



# FC SERIES PNEUMATIC ACTUATOR



CDG Valve ManuFacterer

Pneumatic Actuator

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U.S. CDG control fluid technology company  
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# FC





## COMPANY HISTORY

- 1963 : Founded CDG.
- 1985 : CDG brand creation.
- 1989 : Production of pneumatic actuators, and Italy FABIA to establish acooperation.
- 1992 : With the United States FAIRCHILD cooperation, Production of electric actuators.
- 2001 : Focus on the production and assembly of CDG.
- 2005 : Production of hydraulic actuators.
- 2006 : Production of valves.
- 2011 : Oil station development and use.
- 2016 : Set up a number of representative offices in China.

## ENTERPRISE PROFILE

The CDG is a famous actuator manufacturers, the company is headquartered in America's largest city, Detroit, Michigan is located in the northeastern United States, Canada, Detroit river north of Windsor an important port city. With strong industrial base and freight advantage.

CDG products have unique design, short delivery time, competitive price and excellent after-sales support. As a professional manufacturer of valves, it quickly became the industry leader.

CDG has more than 50 years experience in the valve industry. The r&d department USES these experiences to constantly design new products, improve existing products, and adapt to changing market demands and constantly improving international standards.

CDG can provide standard and non-standard solutions that can be customized according to customer needs.

CDG has created a wide range of reliable products. CDG is favored and admired by the world's leading EPC and oil and gas companies because of its high performance in extreme conditions. Its products are used in power plant, petrochemical, metallurgy, papermaking,

automobile and more. Product certification based on customer requirements and government legislation is a guarantee of product quality. CDG USES advanced testing laboratories to ensure the durability of its products. Fire safety, high temperature and low temperature testing can be carried out under extreme conditions.

CDG good position, provide comprehensive after-sales support, fast, efficient, with unparalleled expertise. Our skilled engineers and technicians work 24 hours a day to respond to customer queries, solve problems, and provide reliable solutions. A comprehensive after-sales service creates a complete solution, customer support, covering all requirements.

CDG is a long-term, reliable, available and cost-effective partner for your existing and new business.

CDG brand is comprehensive, including valve and oil station, pneumatic actuator, electric actuator and hydraulic actuator and other related fields. To enable CDG to meet different needs, it can be sold separately, and can be matched in a complete set, so that users can reduce their worries.



## FC Pneumatic actuators



FC series actuators, gm in general with 90 ° rotating valve. For example: ball valve, butterfly valve, rotary valve switch or regulation flow function.



FC series is symmetrical and inclined two designs. Symmetric from 0 ° to 90 ° with maximum output torque, the middle position of minimum output torque, are corresponding to the ball valve class generates torque characteristics. The tilting can output larger starting torque, which is more suitable for the torque characteristics of butterfly valve.



Solid carbon steel shell and high strength alloy steel fork to ensure safe and reliable operation. The inner wall of the cylinder is plated with hard chromium to ensure a longer service life. The rack has no pressure, reduces leakage points and simplifies maintenance.

Modular design and structure provides maximum convenience for installation, maintenance, and storage. The intrinsically safe spring package ensures efficient work and safe maintenance to prevent accidental hazards caused by bolt corrosion.

The single action of FC series actuator can provide the maximum 120000Nm, The double action can provide the maximum torque output of 240000Nm, and the maximum working pressure is 8Bar.

Stainless steel stroke limiter to travel between 82 ° and 98 ° precise adjustment.

Working temperature : -40°C~150°C

Certification standards : PED 97/23/EC

ATEX94/9/EC

Mechanical standard 2006/42/EC

Follow IEC/EN60529 , IP66/67M

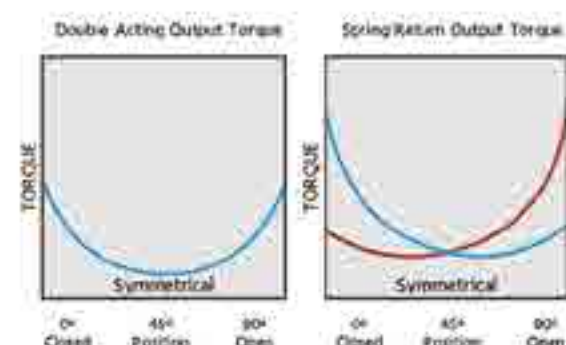
As a "single device" to achieve SIL3 (IEC61508) standard

Designed and tested according to EN15714-3





## Model specification


**FC 01 - D 02 - 20**

★ 1 ★ 2 ★ 3 ★ 4 ★ 5

- ★ 1 : Product model series
- ★ 2 : 01-Symmetric type 02- Canted Type
- ★ 3 : D- Double Acting S- Single Acting
- ★ 4 : Box number
- ★ 5 : Bore



R: Operating torque Symmetric type

### Symmetrical double-acting

MODEL	4.0BAR			5.0BAR		
	0°	R	90°	0°	R	90°
FC01-D02-20	1460	908	1403	1827	1135	1755
FC01-D02-25	2284	1419	2226	2855	1773	2783
FC01-D02-30	3289	2043	3231	4111	2554	4039
FC01-D02-35	4477	2781	4419	5596	3476	5524
FC01-D03-35	5419	3366	5262	6774	4208	6577
FC01-D03-38	6388	3968	6231	7985	4960	7788
FC01-D03-43	8180	5081	8022	10225	6351	10028
FC01-D04-43	10492	6517	10217	13115	8146	12772
FC01-D04-48	13074	8120	12799	16342	10150	15999
FC01-D04-53	15939	9900	15665	19924	12375	19581
FC01-D05-53	19586	12165	19143	24483	15207	23928
FC01-D05-58	23456	14569	23013	29320	18211	28766

MODEL	4.0BAR			5.0BAR		
	0°	R	90°	0°	R	90°
FC01-D05-63	27675	17189	27231	34593	21486	34039
FC01-D06-63	34546	21457	33682	43182	26821	42102
FC01-D06-68	40247	24998	39383	50308	31247	49228
FC01-D06-73	46383	28809	45519	57978	36011	56899
FC01-D07-68	53628	33104	52468	67035	41380	65585
FC01-D07-73	61804	38151	60645	77255	47688	75806
FC01-D07-80	74225	45818	73066	92781	57272	91332
FC01-D08-80	98968	61092	97097	123710	76365	121371
FC01-D08-90	125257	77319	123385	156571	96648	154231
FC01-D08-100	154638	95456	152767	193297	119320	190958

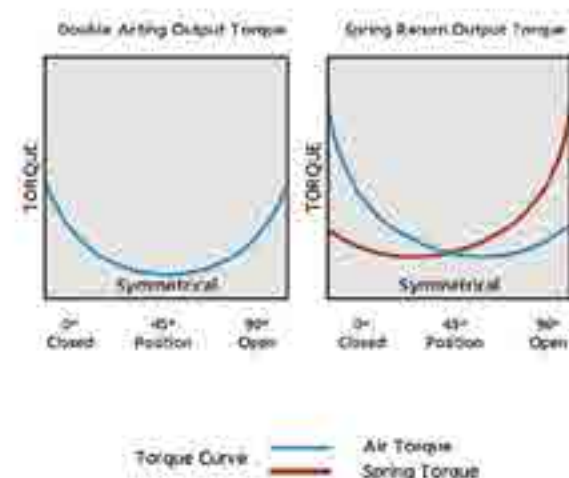
MODEL	6.0BAR			8.0BAR		
	0°	R	90°	0°	R	90°
FC01-D02-20	2193	1362	2106	2924	1816	2807
FC01-D02-25	3426	2128	3339	4568	2837	4452
FC01-D02-30	4934	3064	4847	6578	4086	6462
FC01-D02-35	6715	4171	6628	8954	5561	8838
FC01-D03-35	8129	5049	7893	10839	6732	10524
FC01-D03-38	9582	5952	9346	12777	7936	12461
FC01-D03-43	12270	7621	12034	16360	10162	16045
FC01-D04-43	15738	9775	15326	20984	13033	20435
FC01-D04-48	19610	12180	19199	26147	16241	25559
FC01-D04-53	23909	14850	23497	31878	19800	31330
FC01-D05-53	29379	18248	28714	39173	24331	38285
FC01-D05-58	35184	21584	34519	46912	29138	46025
FC01-D05-63	41512	25784	40847	55349	34378	54462
FC01-D06-63	51818	32185	50523	69091	42914	67364
FC01-D06-68	60370	37497	59074	80493	49996	78766
FC01-D06-73	69574	43124	68278	92765	57618	91038
FC01-D07-68	80442	49656	78702	107256	66208	104936
FC01-D07-73	92706	57226	90967	123608	76302	121290
FC01-D07-80	111337	68727	109599	148450	91636	146132
FC01-D08-80	148452	91638	145645	197936	122184	194194
FC01-D08-90	187885	115978	185077	250514	154638	246770
FC01-D08-100	321957	143184	3229150	309276	190912	305534



## Symmetric single-acting

MODEL		Spring Torque			Air Torque : Air Supply Pressure											
					4.0BAR			5.0BAR			6.0BAR			8.0BAR		
		0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°
FC01-S02-20	A	602	495	975	858	413	428	1225	640	780	1591	867	1131			
	B	790	650	1280				1037	485	475	1403	712	826	2134	1166	1527
FC01-S02-25	A	913	751	1479	1371	668	747	1942	1022	1304	2513	1377	1860			
	B	1239	1019	2007				1616	754	776	2187	1409	1332	3329	1818	2445
FC01-S02-30	A	1301	1080	2141	1988	963	1090	2810	1474	1898	3633	1984	2706			
	B	1787	1469	2894				2324	1085	1145	3147	1595	1953	4791	2617	3568
FC01-S02-35	A	1628	1352	2679	2849	1429	1740	3968	2124	2845	5087	2819	3949			
	B	2140	1759	3466				3456	1717	2058	4575	2412	3162	6814	3802	5372
FC01-S03-35	A	1803	1539	3098	3616	1827	2164	4971	2669	3479	6326	3510	4795			
	B	2566	2120	4189				4208	2088	2388	5563	2929	3704	8273	4612	6335
FC01-S03-38	A	2480	2049	4048	3908	1919	2183	5505	2911	3740	7102	3903	5298			
	B	3303	2729	5391				4682	2231	2397	6279	3223	3955	9474	5207	7070
FC01-S03-43	A	3049	2519	4977	5131	2562	3045	7176	3832	5051	9221	5102	7057			
	B	4097	3554	7223				6128	2797	2805	8173	4067	4811	12263	6608	8822
FC01-S04-43	A	4167	3569	7202	6325	2948	3015	8948	4577	5570	11571	6206	8124			
	B	5436	4656	9395				7679	3490	3377	10302	5119	5931	15548	8377	11040
FC01-S04-48	A	5125	4390	8857	7949	3730	3942	11217	5760	7142	14485	7790	10342			
	B	6406	5582	11372				9936	4568	4627	13204	6598	7827	19741	10659	14227
FC01-S04-53	A	6214	5323	10745	9275	4577	4920	13710	7052	8836	17695	9527	12752			
	B	8236	7054	14234				11688	5321	5347	15673	7796	9263	23642	12746	17096
FC01-S05-53	A	7651	6505	13070	11935	5660	6073	16832	8702	10858	21728	11743	15644			
	B	10204	8675	17431				14279	6532	6497	19175	9573	11283	28969	15656	20854
FC01-S05-58	A	9296	7733	15538	14160	6836	7475	20024	10478	13228	25888	14121	18981			
	B	12124	10308	20710				17196	7903	8056	23060	11546	13809	34788	18830	25315
FC01-S05-63	A	10971	9328	18742	16704	7861	8489	23622	12158	15297	30541	16456	22105			
	B	14127	12010	24132				20466	9476	9907	27385	13774	16715	41222	22368	30330
FC01-S06-63	A	13456	11608	23515	21090	9849	10167	29726	15213	18589	38362	20577	27008			
	B	17092	14744	29869				26090	12077	12233	34726	17441	20654	51999	28170	37495
FC01-S06-68	A	15243	13149	26637	25004	11849	12746	35065	18098	22591	45127	24348	32437			
	B	20474	17662	35779				29834	13585	13449	39896	19835	23295	60019	32334	42987
FC01-S06-73	A	17816	15368	31314	28567	13441	14385	40162	20643	25765	51758	27846	37144			
	B	23159	19978	40471				34819	16033	16428	46415	23236	27807	69606	37640	50567
FC01-S07-68	A	20914	17545	36467	32714	15559	16001	46121	23835	29118	59528	32111	42235			
	B	26143	21931	45583				40892	19449	20002	54299	27725	33119	81113	44277	59353
FC01-S07-73	A	24103	20220	42026	37701	17931	18619	53152	27468	33780	68603	37006	48941			
	B	30129	25274	52533				47126	22414	23273	62577	31952	38434	93479	51028	68757
FC01-S07-80	A	28947	24283	50473	45278	21535	22593	63834	32989	40859	82390	44444	59126			
	B	36184	30354	63091				56597	26918	28241	75153	38373	46508	112266	61282	83041
FC01-S08-80	A	38597	32378	67298	60371	28714	29799	85113	43987	54073	109855	59260	78347			
	B	48246	40473	84122				75464	35892	37249	100206	51165	61523	149690	81711	110072
FC01-S08-90	A	48850	40979	85174	76407	36340	38211	107721	55669	69057	139035	74999	99903			
	B	61062	51223	106468				95509	45425	47763	126823	64755	78609	189452	103415	140302
FC01-S08-100	A	60308	50591	105153	94330	44865	47614	132989	68729	85805	171649	92593	123997			
	B	75385	63239	131441				117912	56081	59517	156572	79945	97709	233891	127673	174093





Canted Type

R: Operating torque

## Canted double-acting

MODEL	4.0BAR			5.0BAR		
	0°	R	90°	0°	R	90°
FC02-D02-20	1836	908	1279	2295	1135	1599
FC02-D02-25	2869	1419	1999	3586	1773	2499
FC02-D02-30	4131	2043	2879	5164	2554	3598
FC02-D02-35	5623	2781	3918	7028	3476	4898
FC02-D03-35	6806	3366	4743	8508	4208	5929
FC02-D03-38	8023	3968	5591	10029	4960	6988
FC02-D03-43	10273	5081	7159	12842	6351	8949
FC02-D04-43	13177	6517	9182	16471	8146	11477
FC02-D04-48	16419	8120	11441	20524	10150	14302
FC02-D04-53	20018	9900	13959	25023	12375	17347
FC02-D05-53	24598	12165	17141	30748	15207	21426
FC02-D05-58	29459	14569	20528	36823	18211	25660

MODEL	4.0BAR			5.0BAR		
	0°	R	90°	0°	R	90°
FC02-D05-63	34757	17189	24220	43446	21486	30274
FC02-D06-63	43386	21457	30233	54332	26821	37791
FC02-D06-68	50546	24998	35222	63182	31247	44027
FC02-D06-73	58252	28809	40592	72815	36011	50740
FC02-D07-68	67035	33104	46696	83793	41380	58370
FC02-D07-73	77255	38151	53974	96568	47688	67467
FC02-D07-80	92781	45818	65028	115976	57272	81285
FC02-D08-80	123710	61092	86416	154637	76365	108020
FC02-D08-90	156571	77319	109812	195713	96648	137265
FC02-D08-100	193297	95456	135962	241621	119320	169952

MODEL	6.0BAR			8.0BAR		
	0°	R	90°	0°	R	90°
FC02-D02-20	2754	1362	1919	3672	1816	2559
FC02-D02-25	4303	2128	2998	5737	2837	3998
FC02-D02-30	6196	3064	4318	8262	4086	5757
FC02-D02-35	8434	4171	5877	11245	5561	7836
FC02-D03-35	10209	5049	7114	13613	6732	9486
FC02-D03-38	12035	5952	8386	16046	7936	11182
FC02-D03-43	15410	7621	10738	20547	10162	14318
FC02-D04-43	19765	9775	13773	26353	13033	18364
FC02-D04-48	24629	12180	17162	32838	16241	22883
FC02-D04-53	30027	14850	20924	40036	19800	27899
FC02-D05-53	36898	18248	25712	49197	24331	34282
FC02-D05-58	44188	21854	30792	58917	29138	41055
FC02-D05-63	52135	25784	36329	69513	31378	54462
FC02-D06-63	65079	32185	45349	86771	42914	60465
FC02-D06-68	75818	37497	52833	101091	49996	70444
FC02-D06-73	87378	43214	60888	116504	57618	81184
FC02-D07-68	100552	49656	70044	134070	66208	93392
FC02-D07-73	115882	57226	80961	154510	76302	107948
FC02-D07-80	139171	68727	97542	185562	91636	130056
FC02-D08-80	185565	91638	129624	247420	122184	172832
FC02-D08-90	234856	115978	164718	313142	154638	219624
FC02-D08-100	289945	143184	203943	386594	190912	271924

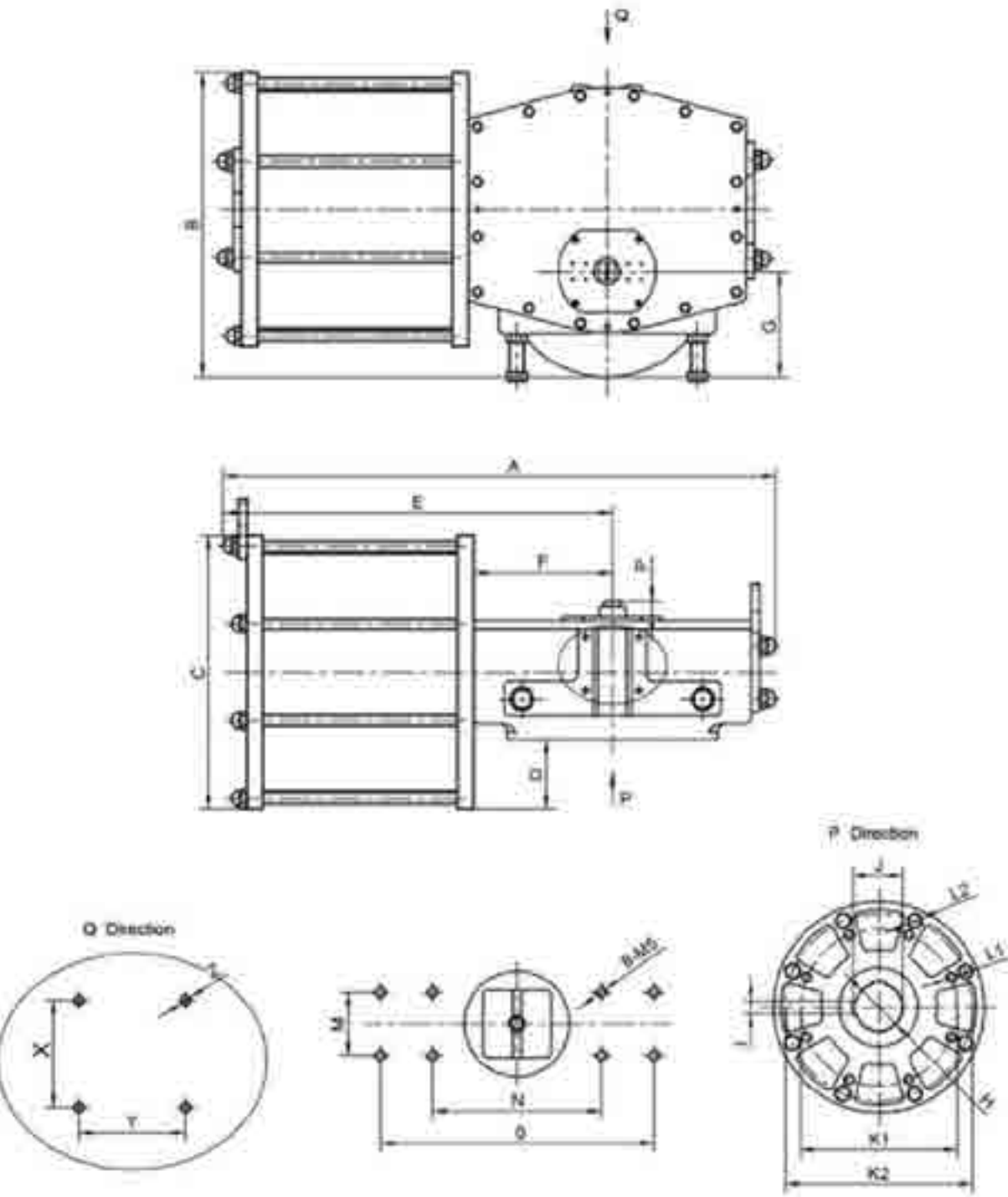


## Canted single-acting

MODEL		Spring Torque			Air Torque : Air Supply Pressure											
					4.0BAR			5.0BAR			6.0BAR			8.0BAR		
		0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°
FC02-S02-20	A	670	452	808	1166	456	471	1625	683	791	2084	910	1111			
	B	876	591	1056				1419	544	543	1878	771	863	2796	1225	1503
FC02-S02-25	A	1063	717	1282	1806	702	717	2523	1056	1217	3240	1411	1716			
	B	1396	942	1683				2190	831	816	2907	1186	1315	4341	1895	2315
FC02-S02-30	A	1496	1020	1834	2635	1023	1045	3668	1534	1764	4700	2044	2484			
	B	2059	1404	2524				3105	1150	1704	4137	1660	1794	6203	2682	3233
FC02-S02-35	A	1807	1262	2299	3816	1519	1619	5221	2214	2599	6627	2909	3578			
	B	2543	1735	3118				4485	1741	1780	5891	2436	2759	8702	3820	4718
FC02-S03-35	A	2047	1464	2700	4759	1902	2043	6461	2744	3229	8162	3585	4414			
	B	3093	2098	3759				5415	2110	2170	7116	2951	3355	10520	4634	5727
FC02-S03-38	A	2759	1973	3641	5264	1995	1950	7270	2987	3347	9276	3979	4745			
	B	3913	2654	4757				6116	2306	2231	8122	3298	3629	12133	5282	6425
FC02-S03-43	A	3637	2467	4421	6636	2614	2738	9205	3884	4528	11773	5154	6317			
	B	5017	3403	6099				7825	2948	2850	10393	4218	4639	15530	6759	8219
FC02-S04-43	A	4735	3340	6118	8442	3177	3064	11736	4806	5359	15030	6435	7655			
	B	6098	4301	7878				10373	3845	3599	13667	5474	5895	20255	8732	10486
FC02-S04-48	A	5887	4152	7605	10532	3968	3836	14637	5998	6697	18742	8028	9557			
	B	7754	5469	10017				12770	4681	4285	16875	6711	7145	25084	10772	12866
FC02-S04-53	A	7035	4962	9088	12983	4938	4861	17988	7413	8349	22992	9888	11836			
	B	9217	6502	11908				15806	5873	5529	20810	8348	9016	30819	13298	15991
FC02-S05-53	A	8854	6189	11286	15744	5976	5855	21894	9018	10140	28044	12059	14426			
	B	11770	8235	15018				18978	6972	6408	25128	10013	10694	37427	16096	19264
FC02-S05-58	A	10195	7133	13008	19264	7436	7520	26628	11078	12652	33993	14721	17784			
	B	14355	10044	18316				22468	8167	7344	29833	11810	12476	44562	19094	22739
FC02-S05-63	A	12292	8601	15684	22465	8588	8536	31154	12885	14590	39843	17183	20645			
	B	16158	11306	20617				27288	10180	9657	35977	14478	15712	53355	23072	27822
FC02-S06-63	A	14480	10292	18928	28906	11165	11305	39752	16529	18863	50599	21893	26421			
	B	18967	14028	26335				35265	12793	11456	46112	18157	19014	67804	28886	34130
FC02-S06-68	A	17715	12591	23156	32831	12407	12066	45467	18656	20871	58103	24906	29677			
	B	22115	16357	30708				41067	14890	13319	53703	21140	22125	78976	33639	39736
FC02-S06-73	A	19992	14209	26132	38260	14600	14460	52823	21802	24608	67386	29005	34756			
	B	25029	18512	34753				47786	17499	15987	62349	24702	26135	91475	39106	46431
FC02-S07-68	A	23423	16141	32090	43612	16963	14606	60370	25239	26280	77129	33515	37954			
	B	29280	20176	40113				54513	21204	18257	71272	29480	29931	104790	46032	53279
FC02-S07-73	A	26995	18602	36982	50260	19549	16992	69573	29086	30485	88887	38624	43979			
	B	33744	23252	46229				62824	24436	21238	82138	33974	34732	120766	53050	61719
FC02-S07-80	A	32420	22340	44416	60361	23478	20612	83556	34932	36869	106751	46387	53126			
	B	40526	27925	55520				75450	29347	25765	98645	40802	42022	145036	63711	74536
FC02-S08-80	A	43228	29787	59222	80482	31305	27194	111409	46578	48798	142337	61851	70402			
	B	54035	37235	74027				100602	39130	33933	131530	54403	55597	193385	84949	98805
FC02-S08-90	A	54712	37700	74953	101859	39619	34859	141001	58948	62312	180144	78278	89765			
	B	68389	47125	93691				127324	49523	43574	166467	68853	71027	244753	107513	125933
FC02-S08-100	A	67544	47049	92534	125753	48407	43428	174077	72271	77418	222401	96135	111409			
	B	84431	58812	115668				157190	60508	54284	205514	84372	88275	302163	132100	156256



Size data

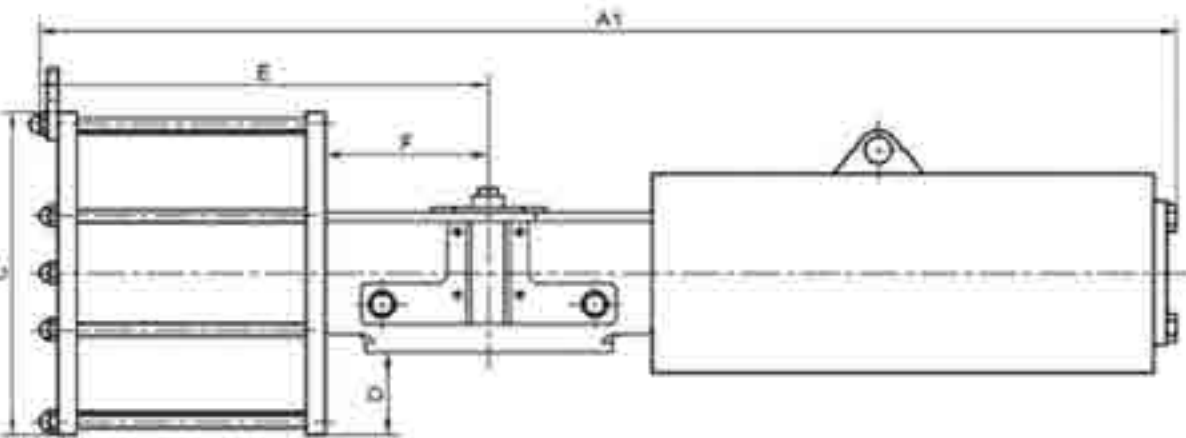
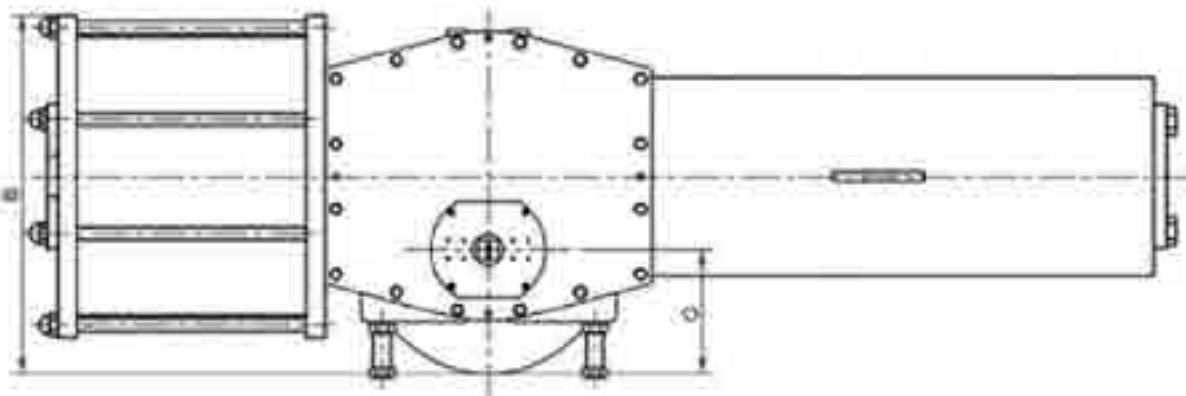


Double-acting / symmetrical and skewed data

MODEL	A	A1		B	C	D	E	F	G	H	I	J
		4.28mm	5.28mm									
FC01/02-02-20	720	1240	1255	311	φ270	42	510	175	100	φ50	14	53.8
FC01/02-02-25	720	1255	1285	336	φ320	67	510	175	100	φ50	14	53.8
FC01/02-02-30	720	1315	1325	361	φ370	92	510	175	100	φ50	14	53.8
FC01/02-02-35	720	1355	1370	386	φ420	117	510	175	100	φ50	14	53.8
FC01/02-03-35	840	1545	1550	467	φ420	100	585	210	165	φ80	20	84.9
FC01/02-03-38	840	1560	1615	482	φ450	115	585	210	165	φ80	20	84.9
FC01/02-03-43	840	1600	1665	507	φ500	140	585	210	165	φ80	20	84.9
FC01/02-04-43	1045	1895	1920	573	φ510	127	735	264	200	φ90	25	95.4
FC01/02-04-48	1045	1935	2070	598	φ560	152	735	264	200	φ90	25	95.4
FC01/02-04-53	1045	2045	1980	623	φ610	177	735	264	200	φ90	25	95.4
FC01/02-05-53	1365	2405	2475	680	φ610	148	930	385	230	φ120	32	127.4
FC01/02-05-58	1365	2405	2555	710	φ670	178	930	385	230	φ120	32	127.4
FC01/02-05-63	1365	2535	2645	735	φ720	203	930	385	230	φ120	32	127.4
FC01/02-06-63	1575	2980	3025	815	φ720	160	1075	440	275	φ150	36	158.4
FC01/02-06-68	1575	3030	3100	850	φ790	195	1075	440	275	φ150	36	158.4
FC01/02-06-73	1575	3110	3190	975	φ840	170	1335	520	275	φ190	45	200.4
FC01/02-07-68	1915	3490	3510	910	φ790	145	1335	520	275	φ190	45	200.4
FC01/02-07-73	1915	3520	3560	935	φ840	170	1335	520	275	φ190	45	200.4
FC01/02-07-80	1915	3565	3595	975	φ920	210	1335	520	275	φ190	45	200.4
FC01/02-08-80	2400	4250	4300	1115	φ920	140	1680	650	335	φ250	56	262.4
FC01/02-08-90	2400	4380	4420	1170	φ1030	195	1680	650	335	φ250	56	262.4
FC01/02-08-100	2400	4480	4550	1220	φ1130	245	1680	650	335	φ250	56	262.4



Size data



Single-acting / symmetrical and skewed data

K1	K2	L1	L2	M	N	O	P	X	Y	Z
φ165		4-M20		30	80	130	30	80	80	4-M8
φ165		4-M20		30	80	130	30	80	80	4-M8
φ165		4-M20		30	80	130	30	80	80	4-M8
φ165		4-M20		30	80	130	30	80	80	4-M10
φ254	φ298	8-M16	8-M20	30	80	130	30	80	80	4-M10
φ254	φ298	8-M16	8-M20	30	80	130	30	80	80	4-M10
φ254	φ298	8-M16	8-M20	30	80	130	30	80	80	4-M12
φ298	φ356	8-M20	8-M30	30	80	130	30	100	100	4-M12
φ298	φ356	8-M20	8-M30	30	80	130	30	100	100	4-M12
φ298	φ356	8-M20	8-M30	30	80	130	30	100	100	4-M12
φ298	φ356	8-M20	8-M30	30	80	130	30	140	160	4-M12
φ298	φ356	8-M20	8-M30	30	80	130	30	140	160	4-M12
φ298	φ356	8-M20	8-M30	30	80	130	30	140	160	4-M12
φ406	φ483	8-M36	12-M36	30	80	130	30	160	160	4-M12
φ406	φ483	8-M36	12-M36	30	80	130	30	160	160	4-M12
φ406	φ483	8-M36	12-M36	30	80	130	30	160	160	4-M12
φ406	φ483	8-M36	12-M36	30	80	130	30	180	180	4-M16
φ406	φ483	8-M36	12-M36	30	80	130	30	180	180	4-M16
φ406	φ483	8-M36	12-M36	30	80	130	30	180	180	4-M16
φ483	φ603	12-M36	20-M36	30	80	130	30	200	200	4-M16
φ483	φ603	12-M36	20-M36	30	80	130	30	200	200	4-M16
φ483	φ603	12-M36	20-M36	30	80	130	30	200	200	4-M16

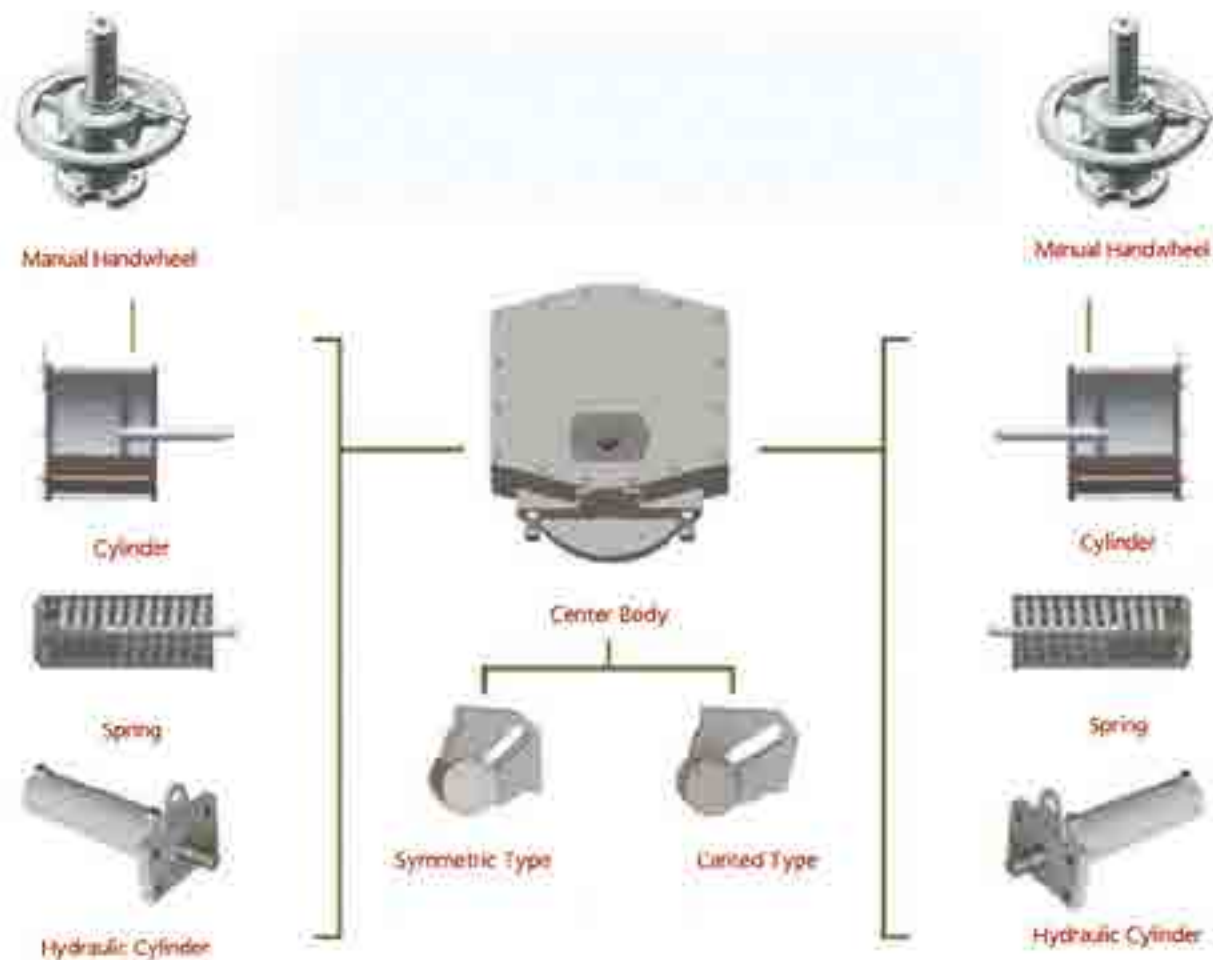


## Modular Design

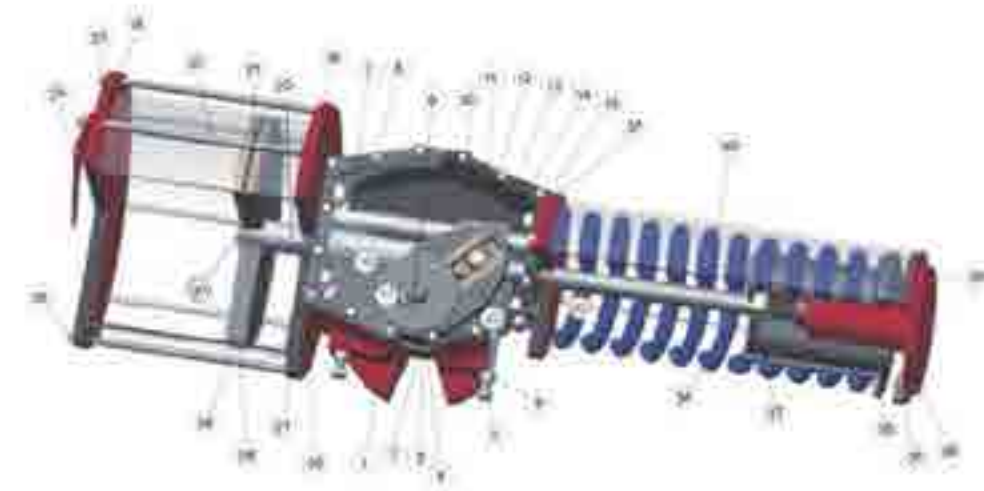
For different application requirements,

Select combination power,

Enhance flexibility modular, reduce maintenance and spare parts.



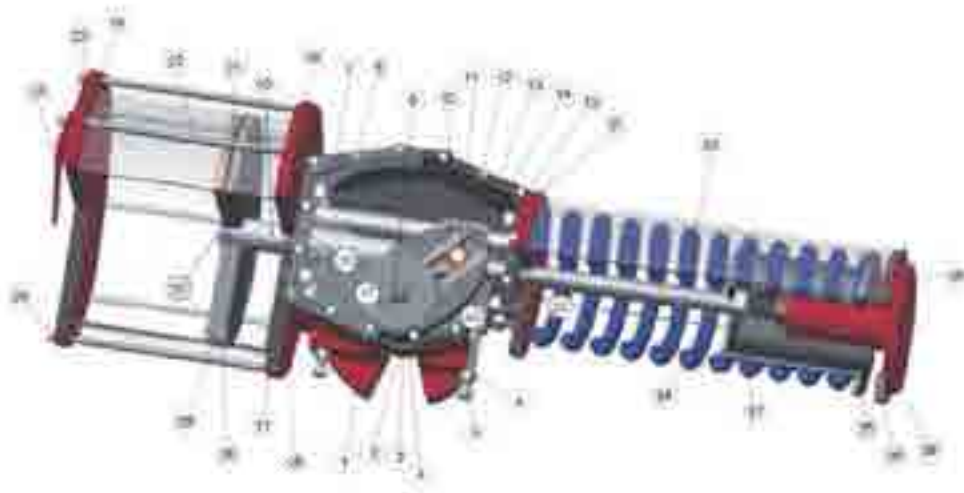
## Structure of the material



No.	Name	Material
1	Body	Ductile iron/aluminium alloy/forged steel
2	Lower shaft bushing	Low carbon steel + alloy steel
3	Sealing ring	NBR
4	Upper shaft bushing	Low carbon steel + alloy steel
5	Adjusting bolt	Alloy steel
6	Adjusting nut	Alloy steel
7	Body cover	Ductile iron/aluminium alloy/forged steel
8	Bodycover bolt	Stainless steel
9	Indicator	Alloy steel
10	Scotch yoke	Ductile iron / forged steel
11	Axle bumper	Alloy steel
12	Axle Pin	Alloy steel
13	Sliding block	Alloy brass
14	Slide block	Alloy steel



## Structure of the material



No.	Name	Material
15	Link bolt	Alloy steel
16	Pin	Alloy steel
17	Mounting plate	Alloy steel
18	Front cylinder Cover	Alloy steel / aluminum alloy
19	Cover O-ring	NBR
20	Piston rod	Alloy steel
21	Piston	Alloy steel / aluminum alloy
22	Cylinder rod	Alloy steel / stainless steel
23	Back cylinder cover	Alloy steel / aluminum alloy
24	Lifting Plate	Alloy steel
25	Rod nut	Alloy steel / stainless steel
26	Piston rod bushing	Low carbon steel + alloy steel
27	Front cover O-ring	NBR
28	Support ring	Bronze synthetic materials

## Structure of the material



No.	Name	Material
29	Piston O-ring	NBR
30	Piston tight bolt	Alloy steel
31	Spring case front cover	Alloy steel
32	Spring rod guide sleeve	Alloy steel
33	Spring rod	Alloy brass
34	Spring	Spring steel
35	Spring guide sleeve	Alloy steel
36	Spring case back cover	Alloy steel
37	Spring rod lock nut	Alloy steel
38	Hydraulic oil cylinder	Alloy steel
39	Cover bolt	Alloy steel / stainless steel
40	Orbital module	Ductile iron