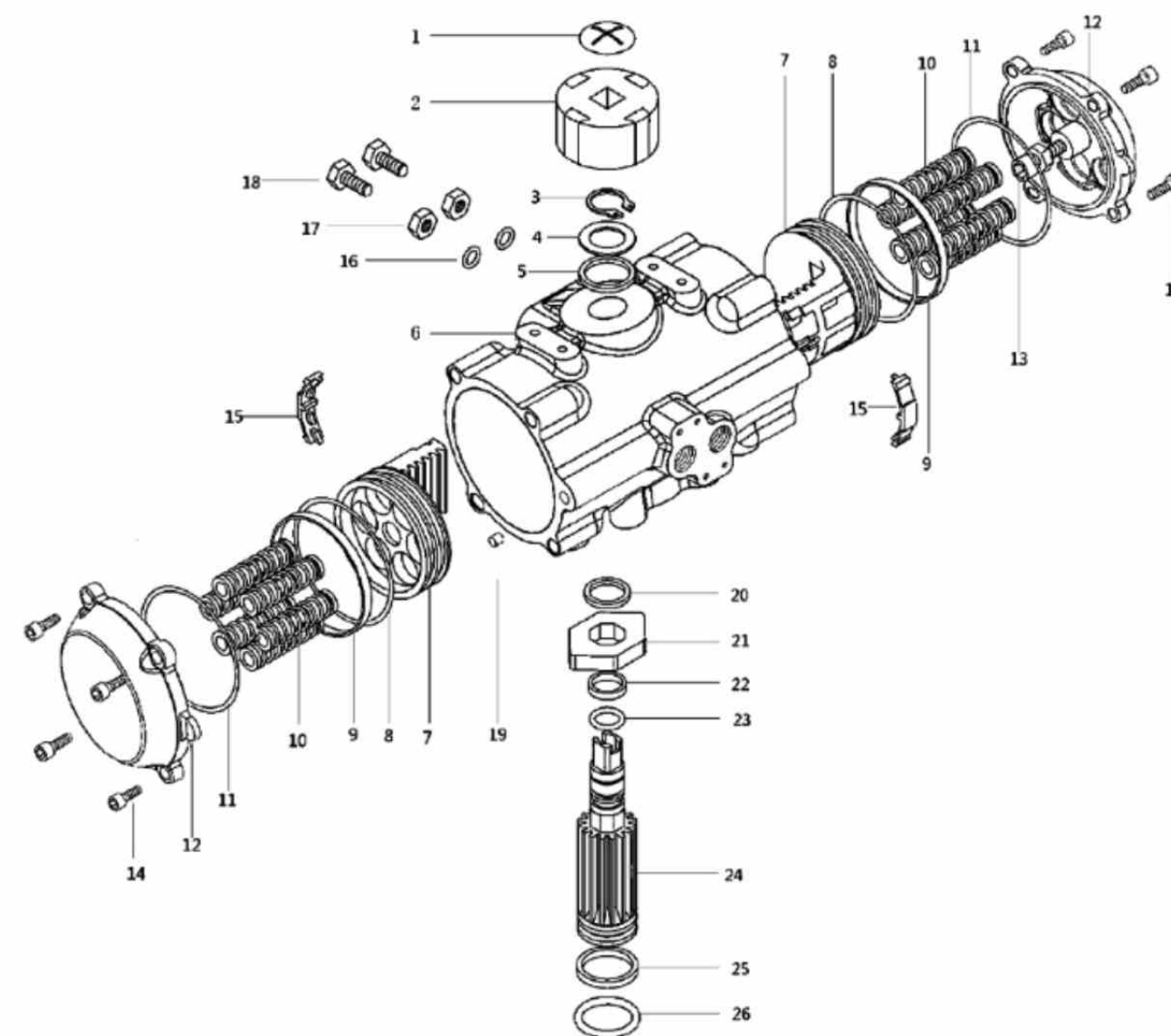


Design Features

Designing features of SK Series Pneumatic Actuator

- △ ASTM316L、316、304、303 stainless steel pneumatic actuator with electro-polish finish offer excellent resistance to most corrosive chemicals as well as industrial atmospheres.
- △ 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.
- △ The two independent external travel stop adjustment bolts can adjust $\pm 5^\circ$ at both open and close directions easily and precisely.
- △ Stainless steel fasteners for long term corrosion resistance.
- △ Full conformance to the latest specifications: ISO5211, DIN3337 and Namur or product interchangeability and easy mounting of solenoids, limit switches and other accessories.

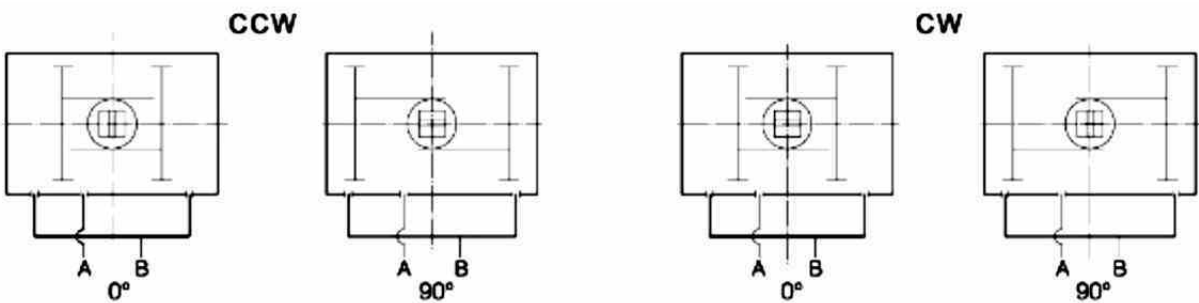
Parts and Materials



No.	Description	Qty.	Standards Material
1	Indicator Screw	1	Plastic
2	Indicator	1	Plastic
3	Snap Ring	1	Stainless steel
4	Washer	1	Stainless steel
5	Outside Washer	1	Engineering Plastics
6	Body	1	Stainless steel
7	Piston	2	Stainless steel
8	Piston O-ring	2	Viton/NBR
9	Piston Bearing	2	Engineering Plastics
10	Spring Spring Retainer(L,R) Retainer Connector	0-12	Spring Steel Nylon 66 Brass
11	End-Cap O-ring	2	Viton/NBR
12	End-Cap	2	Stainless steel
13	Stop screw	2	Stainless steel
14	End-Cap Stop Screw	8	Stainless steel
15	Guide Piston	2	Nylon 66
16	O-ring(Adjust screw)	2	NBR
17	Nut(Adjust screw)	2	Stainless steel
18	Adjust screw	2	Stainless steel
19	Plug	2	NBR
20	Inside Washer	1	Engineering Plastics
21	Cam	1	Stainless steel
22	Bearing Top	1	Engineering Plastics
23	O-ring(Top)	1	Viton/NBR
24	Pinion	1	Stainless steel
25	Bearing Bottom	1	Engineering Plastics
26	O-ring Bottom	1	Viton/NBR

Operating Principle

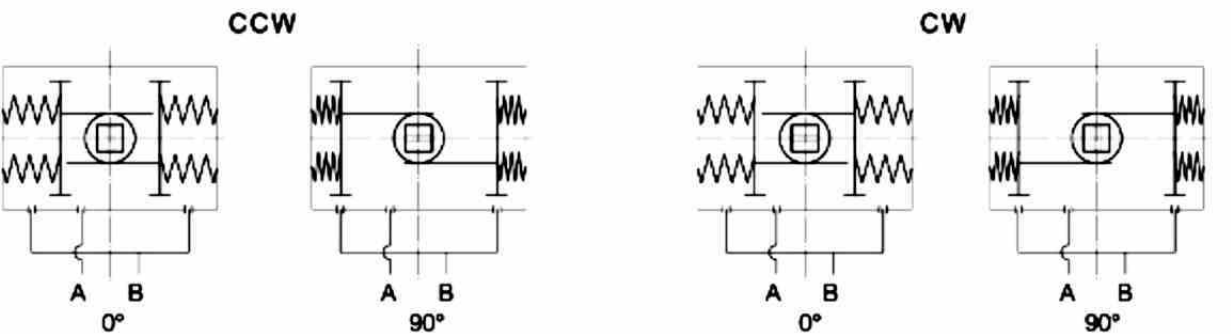
Double Acting Actuators



Air to Port A forces the pistons outwards, causing the pinion to turn counterclockwise while the air is being exhausted from Port B.
Air to Port B forces the pistons inwards, causing the pinion to turn clockwise while the air is being exhausted from Port A.

Air to Port A forces the pistons outwards, causing the pinion to turn clockwise while the air is being exhausted from Port B.
Air to Port B forces the pistons inwards, causing the pinion to turn counterclockwise while the air is being exhausted from Port A.

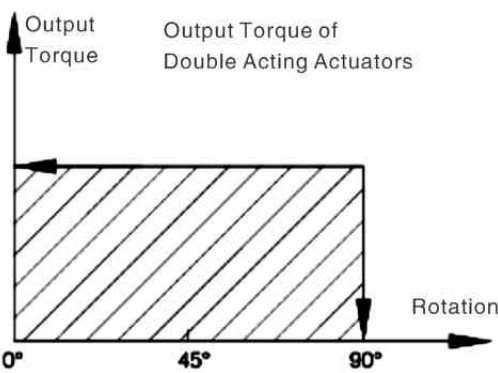
Spring Return Actuators



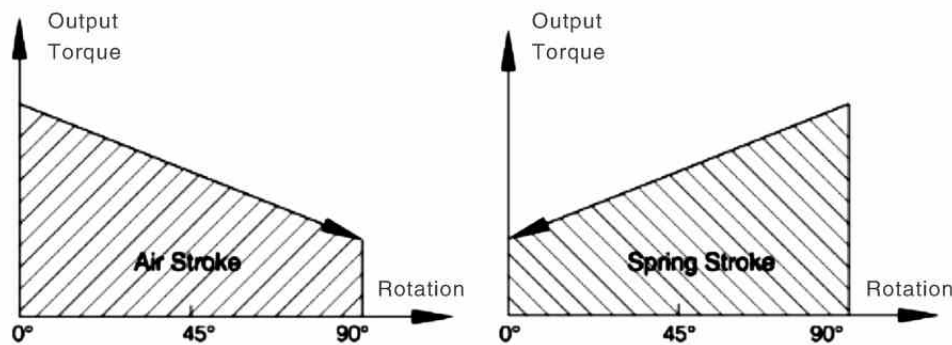
Air to port A forces the pistons outwards, causing the springs to compress. The pinion turns counterclockwise while air is being exhausted from port B.
Loss of air pressure on port A. the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A.

Air to port B forces the pistons outwards, causing the springs to compress. The pinion turns counterclockwise while air is being exhausted from port B.
Loss of air pressure on port A. the stored energy in the springs forces the pistons inwards. The pinion turns clockwise while air is being exhausted from port A.

Output Torque With Double Acting



Output Torque with Spring Return



Sizing: Spring Return Actuators

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

Example:

The torque needed by valve=100N.m

The torque considered safety factor

$(1+30\%)=130\text{N.m}$ Air Supply=5Bar

According to the above table, we can choose the minimum model is SK-105DA.

Sizing: Spring Return Actuators

The suggested safety factor for spring return actuator under normal working conditions is 30-50%

Example :

The torque needed by valve=80N.m

The torque consider safety factor $(1+30\%)=104\text{ N.m}$

Air Supply=5Bar

According to the table of spring return actuators' output,

we find output torque of SK-SR140 K7 is:

Air stroke $0^\circ=308\text{N.m}$

Air stroke $90^\circ=247\text{N.m}$

Spring stroke $90^\circ=181\text{N.m}$

Spring stroke $0^\circ=120\text{N.m}$

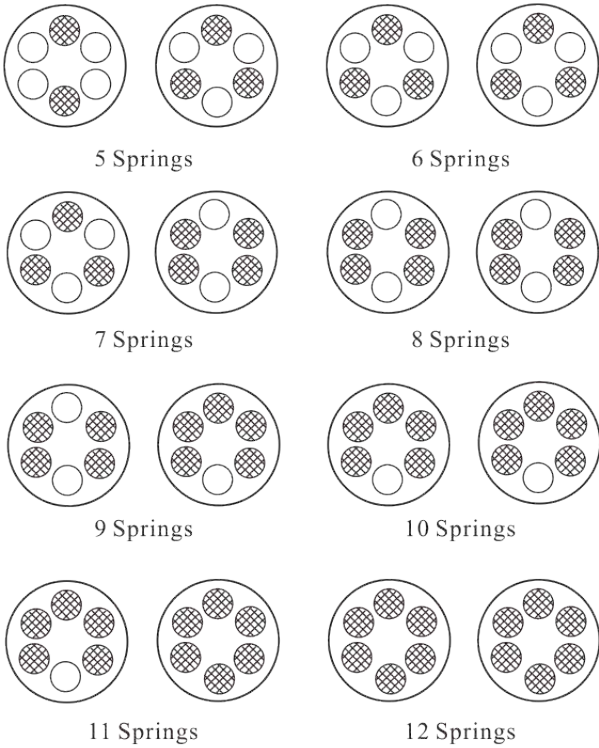
All the output torque is larger than we needed.

Attention:

During the restoration, the spring return actuators' output torque will not be affected by the inputing air from the port B. On the contrary, it will help the restoration of springs.

Model	Ari pressure(Bar)					
	3.0	4.0	5.0	6.0	7.0	8.0
SK-45DA	9.1	12.1	15.1	18.1	21.1	24.1
SK-52DA	12.0	16.0	20.0	24.0	28.0	32.0
SK-63DA	21.7	28.9	36.1	43.3	50.6	57.8
SK-83DA	42.8	57.0	71.3	85.5	99.8	114.0
SK-105DA	97.7	130.3	162.9	195.5	228.0	260.6
SK-125DA	173.3	231.0	288.8	346.5	404.3	462.0
SK-140DA	260.7	347.6	434.5	521.4	608.3	695.2
SK-160DA	397.2	529.6	662.0	794.4	926.8	1059.2
SK-190DA	640.2	853.6	1067.0	1280.4	1493.8	1707.2
SK-210DA	798.0	1064.0	1330.0	1596.0	1862.0	2128.0
SK-240DA	1154.3	1539.0	1923.8	2308.5	2693.3	3078.0
SK-270DA	1755.0	2340.0	2924.0	3510.0	4095.0	4680.0
SK-300DA	2291.4	3055.2	3819.0	4582.8	5346.6	6110.4
SK-350DA	3426.0	4568.0	5710.0	6852.0	7994.0	9136.0
SK-400DA	4872.0	6496.0	8120.0	9744.0	11368.0	12992.0

Spring mounting form for spring return actuators



During selecting the spring return actuators, we can choose the more reasonable and more economical actuators, if we know the different torque needed by the valve working at opening, operating and closing.

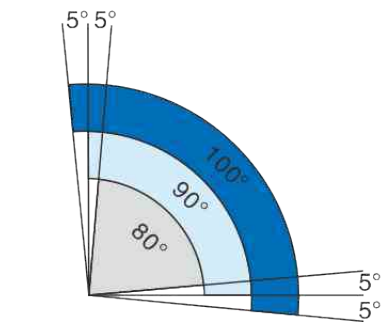
Example:
The max torque needed by the butterfly valve=104N.m
The torque after opened (operating)104x30%=32N.m
Air Supply=5Bar
We can select the RT255SR K11
output torque is:
Air stroke 0°=136N.m>104N.m
Air stroke 90°=78N.m>32N.m
Spring stroke 90°=173N.m>32N.m
Spring stroke 0°=115N.m >104N.m
The above datas show the actuator's torque can satisfy

Out Torque

SK Output Torque of ST Series Pneumatic Actuator with Spring Return																
Model	Spring Qty.	Springs' output	Air pressure(bar)													
			3		4		5		6		7		8			
SK-45SR	2	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	
		4.6	7.4	4.2	1.3	7.2	4.3	10.2	7.3							
		3	5.8	9.2			6	2.4	9	5.4	12	8.4	15	11.4	18.1	14.5
		4	7	11.1					7.8	3.5	10.8	6.5	13.8	9.5	16.9	12.6
SK-52SR	5	4.2	6.2													
		6	5.1	7.4	6.8	4.3										
		7	5.9	8.6	5.9	3	9.9	7								
		8	6.8	9.9	5	1.7	9	5.7	13.1	9.8						
		9	7.6	11.1			8.1	4.4	12.2	8.5	16.2	12.5				
SK-63SR	10	8.5	12.4			7.2	3.1	11.3	7.2	15.3	11.2	19.3	15.2	23.4	19.3	
		11	9.3	13.6					10.4	5.9	14.4	9.9	18.4	13.9	22.5	18
		12	10.1	14.8					9.5	4.6	13.5	8.6	17.5	12.6	21.6	16.7
		5	6.8	10.4												
		6	8.2	12.5	12.7	8.1										
SK-83SR	7	9.6	14.6	11.2	5.9	18.3	13									
		8	10.9	16.7	9.8	3.7	16.9	10.8	24	17.9						
		9	12.3	18.8			15.4	8.6	22.5	15.7	29.6	22.8				
		10	13.7	20.9			14	6.4	21.1	13.5	28.2	20.6	35.3	27.7	42.4	34.8
		11	15	22.9					19.7	11.3	26.8	18.4	33.9	25.5	41	32.6
SK-105SR	12	16.4	25					18.2	9.1	25.3	16.2	32.4	23.3	39.5	30.4	
		5	15.8	23												
		6	19	27.6	26.2	17.1										
		7	22.1	32.2	22.9	12.3	38.3	27.7								
		8	25.3	36.8	19.6	7.4	35	22.8	50.5	38.3						
SK-125SR	9	28.5	41.4			31.6	18	47.1	33.5	62.5	48.9					
		10	31.6	46			28.3	13.2	43.8	28.7	59.2	44.1	74.6	59.5	90	74.9
		11	34.8	50.6					40.5	23.8	55.9	39.2	71.3	54.6	86.7	70
		12	38	55.2					37.1	19	52.5	34.4	67.9	49.8	83.3	65.2
		5	31.6	49.2												
SK-140SR	6	38	59.1	58.7	36.5											
		7	44.3	68.9	52.1	26.2	85	59.1								
		8	50.6	78.7	45.4	15.8	78.3	48.7	111.1	81.5						
		9	56.6	88.6			71.7	38.4	104.5	71.2	137.4	104.1				
		10	63.3	98.4			65	28	97.8	60.8	130.7	93.7	163.6	126.6	196.5	159.5
SK-160SR	11	69.6	108.3					91.1	50.4	124	83.3	156.9	116.2	189.8	149.1	
		12	75.9	118.1					84.5	40.1	117.4	73	150.3	105.9	183.2	138.8
		5	52.4	78.4												
		6	62.8	94.1	87.9	55										
		7	73.3	109.7	76.8	38.5	127.8	89.5								
SK-160SR	8	83.8	125.4	65.8	22	116.8	73	167.8	124							
		9	94.2	141.1			105.8	56.5	156.8	107.5	208.8	159.5				
		10	104.7	156.8			94.8	40	145.8	91	197.8	143	248.8	194	299.8	245
		11	115.2	172.4					134.8	74.5	186.8	126.5	237.8	177.5	288.8	228.5
		12	125.7	188.1					123.7	58	175.7	110	226.7	161	277.7	212
SK-160SR	12	139.7	208.3													
		6	102.9	154.8	154.6	100.1										
		7	120.1	180.5	136.6	73	224.6	161								
		8	137.3	206.3	118.5	45.8	206.5	133.8	294.5	221.8						
		9	154.4	232.1			188.5	106.7	276.5	194.7	363.5	281.7				
SK-160SR	10	171.6	257.9			170.4	79.5	258.4	167.5	345.4	254.5	433.4	342.5	521.4	430.5	
		11	188.7	283.7					240.3	140.4	327.3	227.4	415.3	315.4	503.3	403.4
		12	205.9	309.5					222.3	113.2	309.3	200.2	397.3	288.2	485.3	376.2
		5	139.7	208.3												
		6	168	250	224.6	137.9										
SK-160SR	7	196	292	195.2	94	329.2	228									
		8	223	333	165.8	50.2	299.8	184.2	432.8	317.2						
		9	251	375			270.4	140.3	403.4	273.3	537.4	407.3				
		10	279	417			241	96.1	374	229.5	508	363.5	641	496.5	775	630.5
		11	307	458					344.6	185.6	478.6	319.6	611.6	452.6	745.6	586.6
SK-160SR	12	335	500					315.2	141.7	449.2	275.7	582.2	408.7	716.2	542.7	

Operating Conditions

1. Operating media: Dry or lubricated air, the non-corrosive gases or oil.
2. Air supply pressure:
Double acting: 2~8 Bar,
Spring return: 2~8 Bar
3. Operating temperature:
Standard: -20℃~+80℃
Low temperature: -40℃~+80℃
High temperature: -20℃~+150℃
4. Travel adjustment:
Have adjustment range of ± 4° for the rotation at 90°
5. Lubrication:
Under normal operation condition, need not accrete lubricant
6. Application: Either indoor or outdoor
7. Highest pressure: The maximum input pressure is 10Bar



Note
Make sure that the torque necessary to operate the valve is compatible with the actuator torque (it depends on both actuator type and air supply). Please note that the requested torque depends not only on the valve, but on the working conditions and the safety margins of the plant in question, too.



SK Output Torque of ST Series Pneumatic Actuator with Spring Return																
Model	Spring Qty.	Springs' output	Air pressure(bar)													
			3		4		5		6		7		8			
SK-190SR			Output Torque of Air to Springs (Nm)													
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	
	5	332	222	438	329	651	542									
	6	292	161	398	267	611	480	824	693							
	7	252	99	358	205	571	418	784	631							
	8				318	143	531	356	744	569	957	782	1169	995		
	9						491	295	704	507	917	720	1130	933		
	10						451	233	664	446	877	658	1090	871	1302	1084
	11								624	384	837	597	1050	809	1263	1022
SK-210SR	12							584	322	797	535	1010	748	1223	960	
	5	260	360													
	6	313	432	442	309											
	7	365	503	384	230	647	493									
	8	417	575	326	150	589	413	853	677							
	9	469	647			531	333	795	597	1058	860					
	10	521	719			473	253	737	517	1000	780	1263	1043	1526	1306	
	11	573	791					679	437	942	700	1205	963	1468	1226	
SK-240SR	12	625	863					621	357	884	620	1147	883	1410	1146	
	5	552	409	744	600	1129	985									
	6	470	297	662	489	1047	874	1432	1259							
	7	388	187	580	378	964	764	1349	1149							
	8			498	268	883	653	1267	1037	1652	1422	2037	1807			
	9					800	542	1185	926	1569	1311	1954	1696			
	10					718	431	1103	816	1488	1201	1872	1586	2257	1970	
	11							1021	705	1406	1090	1791	1474	2176	1859	
SK-270SR	12							939	594	1323	979	1708	1363	2093	1748	
	5	903	675	1195	968	11779	1552									
	6	790	519	1083	811	1667	1396	2252	1981							
	7	679	361	972	654	1556	1238	2151	1823							
	8			860	497	1444	1081	2029	1666	2614	2252	3199	2836			
	9					1332	923	1817	1509	2502	2094	3087	2678			
	10					1220	767	1805	1352	2390	1937	2974	2521	3560	3107	
	11							1693	1194	2278	1779	2862	2364	3448	2949	
SK-300SR	12							1582	1037	2167	1623	2751	2207	3336	2792	
	5	1097	729													
	6	935	494	1316	875											
	7	772	258	1153	639	1916	1402									
	8			991	403	1754	1166	2517	1929							
	9					1592	930	2355	1693	3118	2456					
	10					1430	695	2193	1458	2956	2221	3719	2984	4482	3747	
	11							2030	1222	2793	1985	3556	2748	4319	3511	
SK-350SR	12							1868	986	2631	1749	3394	2512	4157	3275	
	5	1153	964													
	6	1292	586	1863	1157											
	7	1031	208	1602	779	2745	1922									
	8			1341	401	2484	1544	3626	2686							
	9					2224	1165	3336	2307	4508	3449					
	10					1963	787	3105	1929	4247	3071	5390	4214	6532	5356	
	11							2844	1551	3986	2693	5129	3836	6271	4978	
SK-400SR	12							2584	1172	3726	2314	4869	3457	6011	4599	
	7	2028	869													
	8	1736	411	2550	1225											
	9			2259	768	3887	2396									
	10			1967	311	3595	1939	5223	3567							
	11					3303	1482	4931	3110	6559	4738					
	12					3012	1025	4640	2653	6268	4281	7895	5908	9523	7536	
	13							4348	2195	5976	3823	7603	5450	9231	7078	
	14							4057	1738	5685	3366	7312	4993	8940	6621	
15							3765	1281	5393	2909	7020	4536	8648	6164		
16									5101	2452	6728	4079	8356	5707		

Air Consumption

Air volume opening & closing

Model	Volume opening	Volume closing
SK-45DA	0.08	0.11
SK-52DA	0.11	0.14
SK-63DA	0.2	0.23
SK-83DA	0.41	0.55
SK-105DA	0.94	1.18
SK-125DA	1.47	1.85
SK-140DA	2.43	3.2
SK-160DA	3.65	5.03
SK-210DA	7.4	9.7

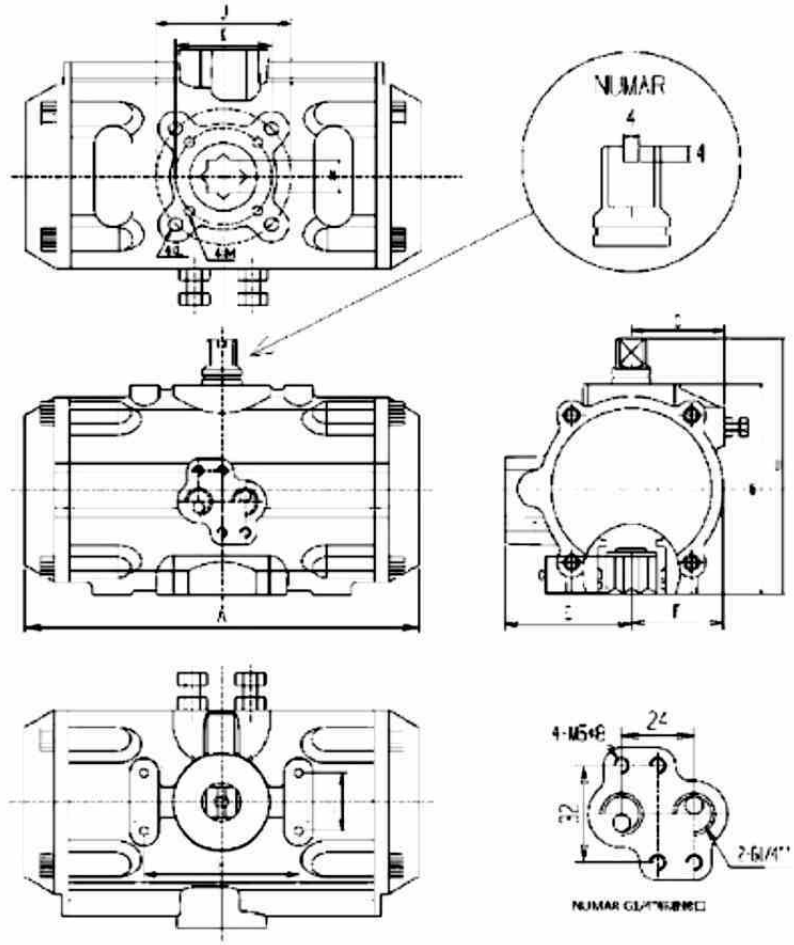
Air consumption rest with Air Supply.
Air volume and Action cycle times, expressions:
 $L/Min = \text{Air volume}(\text{Air volume Opening} + \text{Air volume closing}) * [(\text{Air Supply}(\text{Kpa}) + 101.3) + 101.3]^*$
Action cycle (times /min)

Weight Table(kg)

Model	SK-45	SK-52	SK-63	SK-83	SK-105	SK-125	SK-140	SK-160	SK-210
Weight(SR)	2.1	2.63	2.75	6.8	10.8	13.95	18.65	31.7	80.0
Weight(DA)	1.8	2.5	3.6	6.5	10.0	13.5	15.5	28	71.5

Mounting Connection and Dimension

SK Series Actuator Dimension Table



Model	A	B	C	D	E	F	G	H	I	N	J	K	L	M	Air Connection
SK-45	133	64	28	84	46	25	14	80	30	11	Φ50	Φ36	M6*10(1/4"-20UNC)	M5*7.5(#10-24UNF)	G1/4"
SK-52	146	72	30	92	47	32	14	80	30	11	Φ50	Φ36	M6*10(1/4"-20UNC)	M5*7.5(#10-24UNF)	G1/4"
SK-63	173	88	36	108	54	38	18	80	30	14	Φ70	Φ50	M8*13(5/16"-18UNC)	M6*10(1/4"-20UNC)	G1/4"
SK-83	204	108	48	128	65.5	48	21	80	30	17	Φ70	Φ50	M8*13(5/16"-18UNC)	M6*10(1/4"-20UNC)	G1/4"
SK-105	270	133	50	153	77	60	26	80	30	22	Φ102	Φ70	M10*16(3/8"-16UNC)	M8*13(5/16"-18UNC)	G1/4"
SK-125	302	155	58	175	87	69.5	27.5	80	30	22	Φ102	Φ70	M10*16(3/8"-16UNC)	M8*13(5/16"-18UNC)	G1/4"
SK-140	394	172	69	192	95.5	77	32	80	30	27	Φ125	Φ102	M12*20(1/2"-12UNC)	M10*16(3/8"-16UNC)	G1/4"
SK-160	456	198	75	218	106	87	34	80	30	27	Φ125	Φ102	M12*20(1/2"-12UNC)	M10*16(3/8"-16UNC)	G1/4"
SK-210	568	257	90	287	133	113	40	130	30	36	Φ140		M16*24(5/8"-11UNC)		G1/4"
SK-300	766	355	144	382	194	165	50	130	30	46	Φ165		M20*25		G1/2"

■ Mounting Standard



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



The NAMUR drive pinion and the NAMUR 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.

■ Our Products



Manual Gear Operators

The gear operators are used in petroleum, chemical, pharmaceutical, water treatment, power plants, nuclear power and other places, for 90 degrees open ball valves, butterfly valves, plug valves and other valves supporting the use of the company's supply of valve turbine box can also be used according to customer requirements on the product speed ratio, use temperature, protection level, anti-corrosion level. Adjust customization.

Aluminum Precision casting aluminum alloy box, the operators are painted and any bare metal surfaces are treated to resist corrosion.

The main purpose of the product

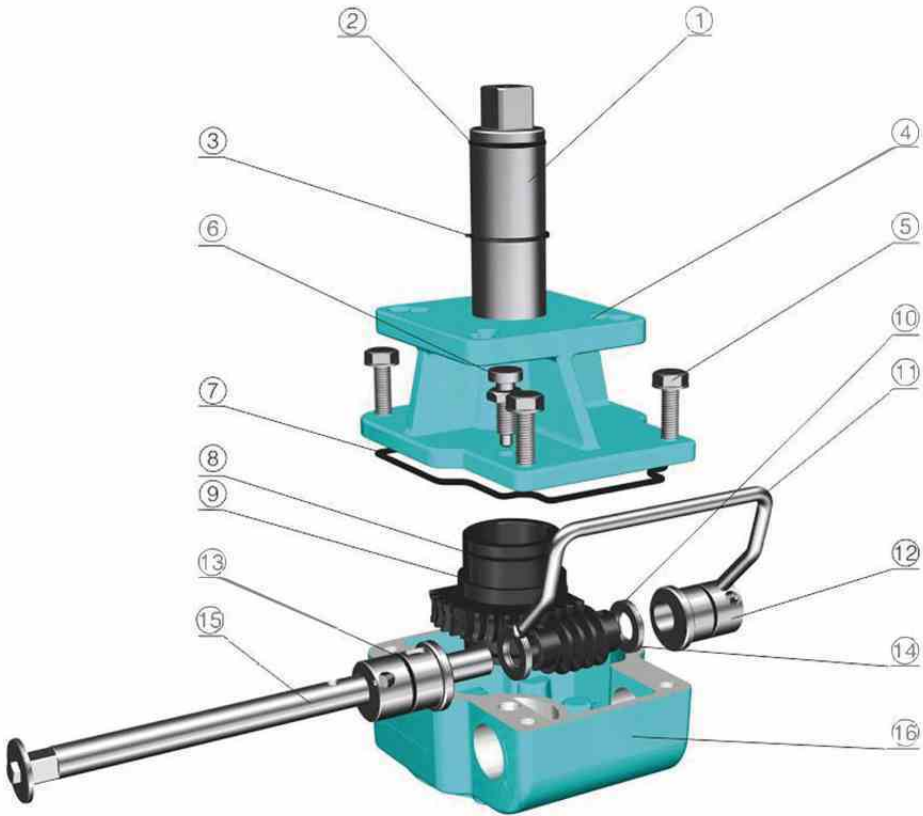
The manual gear operators combined with the pneumatic actuator assembly to realize manual or pneumatic drive for butterfly valves, ball valves, etc. which are opened at 90° degrees.

Features

- 1. Small size, light weight;
- 2. Product series, output torque matches with pneumatic devices and various valves.
- 3. The inner hole of the turbine connection has two key grooves separated by 90°, and the user can choose the relative position of the device and the valve according to the needs,
- 4. Lift the limit pull ring, rotate the 90° limit pin of the eccentric device to automatically limit the position, realize pneumatic, otherwise realize manual.
- 5. The product has lubricating grease after assembly and tested. After being assembled with the valve, it is integrally sealed, dustproof, waterproof, and the protection grades are IP65, IP67, and IP68 optional.

Technical parameters

Gear operator type	Adapt double acting type	Adapt single acting type	Speed ratio	Output torque
SD-1	DA52-92	SR52-75	26:1	180
SD-2	DA105	SR83-92	28:1	320
SD-3	DA125-140	SR105-125	38:1	680
SD-4	DA160-190	SR40-160	54:1	1200
SD-5	DA210-240	SR190-210	80:1	2100
SD-6	DA240-270	SR240	78:1	3000
SD-7	DA300	SR270	98:1	3800



Main components and materials

No.	Name	Material Science	No.	Name	Material Science
1	Drive spindle	Alloy steel	9	Worm gear	Spheroidal graphite castiron
2	Seal ring	Nitrile rubber	10	Plane bearing	Alloy steel
3	Reed spring	Stainless steel(304)	11	Handle	Stainless steel(304)
4	Upper cover	Aluminium alloy	12	Eccentric sleeve	Alloy steel
5	A fastening	Stainless steel(304)	13	Seal ring	Nitrile rubber
6	Positioning pin	Alloy steel	14	Worm	Alloy steel
7	Seal ring	Nitrile rubber	15	Transmission rod	Alloy steel
8	Seal ring	Nitrile rubber	16	Box	Aluminium alloy

Valve Position Monitor Manual

APL series limit switch box is designed to provide accurate and reliable valve position signaling and indicating of most valves or actuators manufactured.

1.Ordering Information

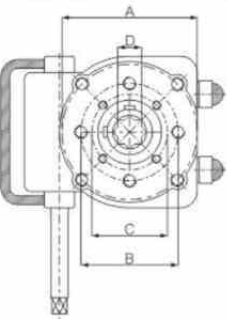
APL— 2 1 0 N
① ② ③

- ① Enclosure type
- 2 : Weather proof
- ② Switch type
- 10 : 2-SPDT (V-152 -1C25)
 - 13 : 2-SPST (V-152 -1C25)
 - 20 : Proximity Sensor (P&F : NJ2-V3 -N)
 - 23 : Proximity Sensor (P&F : NBB2-V3)
- ③ Enclosure Material
- N : Aluminum Die-casting

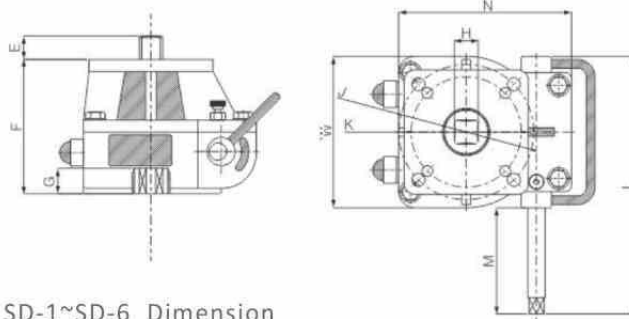
2.Standard specification

Model	APL-2..N
Enclosure Rated	Weatherproof : IP67/NEMA4&4X (Standard) IP68 (Option)
Enclosure	High grade aluminum alloy
Ambient Temperature	-20 °C ~ + 80 °C
Conduit Entries	Standard: Two 1/2 " NPT, Option : PF 1/2"PT, 1/2" M20 , PG13.5
Travel Angle	90 degree ± 10%
Position Indicator	Open : Yellow, Close : Red
	Language : English (option : French, German)
Switch	Mechanical switch: ZINGEAR/ Omron
	Proximity sensor : P&F
Terminal Strip	8 point (option : 9~14P)
External Coating	Thermally hardened polyester powder coating , KARUMEX PX8576

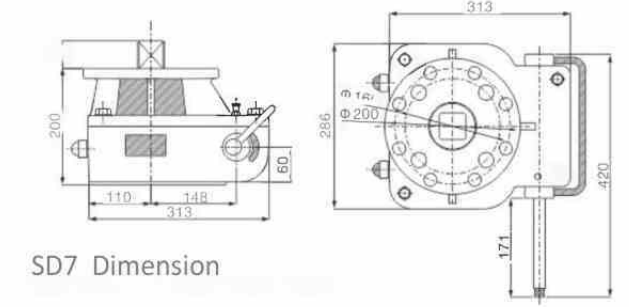
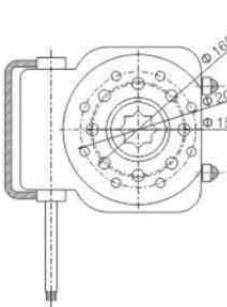
Valve connection dimension drawing



Actuator connection dimension drawing



SD-1~SD-6 Dimension



SD7 Dimension

SD series pneumatic valve manual gear operator connection dimension table

Type	SD-01	SD-02	SD-03	SD-04	SD-05	SD-06	SD-07
A	F07	F10	F12	F14	F14	F16	F16
B	Φ57	Φ70	Φ89	Φ108	Φ108	Φ159	Φ159
C	F05	F07	F07/F10	F10/F12			
D	14*14	17*17	22*22	27*27	36*36	46*46	46*46
E	16	18	22	30	40	50	51
F	105	113	130	165	177	199	200
G	22	22	28	32	45	53	53
H	14*14	17*17	22*22	27*27	36*36	46*46	46*46
N	115	135	160	200	244	280	315
W	89.5	125	140	187	220	250	286
J	F07	F10	F12	F14	F16	F16	F16
K	F05	F07	F07/F10	F10/F12	F14		
L	180	220	247	330	370	...	420
M	71	91	...	147.8	...	158	171
Hand wheel diameter	Φ180	Φ200	Φ280	Φ320	Φ400	Φ500	Φ600
weight(kg)	3	4.5	7	13.7	20	30	38

Limit switch Box

BITEBI®

APL210N , APL410N

3.Mounting bracket

There are two options for the bracket: carbon steel bracket; 304 stainless steel bracket.

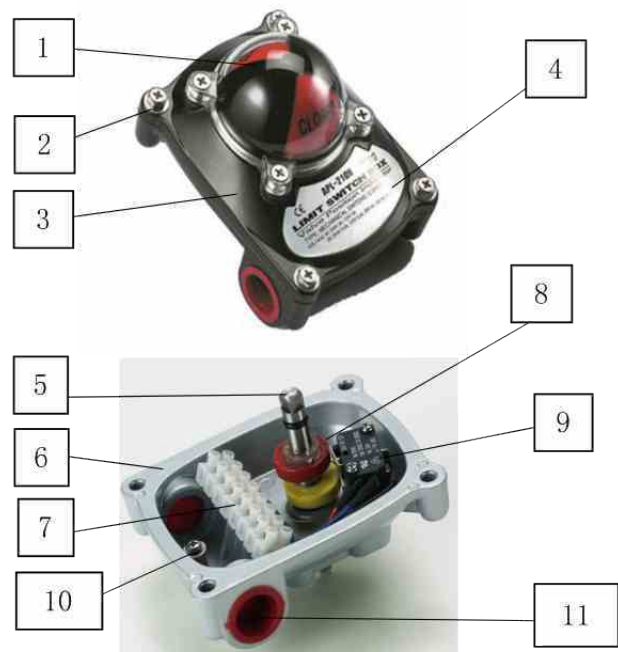


4.Waterproof connector

Free dust cover and cable joint;
A: able waterproof joint;
B: bellows joint;
If there is no description, the A connector will be sent by default.



5.Standard Features



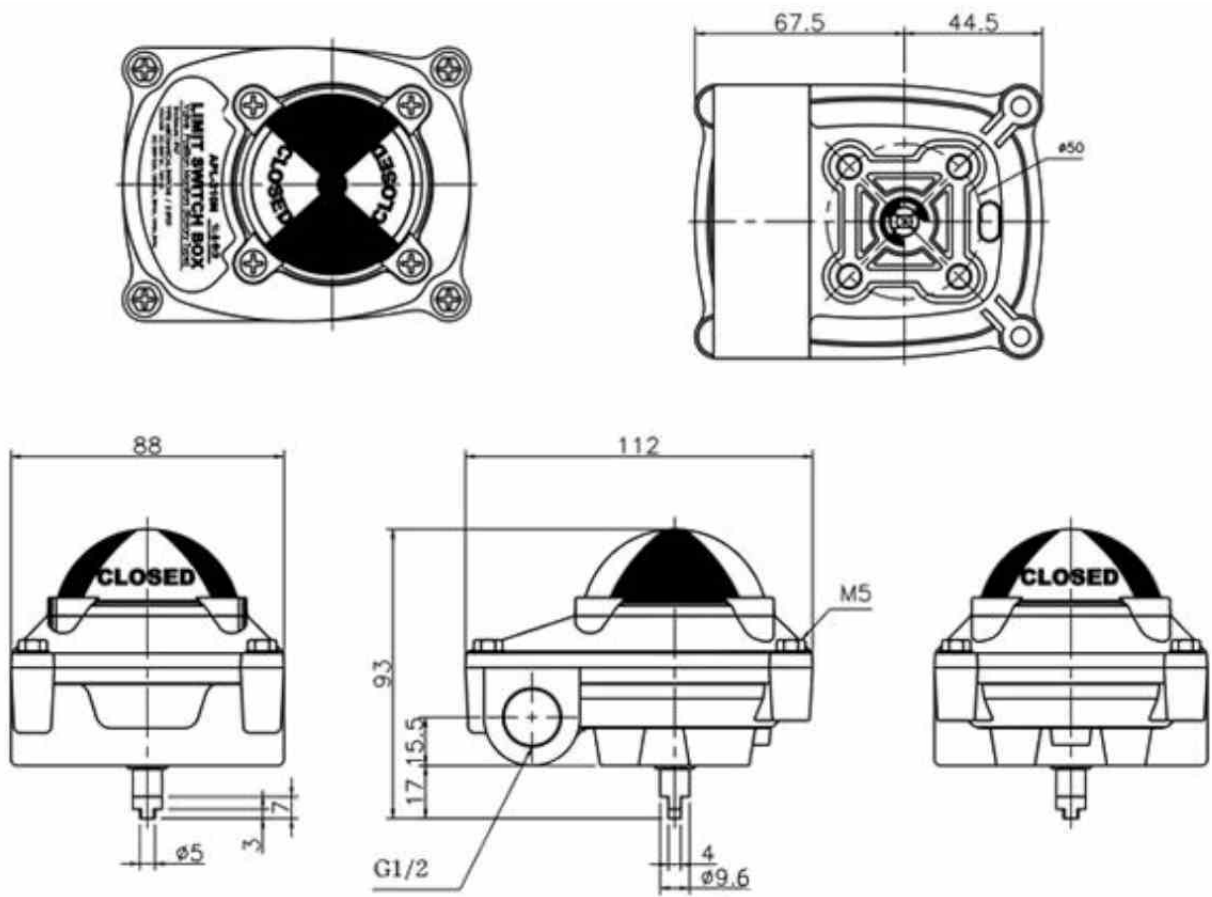
No.	Part Name	Q' t	Description
1	Window/Indicator	1	PC/ABS
2	Captive Cover Bolt	4	Stainless steel
3	Cover	1	Stainless steel
4	Name Plate	1	Sticker
5	Shaft	1	Stainless steel
6	Body	1	Aluminum Die casting
7	Terminal Strip	2	8P(9~14P available)
8	Cam	1	PC
9	Limit Switch	1	Mechanical or Proximity type
10	Earth Lug	1	Stainless steel
11	Blanking Element	2	PC

Limit switch Box

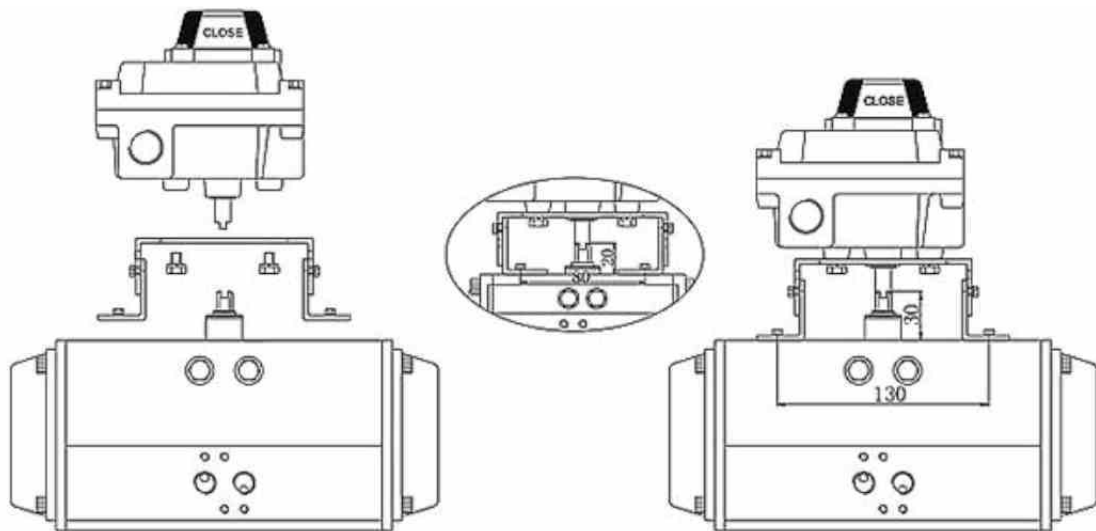
BITEBI®

APL210N , APL410N

Size:



6.Installation



7.Setting cam

The color of cams harmonized with position indicator help us to set the cams easily without wiring diagram. Cams shall be easily set without tool. APL series cams are splined and can be setting lift up or push down the cam from gear by hand in a seconds without setting tools. Self-locking, spring loading make never slip out of adjustment.

Note :

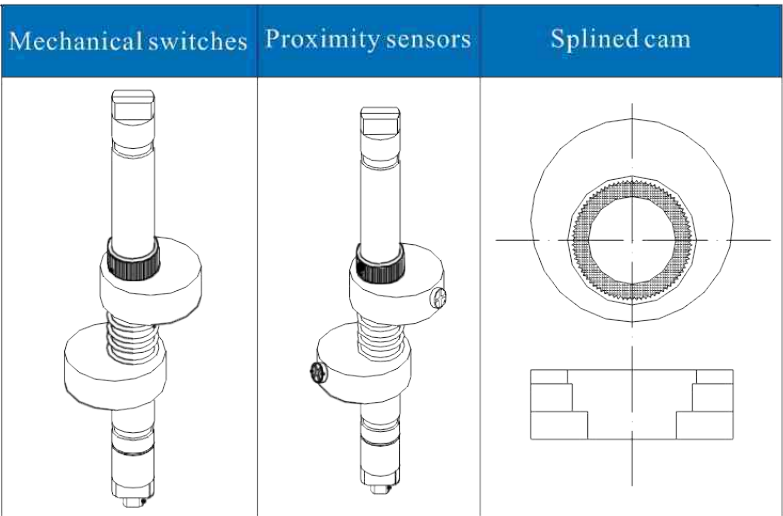
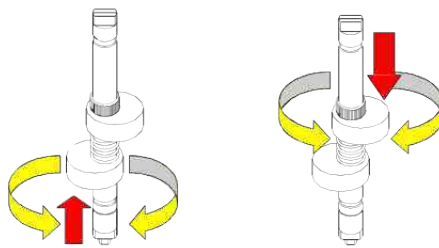
- Basically, cams shall be set by manufacturer before shipment.
- Un-tighten the captive cover bolts with an applicable tool. (Spanner. + Driver recommended)
- Remove the cover carefully.

Open cam setting

1. Electric power or air supply of valve actuator to operate the actuator fully open
2. Lift the bottom yellow cam up and rotate it until the switch is activated.
3. And then release it. Cam shall be back into a stable position by itself.

Close cam setting

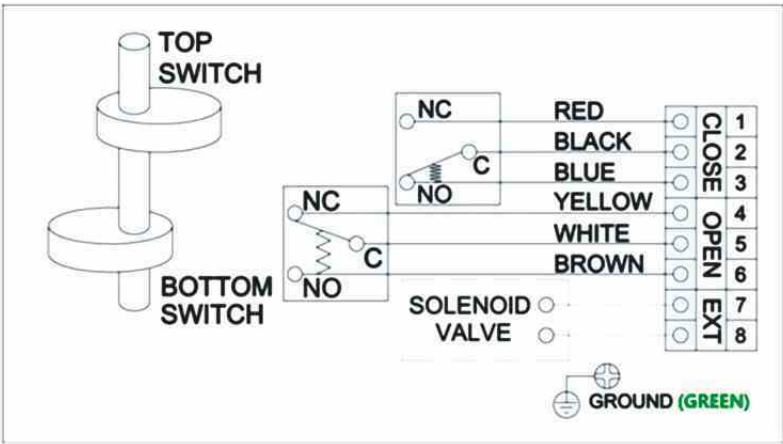
1. Electric power or air supply of valve actuator off to operate the actuator fully close
2. Push the upper cam down and rotate it until the switch is activated.
3. And then release it. Cam shall be back into a stable position by itself.



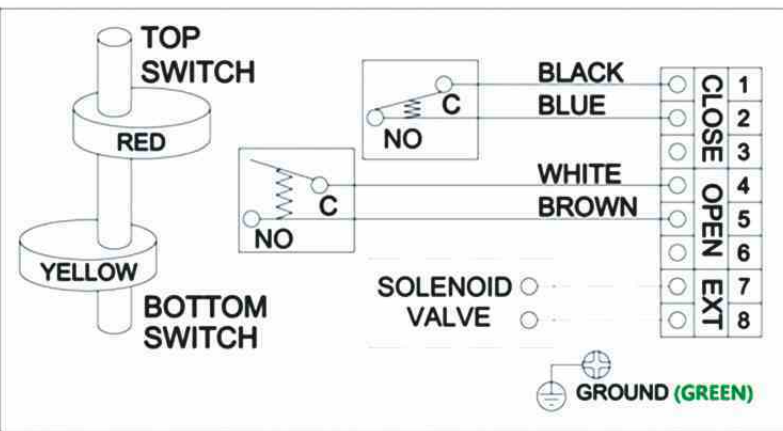
8. Wiring diagram

APL limit switch box enclosure feature prewired switches. All user connections are made at a numbered terminal strip. A wiring diagram, located inside the cover, indicates which terminal numbers correspond to switch contacts, such as normally open (NO), normally closed (NC), etc. Follow the wiring diagram and electrical code to connect the switches to your system. Solenoid valve may also be wired through the APL enclosure. Two auxiliary terminals are included as standard. APL limit switch box has two cable entries on the body and supply a blanking plug not a cable gland which meet the type of protection. Cable gland shall be applied by installer or user.

MECHANICAL SWITCH(2 SPDT)



MECHANICAL SWITCH(2 SPST)



Note : Grounding should be connected until all wiring have been completely.

9. APL-2N Series, optional list

No.	Model	Configuration parameter
1	APL-210N Standard Type	2SPDT mechanical switches, carbon steel bracket
2	APL-210N Silver contact switch	2SPDT mechanical switches, carbon steel bracket
3	APL-210N High configuration	2SPDT Omron mechanical switches, 304 stainless steel bracket
4	APL-220N 2-Wire NC/NO	proximity switch; 2-wire NO / NC; 3-wire NPN / PNP proximity switch
5	APL-220N 2-Wire NC 8.2VDC	proximity switch
6	APL-220N P+F NJ2-V3-N NC 8.2V	P+F brand proximity switch, NJ2-V3-N
7	APL-223N P+F NBB2-V3	P+F brand proximity switch, NBB2-V3
8	APL-211N	3 SPDT mechanical switches
9	APL-212N	4 SPDT mechanical switches
10	APL-213N	2SPST mechanical switches
11	APL-214N	2DPDT mechanical switches
12	APL-221N	PS17-5DNU proximity switch

Limit switch Box



APL210N , APL410N

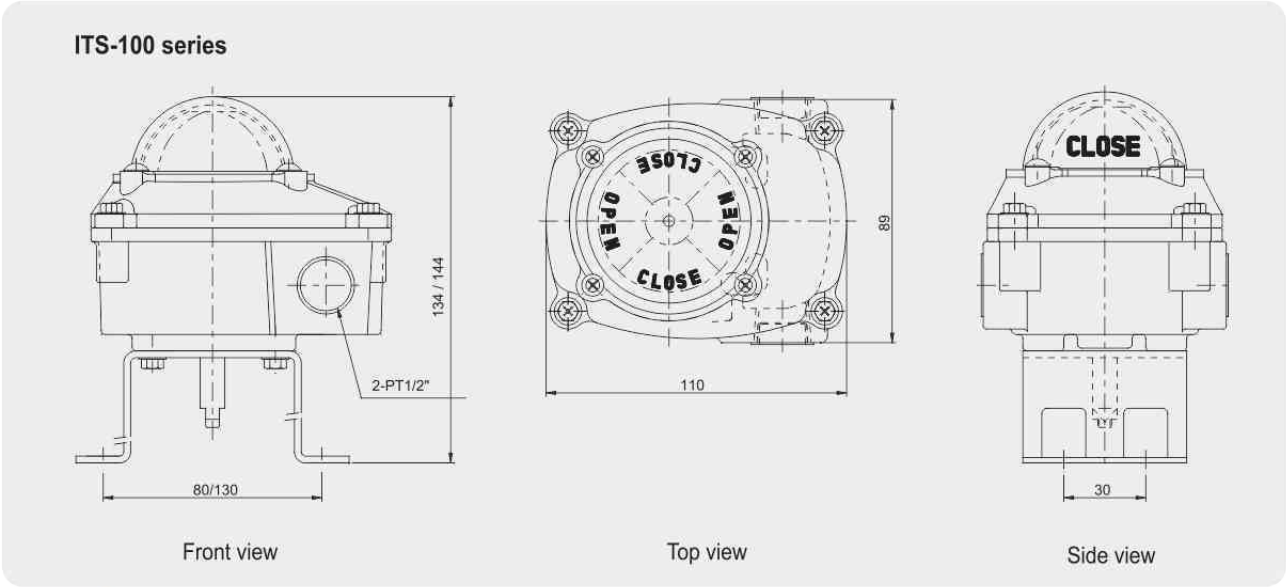


ITS series limit switch box are primary a rotary position indication device designed to integrate valve and NAMUR rotary pneumatic actuator with a variety of mounting options, internal switches or sensors and configurations.

ITS100 series are specially designed suitable for small size

SPECIFICATION	ITS100	ITS300
Enclosure Exclusion Proof	Weather proof IP67, O–ring sealed	Ex d IIB T6, IP67, O–ring sealed
Outside coating	Epoxy–Polyester inside and outside against corrosion	Nylon Coating Special color Coating
Ambient temperature	–20℃~+80℃	Higher(~+100℃) and lower (–40℃~) temperature
Cable entries	2 – PT1/2", other standard threads	(NPT1/2", PF1/2", M20x1.5 and PG13.5)
Terminal block	8 nos of terminal strips (6 for switches, 2 for solenoid valve power)	
Position indicator	Dome type 0° ~90°	0° ~180° Others
Mounting bracket	Stainless steel acc. to VDI/VDE3845, NAMUR,	
Switches(Sensors)	2–SPDT mechanical switch(Form C) as standard	Proximity sensors(Autonics), Others

DIMENSION



Limit switch Box



ITS-100, ITS-300, ITS-500

Rigid and compact design constructed from aluminum alloy die-casting capable of operating even in arduous conditions

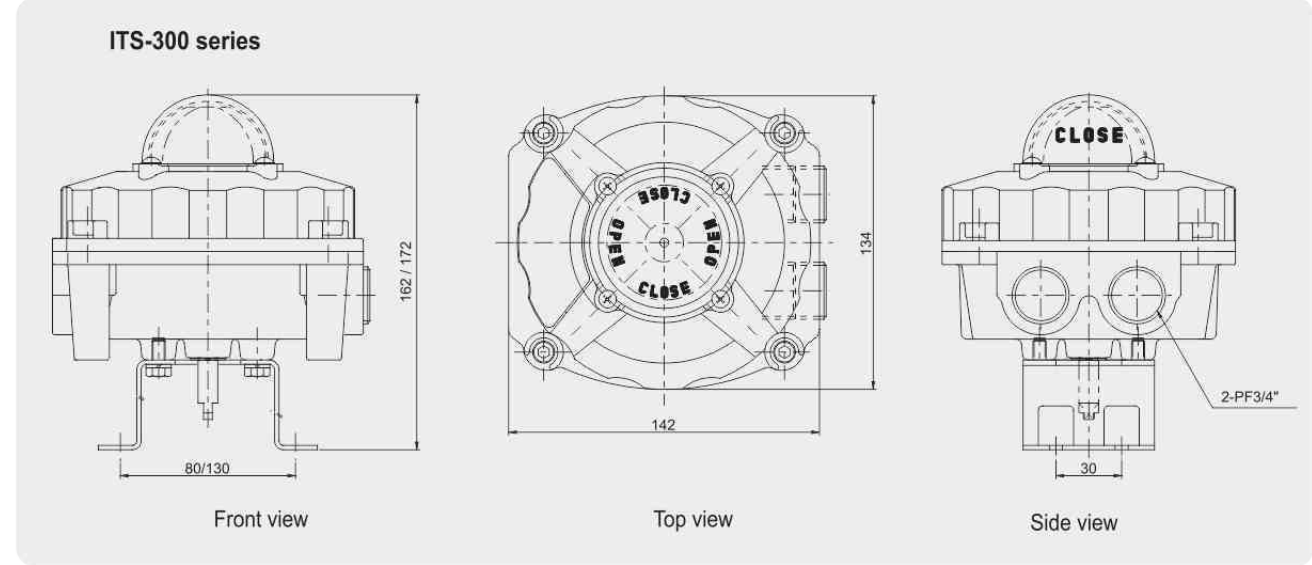
ITS-300 series

ITS 300 series are designed suitable for valve and actuators in hazardous area application, having compact but robust construction conforms to EN50014 and 50018, also suitable in Zone 1 and 2, and ingress protection IP67
Standard aluminum housing provides reliable explosion proof performance.



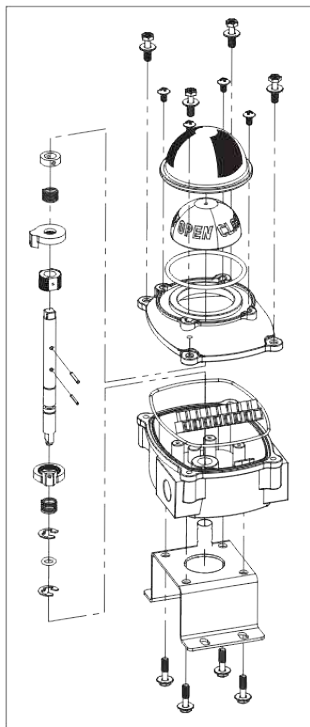
SPECIFICATION	Standard	Option
Enclosure	Explosion proof Ex d IIB T6, IP67, O–ring sealed	IP 68
Outside coating	Epoxy–Polyester outside against corrosion	Nylon Coating Special color Coating
Ambient temperature	–20℃~+80℃	Higher(~100℃) and lower (–40℃~) temperature
Cable entries	2 – PF3/4", other standard threads	(NPT3/4", PF3/4", M25x1.5)
Terminal block	8 nos of terminal strips (6 for switches, 2 for solenoid valve power)	
Position indicator	Dome type 0° ~90°	0° ~180° Others
Mounting bracket	Stainless steel acc. to VDI/VDE3845 NAMUR,	
Switches(Sensors)	2–SPDT mechanical switch(Form C)	Proximity sensors Others

DIMENSION



CONSTRUCTION MATERIAL

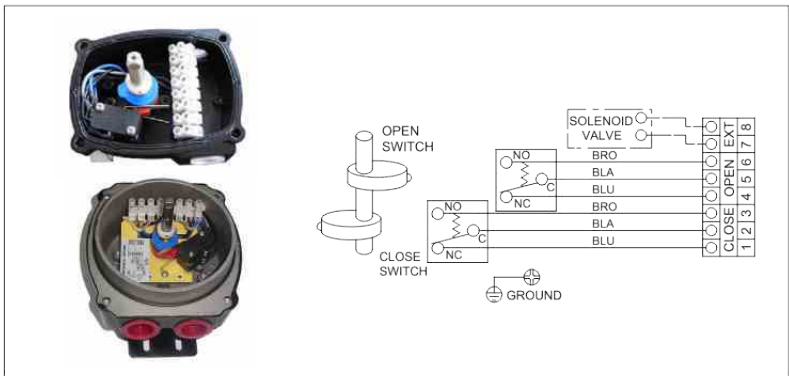
Housing	Low cooper aluminum die-casting
Coating	Epoxy-Polyester
Sealing	NBR O-rings
Cams	Poly-carbonate
Shaft	Stainless steel
Bolts	Stainless steel
Mounting bracket	Stainless steel(A\ B\ C) steel on suface with Epoxy-polyester(D)



Mechanical switches

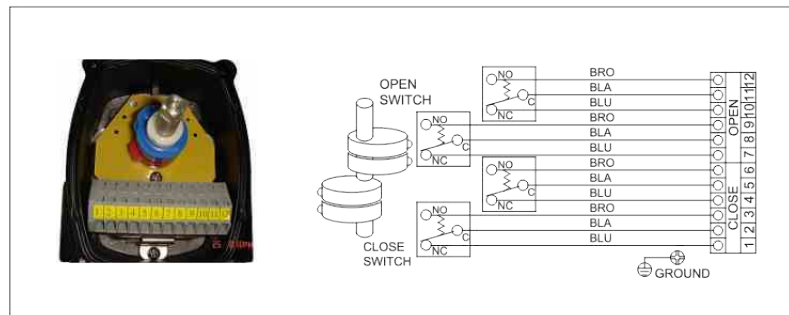
2-SPDT switches

Rating : 16A 1/2HP 125/250V AC,
0.6A 125V DC
0.3A 250V DC
approved by UL, CSA



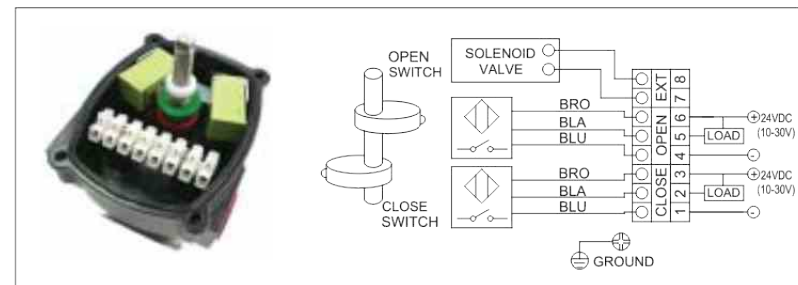
4-SPDT switches

Rating : 5A 125 V AC
3A 125 V AC
0.6A 125 V DC
approved by UL, CSA



Proximity Sensors

Autonics sensors
PS17-5DNU(NPN, PNP)
Voltage rating : 10~30V DC
Sensing distance : 5mm
Ambient temperature : -25℃~+70℃



Mounting bracket(Acc. to VDI/VDE3845)

	A		
	B		
	C		
	D	30 x 80 x 20(H), 30 x 80 x 30(H) 30 x 130 x 20(H), 30 x 130 x 30(H)	

H:Height of actuator output shaft

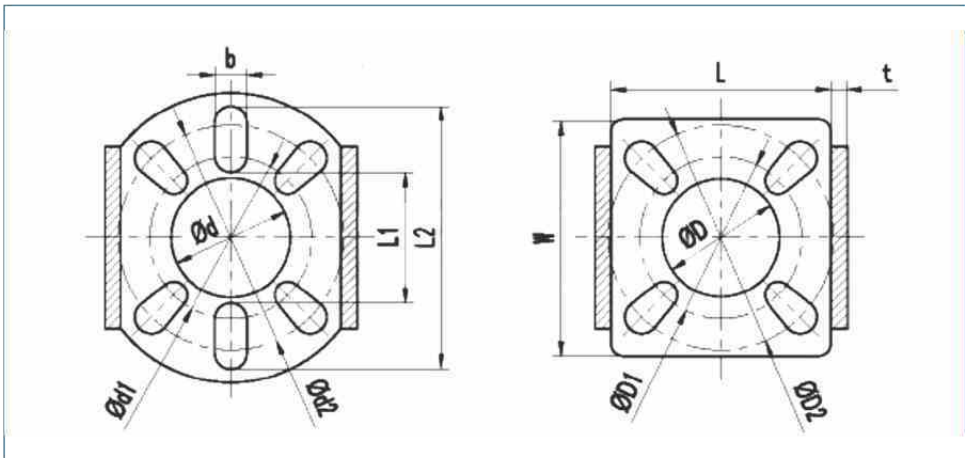
Model number Legend

ITS	1	0	0	bracket
	1: Weather proof	0: Mechanical switches	0 : 2 - SPDT 1 : 4 - SPDT 2 : 2 - SPST	A B C D
	3: Explosion proof	1 : Proximity sensors	0 : Autonics(PS17-5DNU) S: Other type sensors	



Material	Q235 steel plate;
Application	Mainly used for the installation and connection of valve bodies and actuators;
Features	Supplied as finished products and can be installed directly;
Surface Treatment	Shot blasting + spray molding;
Precautions	1.Screws at the valve end and actuator end should be installed in the outer ring screw holes of the bracket as much as possible; 2.For Q41 type ball valves, if the valve end is installed with gland screws, ensure that the screw diameter matches the size b. If the gap is too large, it is easy to cause swinging; 3.Select according to the actual opening and closing torque of the valve; 4.Pay attention to protecting the surface coating to avoid coating damage.

Drawing



Core Dimensions
Q41 type ball valve: b, L1, L2; High platform ball valve: d1, d2; Actuator end: D1, D2; Bracket height: The height H should be considered comprehensively based on the connecting shaft and the valve shaft. Generally, it is advisable to ensure that the upper end of the connecting shaft cylinder is 1-3mm lower than the upper plane of the bracket.

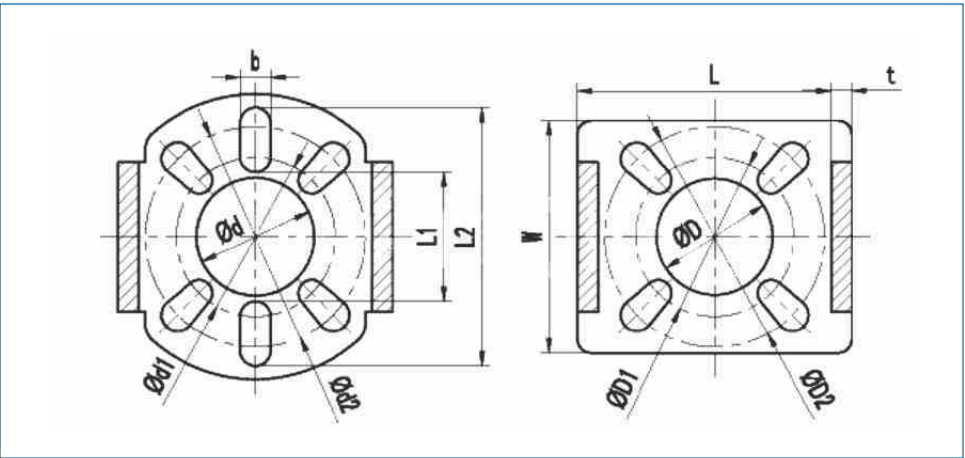
Product Dimension

Code	Size	Thickness t	Valve connection						Actuator connection			Dimension			Flange	Weight kg
			d1	d2	L1	L2	b	d	D1	D2	D	H	W	L		
1#	DN15-25	4	38	50	32	58	8	25	32	50	25	48	52	54	F03-05	0.22
1.5#	DN32	4	45	60	35	66	10	28	45	60	29	54	58	56	F05	0.28
2#A	DN40-50	4	50	70	39	79	10	32	50	70	34	62	71	72	F05-07	0.41
2#B	DN40-50	3.5	50	70	39	79	10	32	50	70	34	62	71	72	F05-07	0.35
2.5#	DN65	5	60	74	48	86	12	39	/	70	39	67	72	72	F07	0.47
3#A	DN65-100	5	68	102	48	101	13	42	70	102	49	73	96	91	F07-10	0.82
3#B	DN65-100	4.5	65	89	48	101	13	43	70	102	42	73	96	91	F07-10	0.74
4#A	DN125-150	6	80	125	67	122	15	57	102	140	79	90	133	128	F10-14	1.48
4#B	DN125-150	6	80	110	66	122	15	56	102	140	65	90	131	128	F10-14	1.48
4.5#W	DN150	6/8	80	110	67	122	14	57	102	140	61	100	131	140	F10-14	1.88
5#W	DN200	8/10	94	130	78	148	17	66	102	165	66	103	150	155	F10-16	2.7



Material	Q235 steel plate;
Application	Mainly used for the installation and connection of valve bodies and actuators;
Features	Thickened, high-strength, supplied as finished products and can be installed directly;
Surface Treatment	Shot blasting + spray molding;
Precautions	1.Screws at the valve end and actuator end should be installed in the outer ring screw holes of the bracket as much as possible; 2.For Q41 type ball valves, if the valve end is installed with gland screws, ensure that the screw diameter matches the size b. If the gap is too large, it is easy to cause swinging; 3.Select according to the actual opening and closing torque of the valve; 4.Pay attention to protecting the surface coating to avoid coating damage.

Drawing



Core Dimensions
Q41 type ball valve: b, L1, L2; High platform ball valve: d1, d2; Actuator end: D1, D2; Bracket height: The height H should be considered comprehensively based on the connecting shaft and the valve shaft. Generally, it is advisable to ensure that the upper end of the connecting shaft cylinder is 1-3mm lower than the upper plane of the bracket.

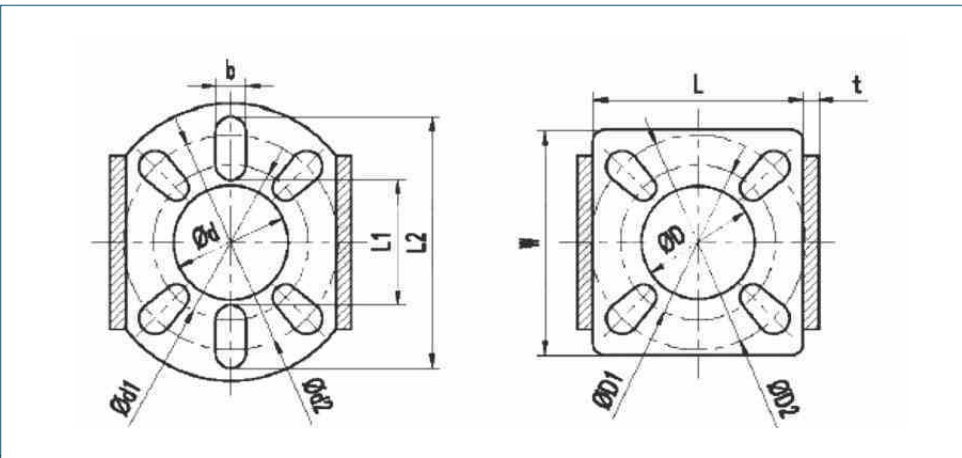
Product Dimension

Code	Size	Thickness t	Valve connection						Actuator connection			Dimension			Flange	Weight kg
			d1	d2	L1	L2	b	d	D1	D2	D	H	W	L		
1#	DN15-25	5/4	38	50	32	58	8	25	36	50	25	48	50	62	F03-05	0.26
2#	DN40-50	5	50	70	39	80	10	33	50	70	34	62	71	86	F05-07	0.56
3#	DN65-100	6	70	102	49	104	13	44	70	102	51	73	94	107	F07-10	1.0
4#	DN125-150	8	80	125	66	124	15	55	102	140	64	90	133	146	F10-14	2.08



Material	304 steel plate;
Application	Mainly used for the installation and connection of valve bodies and actuators;
Features	Corrosion-resistant, supplied as finished products and can be installed directly;
Surface Treatment	Fine shot blasting + pickling and whitening;
Precautions	1.Screws at the valve end and actuator end should be installed in the outer ring screw holes of the bracket as much as possible; 2.For Q41 type ball valves, if the valve end is installed with gland screws, ensure that the screw diameter matches the size b. If the gap is too large, it is easy to cause swinging; 3.Select according to the actual opening and closing torque of the valve.

Drawing



Core Dimensions
Q41 type ball valve: b, L1, L2; High platform ball valve: d1, d2; Actuator end: D1, D2; Bracket height: The height H should be considered comprehensively based on the connecting shaft and the valve shaft. Generally, it is advisable to ensure that the upper end of the connecting shaft cylinder is 1-3mm lower than the upper plane of the bracket.

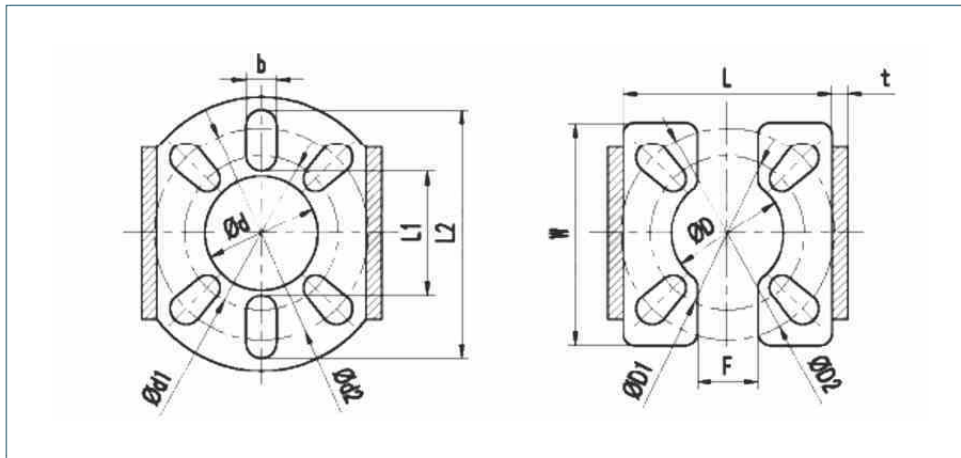
Product Dimension

Code	Size	Thickness t	Valve connection						Actuator connection			Dimension			Flange	Weight kg
			d1	d2	L1	L2	b	d	D1	D2	D	H	W	L		
1#	DN15-25	4	38	50	32	58	8.3	26	36	50	26	48	51	51	F03-05	0.22
1.5#	DN32	4	42	60	35	67	10.1	28	44	60	30	54	58	56	F05	0.28
2#	DN40-50	4	50	70	42	80	10.3	35	50	70	33	62	71	71	F05-07	0.42
2#A	DN65	4	54	70	42	82	12.2	35	50	70	33	62	71	71	F05-07	0.42
2.5#	DN65	5	50	72	48	88	12.2	38	50	70	38	66	72	72	F05-07	0.485
3#A	DN65-100	5	65	102	49	104	12.5	44	70	102	44	73	95	95	F07-10	0.84
3#B	DN65-100	5	65	90	49	104	12.5	44	70	102	44	73	95	92	F07-10	0.81
4#	DN100-150	6	80	125	64	122	14.3	58	102	140	72	90	132	132	F10-14	1.6



Material	304 steel plate;
Application	Mainly used for the installation and connection of valve bodies and actuators;
Features	Corrosion-resistant, supplied as finished products and can be installed directly;
Surface Treatment	Fine shot blasting + pickling and whitening;
Precautions	1.Screws at the valve end and actuator end should be installed in the outer ring screw holes of the bracket as much as possible; 2.For Q41 type ball valves, if the valve end is installed with gland screws, ensure that the screw diameter matches the size b. If the gap is too large, it is easy to cause swinging; 3.Select according to the actual opening and closing torque of the valve.

Drawing



Core Dimensions
Q41 type ball valve: b, L1, L2; High platform ball valve: d1, d2; Actuator end: D1, D2; Bracket height: The height H should be considered comprehensively based on the connecting shaft and the valve shaft. Generally, it is advisable to ensure that the upper end of the connecting shaft cylinder is 1-3mm lower than the upper plane of the bracket.

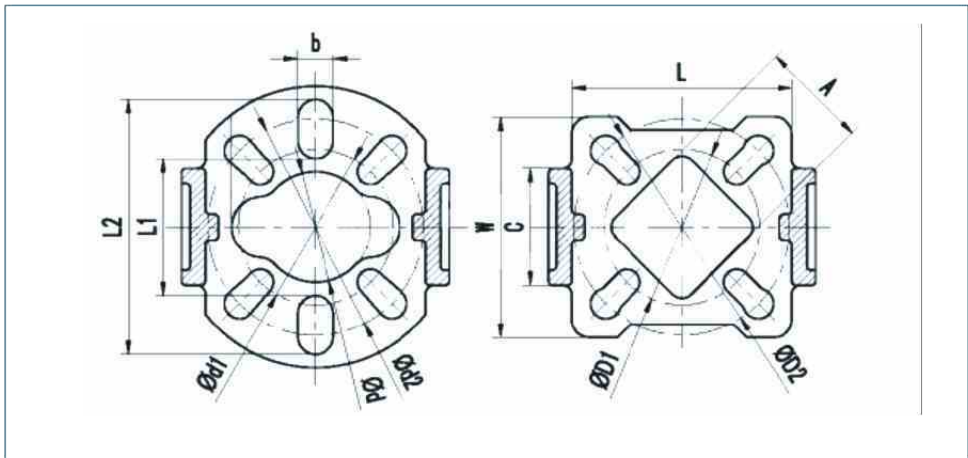
Product Dimension

Code	Size	Thickness t	Valve connection						Actuator connection			Dimension				Flange	Weight kg
			d1	d2	L1	L2	b	d	D1	D2	D	H	F	W	L		
0#	DN6-12	3	36	50	/	/	/	27	36	50	34	40	17	50	50	F03-05	0.12
1#-39	DN15-25	3	36	50	33	59	8.2	25	36	50	24	39	14	66	62	F03-05	0.21
1#	DN15-25	4	38	50	32	59	9	26	36	50	26	48	12	50	54	F03-05	0.20
2#	DN40-50	4	50	70	39	80	10	35	50	70	35	62	22	71	71	F05-07	0.415
3#	DN65-100	5	65	102	49	104	13	43	70	102	50	73	33	100	100	F07-10	0.78
4#	DN100-150	6	80	140	67	125	15	58	102	140	75	90	50	131	131	F10-14	1.71
5#	DN200	8	102	160	78	147	16.3	65	125	165	85	100	50	158	158	F12-16	3.25



Material	304 precision casting;
Application	Mainly used for the installation and connection of valve bodies and actuators;
Features	Corrosion-resistant, supplied as finished products and can be installed directly;
Surface Treatment	Fine shot blasting + pickling and whitening;
Precautions	1.Screws at the valve end and actuator end should be installed in the outer ring screw holes of the bracket as much as possible; 2.For Q41 type ball valves, if the valve end is installed with gland screws, ensure that the screw diameter matches the size b. If the gap is too large, it is easy to cause swinging; 3.Select according to the actual opening and closing torque of the valve.

Drawing



Core Dimensions
Q41 type ball valve: b, L1, L2; High platform ball valve: d1, d2; Actuator end: D1, D2; Bracket height: The height H should be considered comprehensively based on the connecting shaft and the valve shaft. Generally, it is advisable to ensure that the upper end of the connecting shaft cylinder is 1-3mm lower than the upper plane of the bracket.

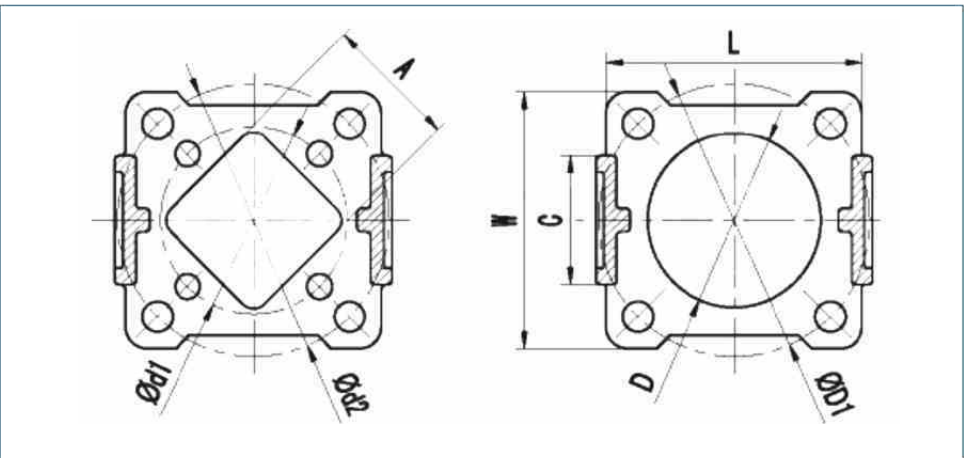
Product Dimension

Code	Size	Valve connection							Actuator connection				Dimension			Weight kg
		d1		d2		L1	L2	b	D1		D2		H	W	L	
1#	DN15-25	38	F03	50	F03	32	59	8.2	36	F03	50	F05	48	51	51	0.247
1-2#	DN15-25	38	F03	50	F05	35	59	8.0	/	/	70	F07	48	70	70	0.295
2#	DN32-50	50	F05	70	F07	43	81	10.3	/	/	70	F07	62	70	70	0.53
2-3#	DN32-50	50	F05	70	F07	43	81	10.3	/	/	102	F10	62	96	96	0.68
3#	DN65-100	70	F07	102	F10	52	104	12.5	/	/	102	F10	73	96	96	0.96
3-4#	DN65-100	70	F07	102	F10	52	104	12.5	125	F12	140	F14	73	132	132	1.4
4#	DN125-150	102	F10	125	F12	70	122	14.8	125	F12	140	F14	90	132	132	1.76
5#	DN200	102	F10	140	F14	80	142	17	140	F14	165	F16	102	155	155	2.95



Material	304 precision casting;
Application	Mainly used for the installation and connection of valve bodies and actuators;
Features	Corrosion-resistant, supplied as finished products and can be installed directly;
Surface Treatment	Fine shot blasting + pickling and whitening;
Precautions	1.Screws at the valve end and actuator end should be installed in the outer ring screw holes of the bracket as much as possible; 2.Select according to the actual opening and closing torque of the valve.

Drawing



Core Dimensions
Ball valve end: d1, d2; Actuator end: D1; Bracket height: The height H should be considered comprehensively based on the connecting shaft and the valve shaft. Generally, it is advisable to ensure that the upper end of the connecting shaft cylinder is 1-3mm lower than the upper plane of the bracket.

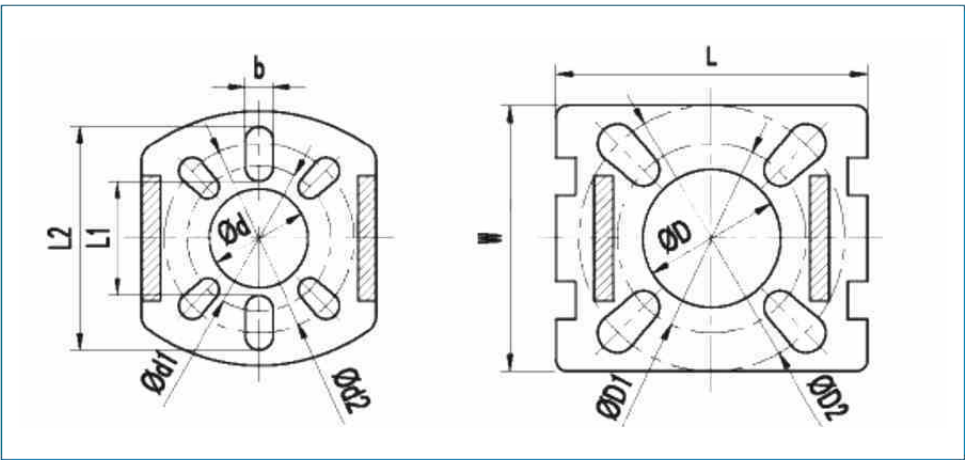
Product Dimension

Code	Size	Valve connection				Actuator connection		Dimension			Weight kg
		d1	d2			D1		H	W	L	
ZF1#	DN15-25	36	F03	50	F05	50(F05)		48	51	51	0.23
ZF2#	DN32-50	50	F05	70	F07	70(F07)		48	70	70	0.43
ZF3#	DN65-100	70	F07	102	F10	102(F10)		73	96	96	0.9
ZF4#	DN125-150	102	F10	125	F12	125(F12)、140(F14)		90	132	132	1.6



Material	Q235 steel plate;
Application	Mainly used for the installation and connection of valve bodies and actuators;
Features	Supplied as finished products and can be installed directly;
Surface Treatment	Shot blasting + spray molding;
Precautions	1.Screws at the valve end and actuator end should be installed in the outer ring screw holes of the bracket as much as possible; 2.For Q41 type ball valves, if the valve end is installed with gland screws, ensure that the screw diameter matches the size b. If the gap is too large, it is easy to cause swinging; 3.Select according to the actual opening and closing torque of the valve; 4.Pay attention to protecting the surface coating to avoid coating damage.

Drawing



Core Dimensions
Q41 type ball valve: b, L1, L2; High platform ball valve: d1, d2; Actuator end: D1, D2; Bracket height: The height H should be considered comprehensively based on the connecting shaft and the valve shaft. Generally, it is advisable to ensure that the upper end of the connecting shaft cylinder is 1-3mm lower than the upper plane of the bracket.

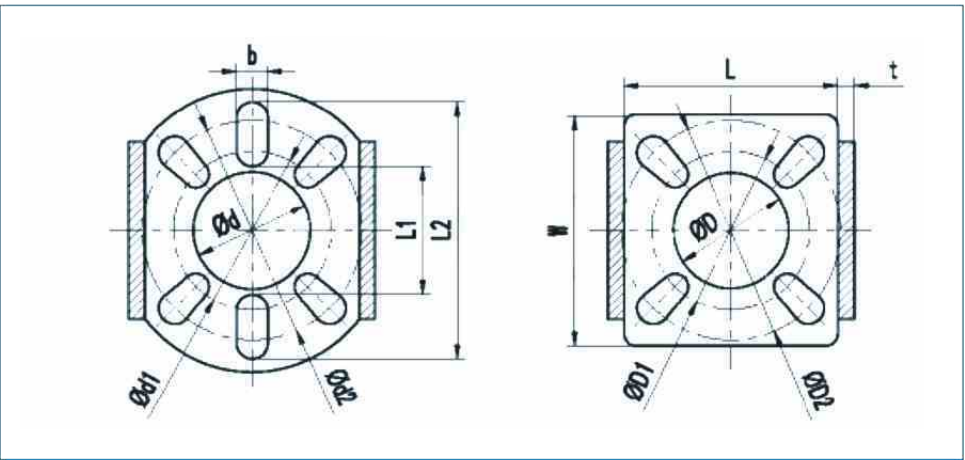
Product Dimension

Code	Size	Valve connection						Actuator connection			Dimension			Flange	Weight kg
		d1	d2	L1	L2	b	d	D1	D2	D	H	W	L		
T1#-35	DN15-25	38	50	32	58	8	26	50	70	34	35	70	82	F05-07	0.22
T1#-40	DN15-25	38	50	32	58	8	26	50	70	34	40	70	82	F05-07	0.29
T1#-48	DN15-25	38	50	32	58	8	26	50	70	34	48	70	82	F05-07	0.31
T1#-56	DN15-25	38	50	32	58	8	26	50	70	34	56	70	82	F05-07	0.35
T1#-62	DN15-25	38	50	32	58	8	26	50	70	34	62	70	82	F05-07	0.36
T1#-62	DN32-50	50	70	39	79	10	32	70	102	50	62	95	105	F07-10	0.59
T1#-73	DN32-50	50	70	39	79	10	32	70	102	50	73	95	105	F07-10	0.61
T1#-73	DN65-100	65	102	52	105	13	43	102	140	62	73	130	140	F10-14	1.22
T1#-90	DN65-100	65	102	52	105	13	43	102	140	62	90	130	140	F10-14	1.35
T1#-90	DN125-150	65	102	52	105	13	43	102	140	62	90	155	150	F10-16	2.2



Material	Q235 steel plate;
Application	Mainly used for the installation and connection of valve bodies and actuators;
Features	Heightened for heat dissipation, supplied as finished products and can be installed directly;
Surface Treatment	Shot blasting + spray molding;
Precautions	1.Screws at the valve end and actuator end should be installed in the outer ring screw holes of the bracket as much as possible; 2.For Q41 type ball valves, if the valve end is installed with gland screws, ensure that the screw diameter matches the size b. If the gap is too large, it is easy to cause swinging; 3.Select according to the actual opening and closing torque of the valve; 4.Pay attention to protecting the surface coating to avoid coating damage.

Drawing



Core Dimensions
Q41 type ball valve: b, L1, L2; High platform ball valve: d1, d2; Actuator end: D1, D2; Bracket height: The height H should be considered comprehensively based on the connecting shaft and the valve shaft. Generally, it is advisable to ensure that the upper end of the connecting shaft cylinder is 1-3mm lower than the upper plane of the bracket.

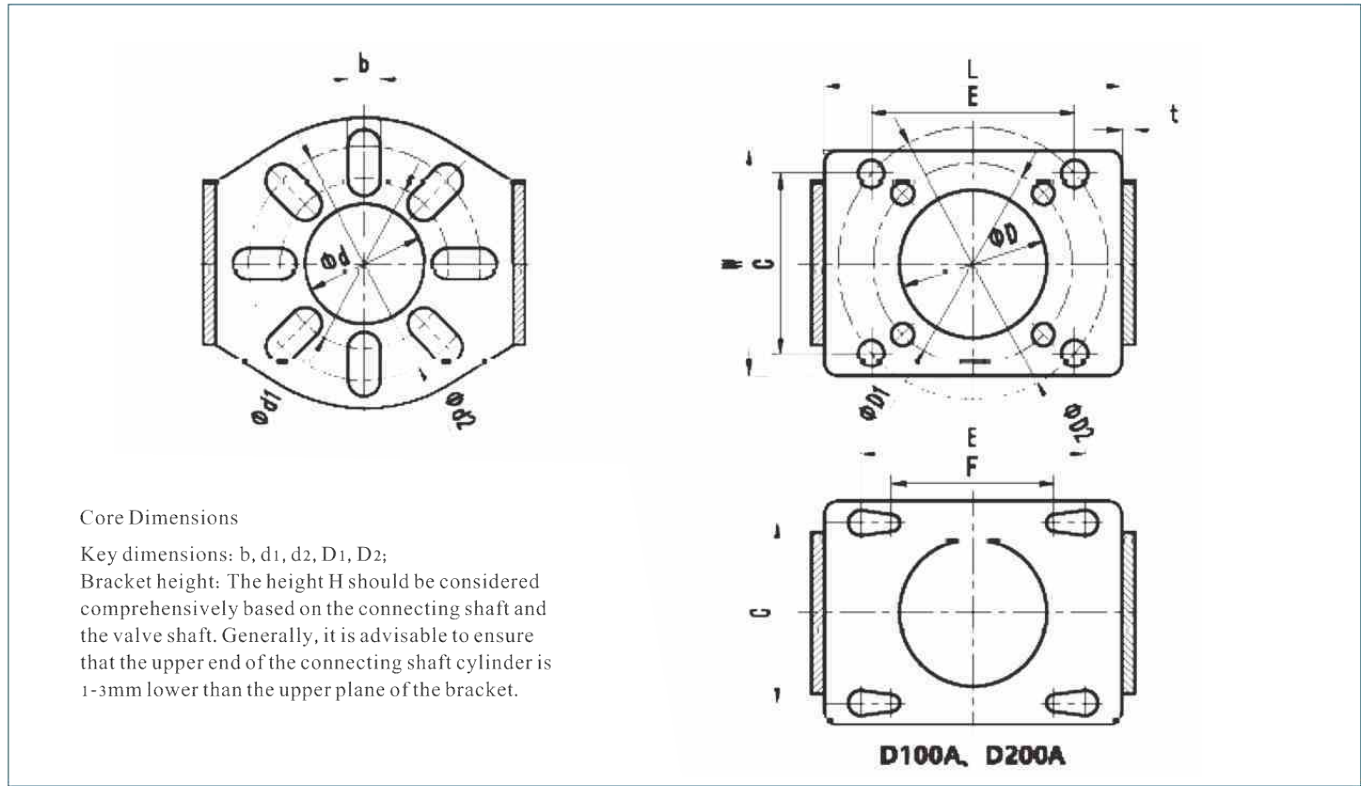
Product Dimension

Code	Size	Thickness t	Valve connection						Actuator connection			Dimension			Flange	Weight kg
			d1	d2	L1	L2	b	d	D1	D2	D	H	W	L		
1#-100	DN15-25	5	38	50	32	58	8	26	50	70	34	100	70	82	F05-07	0.46
2#-100	DN32-50	5	50	70	39	79	10	32	50	70	34	100	70	82	F05-07	0.66
2#-120	DN32-50	5	50	70	39	79	10	32	50	70	34	120	70	82	F05-07	0.70
2#-200	DN32-50	5	50	70	39	79	10	32	50	70	34	200	70	82	F07-07	1.02
3#-140	DN65-100	6	65	102	52	105	13	43	70	102	50	140	95	105	F07-10	1.23
3#-200	DN65-100	6	65	102	52	105	13	43	70	102	50	200	95	105	F07-10	1.58
4#-160	DN125-150	8	80	109	67	124	15	57	102	140	61	160	130	140	F10-14	2.27
5#-200	DN200	10	94	130	78	148	16	67	102	165	67	200	150	155	F10-16	3.65



Material	Q235 steel plate;
Application	Mainly used for the installation and connection of valve bodies and actuators;
Features	Supplied as finished products and can be installed directly;
Surface Treatment	Shot blasting + spray molding;
Precautions	1.Screws at the valve end and actuator end should be installed in the outer ring screw holes of the bracket as much as possible; 2.Select according to the actual opening and closing torque of the valve; 3.Pay attention to protecting the surface coating to avoid coating damage.

Drawing



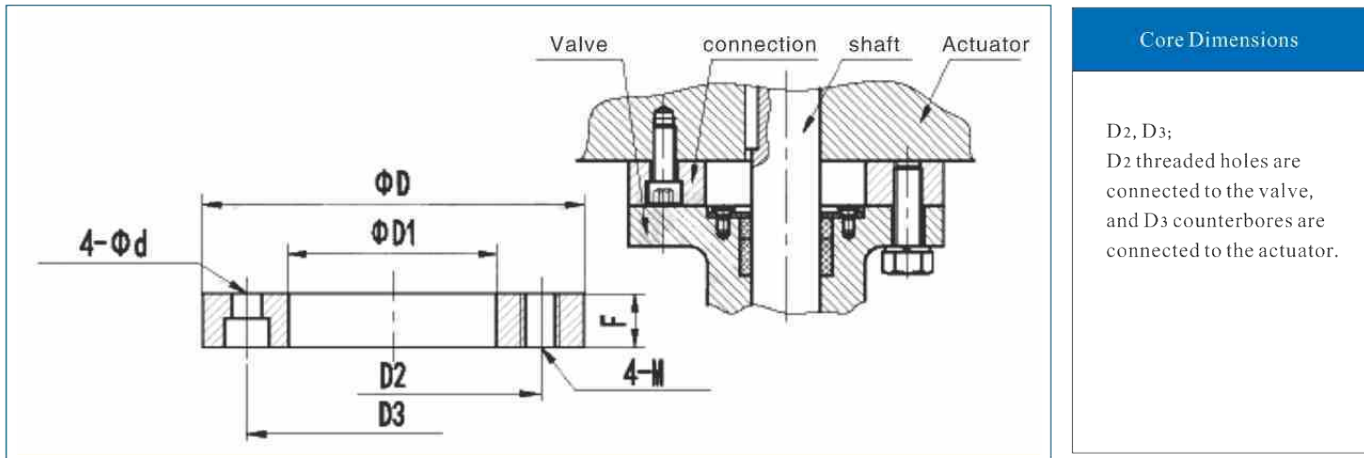
Product Dimension

Code	Size	t	Valve connection				Actuator connection						Dimension			Flange	Weight kg
			d1	d2	b	d	D1	D2	E	C	F	D	H	W	L		
D05A	DN40–80	3	47	62	6.5	32	70	/	68	60	/	37	48	81	73	F07	0.23
D10A	DN100–150	4	54	74	10	36	70	/	82	70	/	55	55	95	90	F07	0.49
D20	DN200–250	5	69	93	14	46	102	/	118	84	/	75	71	137	110	F10	0.93
D60	DN300–350	5	82	109	14	56	102	/	118	84	/	70	71	142	110	F10	1.03
D100A	DN350–350	8	92	130	14/16	66	/	/	148	84	117	90	83	184	110	/	1.98
D100B	DN350	8	92	130	14/16	66	102	140	/	/	/	62	83	184	130	F10–14	2.3
D200A	DN400–500	10	137	165	19	80	/	/	148	84	117	80	100	178	110	/	2.53
D200B	DN500–500	10	137	165	19	80	102	140	/	/	/	62	100	140	131	F10–14	2.58



Material	Aluminum alloy;
Application	Mainly used for the transfer between butterfly valves and actuators;
Features	Die-cast , supplied as finished products and can be installed directly;
Surface Treatment	Black spray molding;
Precautions	1.This product is mainly designed for Tianjin-style 71 series soft-sealed centerline butterfly valves; 2.After the bolt hole angle is converted, it is misaligned by 45 degrees.

Drawing



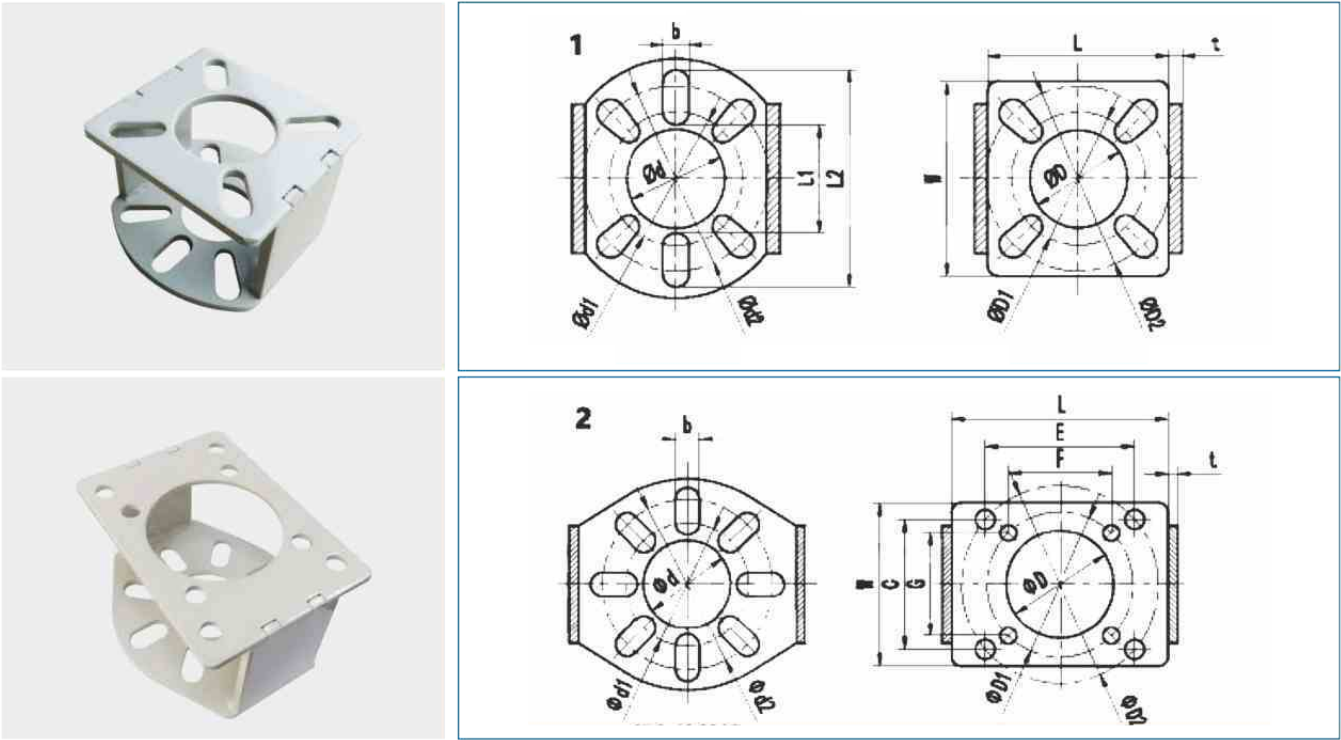
Product Dimension

Code	Size	Valve connection		Actuator connection		Dimension			Weight kg
		D2	M	D3	d	D	F	F	
1#	DN50-80	57	4-M6	50	7	77	14	36	0.08
2#	DN100-150	70	4-M8	70	9	92	15	48	0.1
3#	DN200	89	4-M12	70	9	115	16	54	0.18
4#	DN250	89	4-M12	102	11	122	20	66	0.2
5#	DN300	108	4-M12	102	11	140	20	78	0.32
6#	DN350	108	4-M12	140	16.5	198	23	91	0.92
7#	DN400	160	4-M16	140	16.5	198	23	91	0.92

Material	Q235 steel plate;
Application	Mainly used for the installation and connection between ball valves and small electric actuators;
Features	Punching + bending processing, supplied as finished products and can be installed directly;
Surface Treatment	Shot blasting + spray molding;
Precautions	1.At the valve end and actuator end, screw holes should be installed on the outer ring as much as possible; 2.For Q41 type ball valves, if the valve end is installed with gland screw holes, ensure that the screw diameter matches the size b. If the gap is too large, it is easy to cause swinging; 3.Pay attention to protecting the surface coating to avoid coating damage.

Core Dimension Measurement Method
Dimensions: b, L1, L2, D1, D2, d1, d2; Bracket height H should be considered comprehensively based on the connecting shaft and the valve shaft. Generally, it is advisable to ensure that the upper end of the connecting shaft cylinder is 1-3mm lower than the upper plane of the bracket.

Drawing



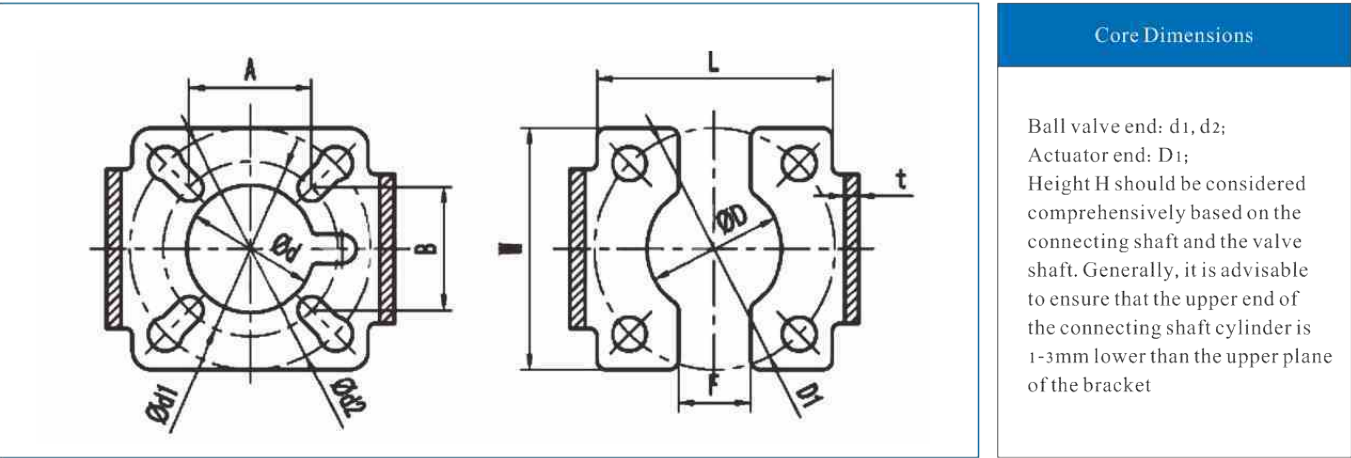
Product Dimension

Type	Code	Size	t	Valve connection						Actuator connection							Dimension			Weight kg
				d1	d2	L1	L2	b	d	D1	D2	E	C	F	G	D	H	L	W	
1	T1#-56	DN15-25	5	38	50	32	58	8	26	50	70	/	/	/	/	34	62	82	70	0.36
1	T1#-62	DN15-25	5	38	50	32	58	8	26	50	70	/	/	/	/	34	62	82	70	0.36
1	2#-72	DN32-50	4	50	70	39	79	10	32	50	70	/	/	/	/	34	72	82	70	0.46
2	Q20AH	DN65-100	5	69	93	56	107	14	46	102	/	118	84	/	/	80	83	140	110	1.01
1	3#-83	DN65-100	5	68	102	48	101	10.5-12	42	70	102	/	/	/	/	49	83	104	90	0.91
2	Q60H	DN100-125	5	82	109	69	122	14	56	102	/	118	84	/	/	80	83	152	110	1.21
2	Q100AW	DN125-150	6	80	110	67	124	12-14	66	/	/	148	84	117	84	90	102	184	110	1.98
2	Q100A	DN200	8	94	130	78	148	17	66	/	/	148	84	117	84	66	102	184	110	2.6



Material	304 steel plate;
Application	Mainly used for the installation and connection of valve bodies and actuators;
Features	Compact structure, customized design, direct installation;
Surface Treatment	Fine shot blasting + pickling and whitening;
Precautions	1.Screws at the valve end and actuator end should be installed in the outer ring screw holes of the bracket as much as possible; 2.Select according to the actual opening and closing torque of the valve.

Drawing



Core Dimensions
Ball valve end: d1, d2; Actuator end: D1; Height H should be considered comprehensively based on the connecting shaft and the valve shaft. Generally, it is advisable to ensure that the upper end of the connecting shaft cylinder is 1-3mm lower than the upper plane of the bracket

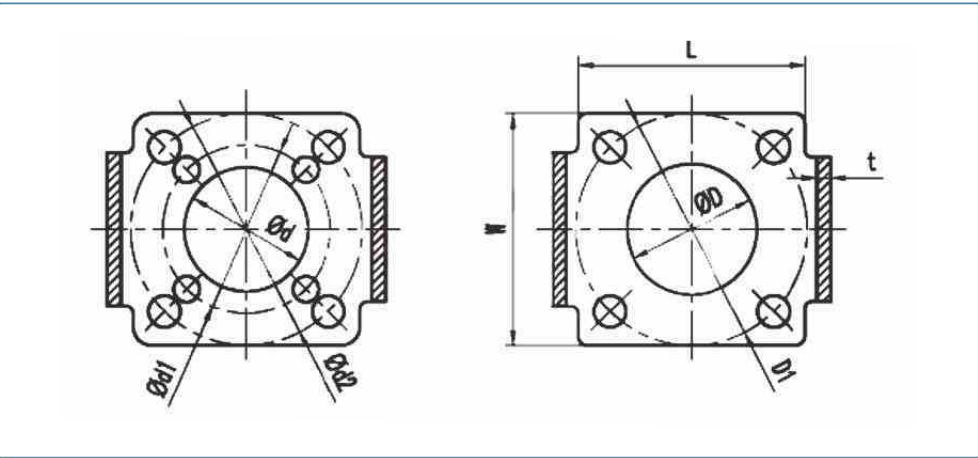
Product Dimension

Code	Thickness t	Valve connection				Actuator connection			Dimension			Weight kg
		d1	d2	A	B	d	D1	D	H	W	L	
Y0#	3	/	/	24	19	21	50	21	40	50	50	0.12
Y1#	3	36	50	/	/	26	50	26	40	50	50	0.12
Y2#	4	50	70	/	/	34	70	36	62	71	71	0.35
Y3#	5	70	102	/	/	42	102	48	73	94	94	0.8



Material	304 stainless steel;
Application	Mainly used for the installation and connection of valve bodies and actuators;
Features	Profile processing, high strength, direct installation;
Surface Treatment	Fine shot blasting + pickling and whitening;
Precautions	Screws at the valve end and actuator end should be installed in the outer ring screw holes of the bracket as much as possible.

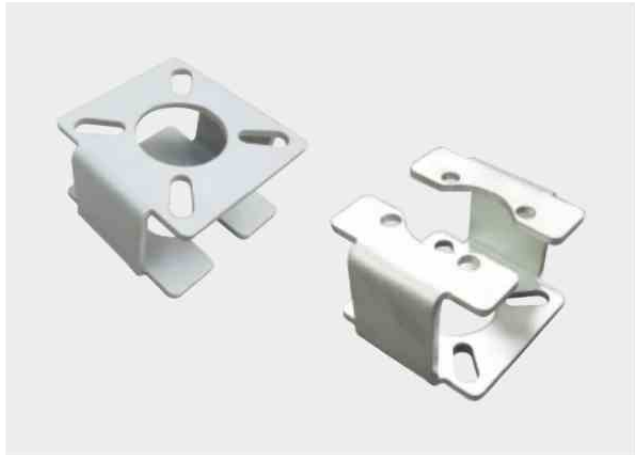
Drawing



Core Dimensions
Ball valve end: d1, d2; Actuator end: D1; Height H should be considered comprehensively based on the connecting shaft and the valve shaft. Generally, it is advisable to ensure that the upper end of the connecting shaft cylinder is 1-3mm lower than the upper plane of the bracket.

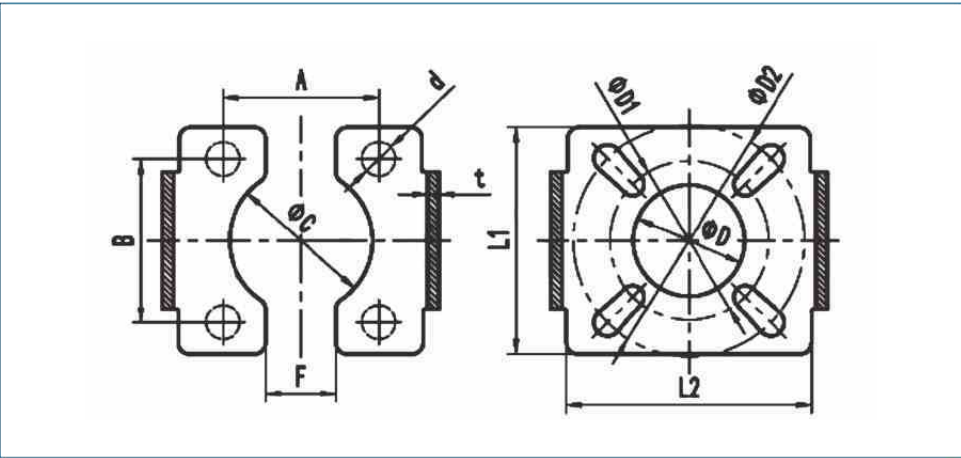
Product Dimension

Code	Thickness t	Valve connection			Actuator connection		Dimension			Weight kg
		d1	d2	d	D1	D	H	W	L	
G1#	3	36	50	26	50	26	50	50	50	0.22
G2#	4	50	70	34	70	36	60	71	71	0.4
G3#	5	70	102	42	102	48	70	94	94	0.8
G4#	6	102	125	60	125	60	90	115	115	1.4
G5#	8	125	140	60	140	75	100	131	131	2.6



Material	Q235 steel plate;
Application	Mainly used for the installation and connection of valve bodies and actuators;
Features	Open design, avoiding valve gland;
Surface Treatment	Shot blasting + spray molding;
Precautions	1.Screws at the valve end and actuator end should be installed in the outer ring screw holes of the bracket as much as possible; 2.Select according to the actual opening and closing torque of the valve; 3.Screw holes at the valve end are processed by users themselves or customized with provided data; 4.Pay attention to protecting the surface coating to avoid coating damage.

Drawing



Core Dimensions
Valve end: A, B; Actuator end: D1, D2; Bracket height: The height H should be considered comprehensively based on the connecting shaft and the valve shaft. Generally, it is advisable to ensure that the upper end of the connecting shaft cylinder is 1-3mm lower than the upper plane of the bracket.

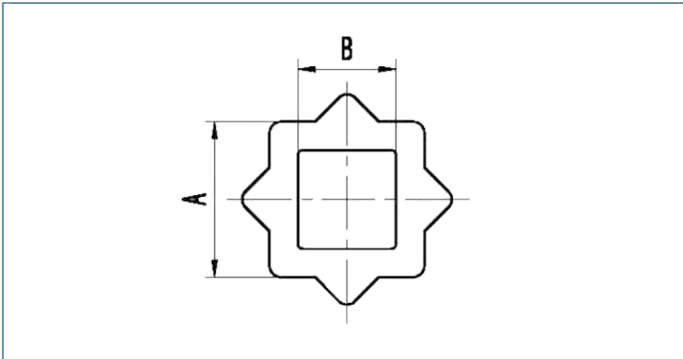
Product Dimension

Code	Size	Thickness t	Valve connection			Actuator connection			Dimension			Flange	Weight kg		
			A	B	d	C	F	D1	D2	D	H			L1	L2
1#	DN15-20	4	OEM			36	18	50	70	34	50	70	65	F05-07	0.30
1.5#	DN25-32	4				42	23	50	70	34	50	70	65	F05-07	0.27
1.5#56	DN25-32	4				49	23	50	70	36	56	85	91	F05-07	0.5
2#	DN40-50	5				56	25	70	102	49	62	97	93	F07-10	0.62
2.5#	DN65	5				63	31	70	102	49	70	100	108	F07-10	0.85
3#	DN80/100	6				72	32	102	125	70	75	120	118	F10-12	1.3
4#	DN125/150	8				100	60	108	140	70	90	160	157	108-F14	3.2
5#	DN200	10				110	60	140	165	90	103	185	200	F14-16	5.1



Material	Iron-based powder metallurgy;
Application	Mainly used for size conversion between shaft heads and actuator holes;
Features	Supplied as finished products and can be installed directly;
Surface Treatment	Steam treatment;
Precautions	1.The product is a brittle material. If the gap is too large, its service life will be greatly shortened. If the inner hole and the shaft head have excessive interference, expansion is likely to occur. Therefore, the gap must be controlled during installation; 2.This product is not suitable when rotation is too frequent or impact force is too large.

Drawing



Product Dimension

No.	Type (B→A)	B	A	H	g	Package Qty
1	9*11	9	11	12	5	5000
2	9*14	9	14	16	16	2000
3	9*14	9	17	19	30	1500
4	11*14	11	14	16	11	3000
5	11*17	11	17	19	27	1000
6	14*17	14	17	19	17	2000
7	14*22	14	22	24	55	500
8	14*27	14	27	29	118	300
9	17*22	17	22	24	42	1000
10	17*27	17	27	29	101	300
11	19*22	19	22	24	30	1000
12	19*27	19	27	29	88	400
13	22*27	22	27	29	65	500
14	22*36	22	36	38	238	150
15	27*36	27	36	38	173	200
16	27*46	27	46	48	502	70
17	36*46	36	46	48	312	100
18	36*55	36	55	55	740	50
19	46*55	46	55	55	463	60

No.	Type (B→A)	B	A	H	g	Package Qty
20	6*9	6	9	14	5	5000
21	7*11	7	11	12	7	3000
22	7*14	7	14	16	18	2000
23	8*14	8	14	16	17	1000
24	9*22	9	22	24	70	500
25	10*14	10	14	16	14	2000
26	11*19	11	19	21	40	1000
27	11*22	11	22	24	64	500
28	11*27	11	27	29	132	300
29	12*14	12	14	16	9	2000
30	12*15	12	15	15	7	2000
31	14*19	14	19	21	30	1000
32	17*19	17	19	21	18.3	1000
33	17*36	17	36	38	271	100
34	19*36	19	36	38	268	100
35	22*46	22	46	48	566	50
36	27*55	27	55	57	892	50
37	30*36	30	36	48	143	100
38	32*46	32	46	48	420	100

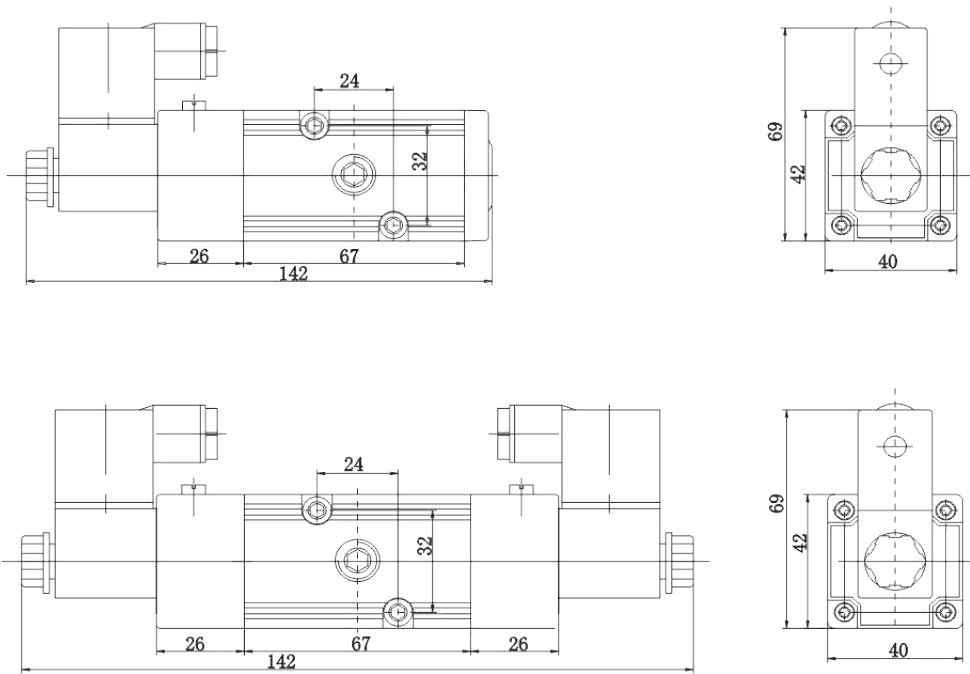
DESCRIPTION OF THE PRODUCT

Based on international standard, protection type solenoid valve and flameproof type solenoid valve of our company apply the requirements for NAMUR and in-line (pipe) connection and can be adapted for 3/2 NC or 5/2 functions for controlling double-acting and single-acting pneumatic actuators without any adaptor. And spool valves comprise a manual override providing operation without electrical supply. The valve is a real multifunctional solenoid valve. Armed with "environmentally-protected structure", all the exhaust ports of this spool valve are connectable which offer excellent environmental protection against the ingress of liquids, dusts or other foreign matter. Working pressure from 1bar to 8bar (Aluminum) or 1.5bar to 8bar (SS316L) and the working voltage from 12-48VDC, 110-240 VAC.

SPECIFICATIONS AND TECHNICAL DATA

protection type		flameproof type	
			
Coating	Anodized coated, or Nickel coated in chemical	Area Classification	ExdIICT6 /DIP A20 TA, T6
Seal	Buna N	Working Temperature	-10℃~ 80℃
Materials Materials in contact with fluid	Aluminum,, Buna N, POM	Working Pressure	1~8bar (Aluminum)/1.5~8bar(SS316L)
Function	5/2 and 3/2NC, CV=1.4(25mm2)	Working Medium	less than 40 m filtered and dried air
Air Ports	BSPP or NPT1/4"	Fasteners	Stainless steel
Assembly and Connection	Namur and in, line (pipe) Manual override on body	Bistable	available on requiring
		Working life	more than 3500,000 cycle (On the normal working condition)

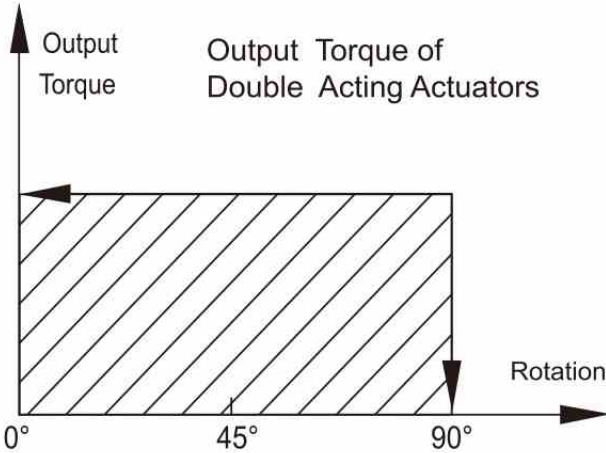
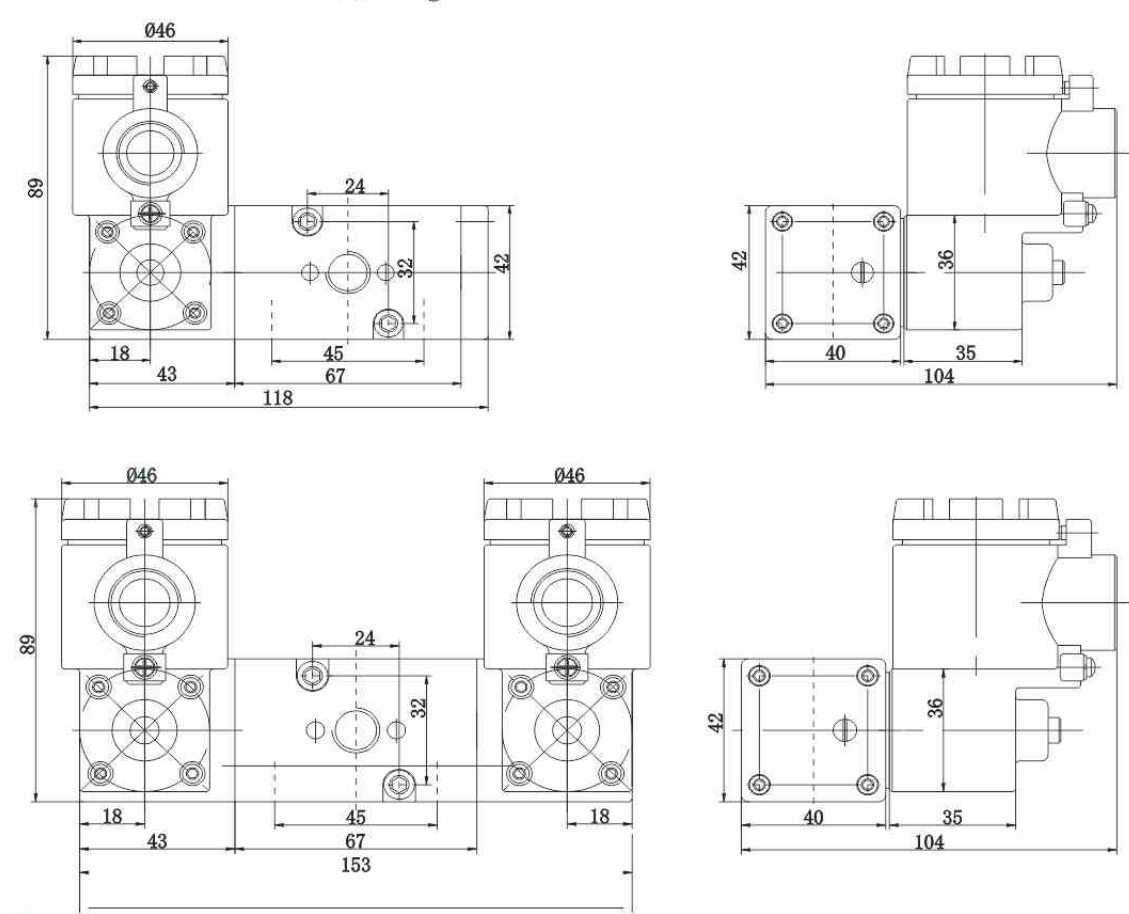
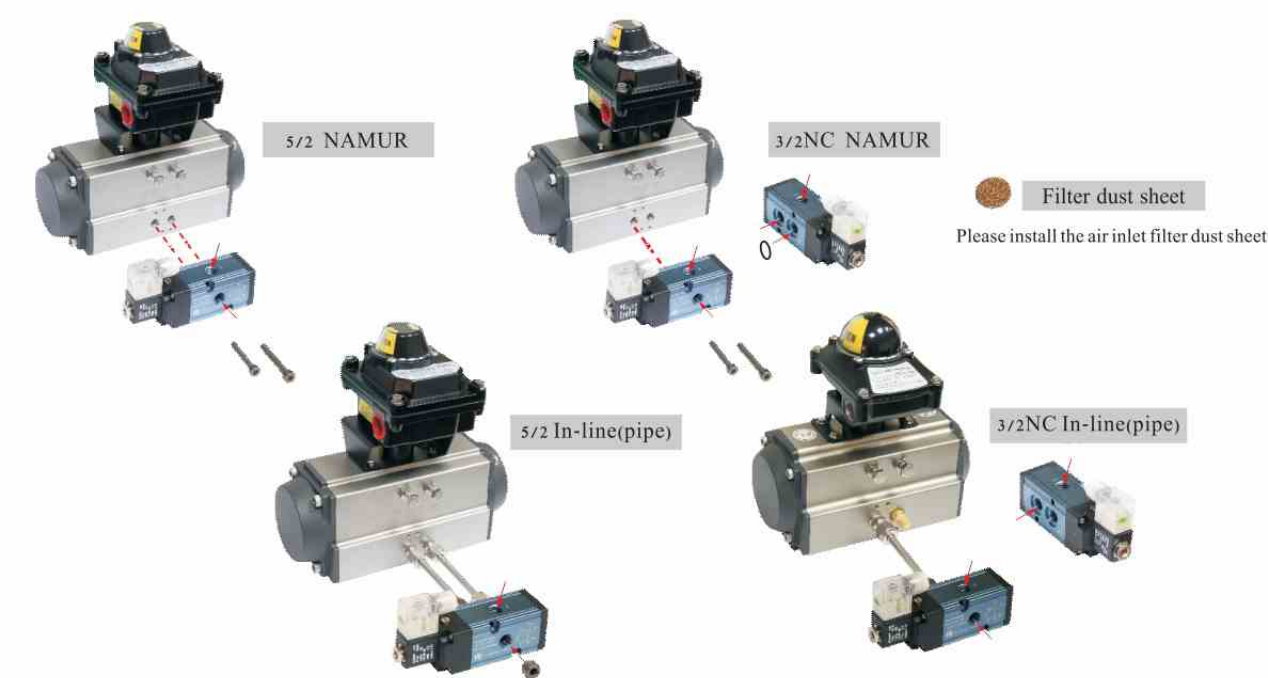
DRAWING AND DIMENSION



Mounting

Solenoid Valve Feature: There are two port "1" on spool valve. According to required function, choose one, the other plug, the valve can work.

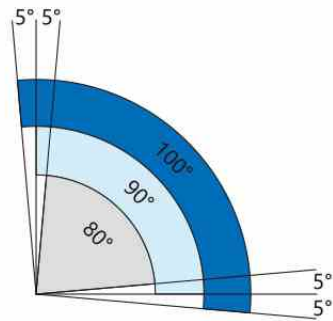
Details see Fig:



Output Torque Table Sheet (Unit Nm)

Model	Pressure	70bar	100bar	110bar	120bar	130bar	140bar	160bar
	Torque							
HD32	67	96	106	115	125	135	154	
HD40	183	262	288	314	340	366	418	
HD50	377	538	592	646	700	754	862	
HD63	754	1077	1185	1292	1400	1508	1723	
HD80	1615	2308	2538	2769	3000	3231	3692	
HD100	2800	4000	4400	4800	5200	5600	6400	
HD125	5385	7692	8462	9231	10000	10769	12308	

Operating Conditions



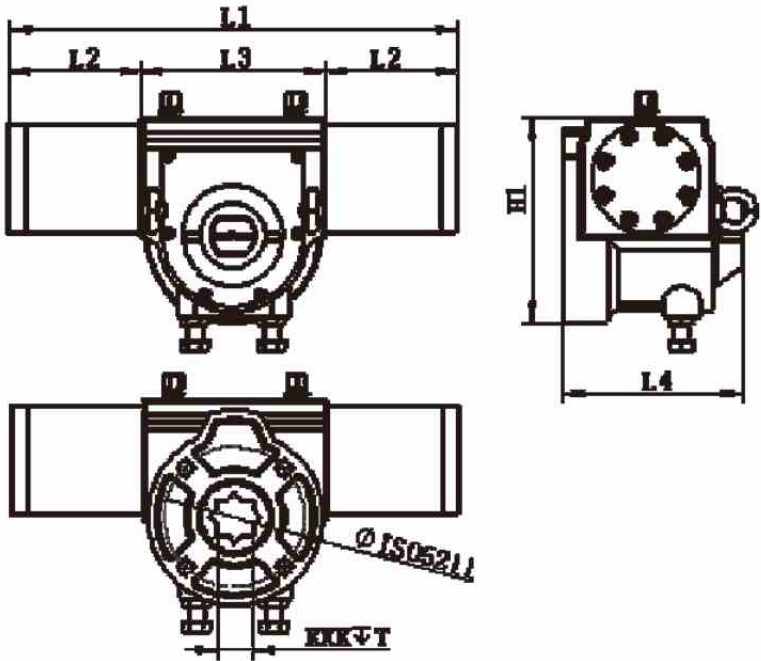
- 1. Operating media : Dry or lubricated air, the non-corrosive gases or oil.
- 2. Air supply pressure :
Double acting: 2 ~ 8 Bar;
Spring return: 2 ~ 8 Bar
- 3. Operating temperature :
Standard: -20℃~+80℃
Low temperature: -40℃~+80℃
High temperature: -20℃~+150℃
- 4. Travel adjustment :
Have adjustment range of $\pm 4^\circ$ for the rotation at 90°
- 5. Lubrication :
Under normal operating condition, need not accrete lubricant
- 6. Application : Either indoor or outdoor
- 7. Highest pressure : The maximum input pressure is 10 Bar

Note
Make sure that the torque necessary to operate the valve is compatible with the actuator torque (it depends on both actuator type and air supply). Please note that the requested torque depends not only on the valve, but on the working conditions and the safety margins of the plant in question, too.



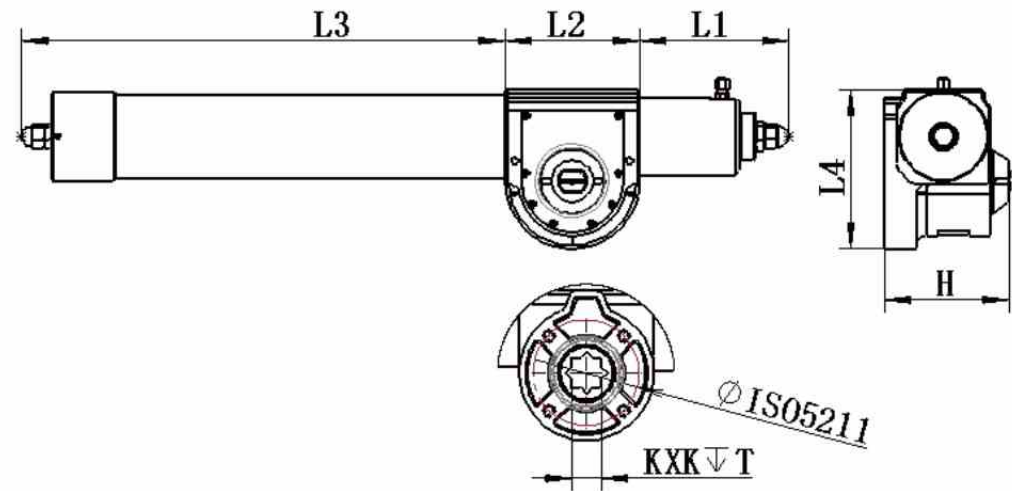
Main Dimensions

Actuator shown in closed position.



Double acting hydraulic actuator size chart

Model	H1	L1	L2	L3	L4	K×K	T	ISO5211	G	Volume (L)
HD32	115	246	73	100	112	11×11	27	F05/F07	G1/4"	0.02
HD40	148	304	84	136	132	22×22	30	F07/F10	G1/4"	0.05
HD50	176	360	104	152	148	27×27	36	F10/F12	G1/4"	0.11
HD63	205	448	132	184	180	36×36	45	F10/F12/F14	G1/4"	0.22
HD80	248	655	222.5	210	195	46×46	50	F14/F16	G1/4"	0.45
HD100	269.5	700	240	220	210	46×46	50	F14/F16	G1/4"	0.78
HD125	420	870	282.5	305	275	55×55	65	F16/F25	G1/4"	1.52



Single acting hydraulic actuator size chart

Model	L1	L2	L3	L4	H	K×K	T	ISO5211	G	Weight (kg)	Volume (L)
HS160	105	125	244	145	135	17×17	30	F07	G1/4"	28	0.1
HS350	124	155	354	170	155	22×22	36	F10	G1/4"	53	0.2
HS900	150	200	429	225	215	27×27	50	F12	G1/4"	130	0.6
HS2000	186	245	694	270	235	36×36	50	F14	G1/4"	185	1.3

Model	Pressure Torque	Spring torque		90bar		100bar		110bar		130bar		140bar	
		min	max	min	max	min	max	min	max	min	max	min	max
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
HS160		160	280	160	55	160	98	160	142	160	230	160	270
HS350		330	535	330	117	330	218	330	318	330	518	330	620
HS900		900	1721	900	379	900	680	900	974	900	1570	900	1867
HS2000		2000	3787	2000	149	2000	839	2000	1529	2000	2909	2000	3598

