CC— 型超高真空插板阀系列

CC-type Ultrahigh Vacuum Gate Valve Series

使用说明书

Operation manual

(2018 版)

(2018 Edition)

成都中科唯实仪器有限责任公司

Chengdu Zhongke Wish Instruments Co.,Ltd

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二、产品简介

新型(A 型)超高真空插板阀系列是在原有老型号插板阀的基础上研制而成的适用于超高真空的超薄型插板阀。其阀门外表面采用银灰色亚光处理，高档大方。阀体、阀板等主要零部件均采用放气量极低的 304 不锈钢，而实现阀体运动的传动部件采用 316L 制成的不锈钢焊接波纹管，阀板的密封采用放气量极低的进口氟胶圈。

三、用途和使用范围

1. 系列超高真空插板阀是超高真空系统中的重要组成元件之一,可以作为超高真空管路中的开闭机构。
2. 该系列超高真空插板阀适用于工作介质为空气及非腐蚀性气体的场合。

四、主要性能指标

CCQ— 系列超高真空气动插板阀性能指标

型号		CCQ—50A	CCQ—63A	CCQ—80A
接口法兰		CF/ISO—F/ISO—K	CF/ISO—F/ISO—K	CF/ISO—F/ISO—K
公称通径		DN50	DN63	DN80
适用范围(Pa)		$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$
漏率($Pa\cdot m^3/s$)		$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$
阀门开启压差(Pa)		≤2800	≤2800	≤2800
驱动方式		气动	气动	气动
建议工作气压(MPa)		0.4	0.5	0.5
☆烘烤温度(°C)	开	150	150	150
	关	120	120	120
*流导(L/S)		—	400	—
安装方向		任意(最佳工作状态为水平安装,最好避免气缸朝下)		
阀门到位指示		带有启闭位置指示(磁感应开关)		

型号		CCQ—100A	CCQ—150A	CCQ—200A
接口法兰		CF/ISO—F/ISO—K	CF/ISO—F/ISO—K	CF/ISO—F/ISO—K
公称通径		DN100	DN150	DN200
适用范围(Pa)		$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$
漏率($Pa\cdot m^3/s$)		$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$
阀门开启压差(Pa)		≤2800	≤2800	≤2800
驱动方式		气动	气动	气动
建议工作气压(MPa)		0.5	0.5	0.5
☆烘烤温度(°C)	开	150	150	150
	关	120	120	120
*流导(L/S)		1100	3400	7300
安装方向		任意(最佳工作状态为水平安装,最好避免气缸朝下)		
阀门到位指示		带有启闭位置指示(磁感应开关)		

☆如需烘烤，请参考温度指标，以免损害阀门或者影响阀门密封的可靠性；

*分子流状态下按长管计算的理论值，不作验收依据。

型号		CCQ—250A	CCQ—320A	CCQ—400A
接口法兰		CF/ISO—F/ISO—K	CF/ISO—F/ISO—K	CF/ISO—F/ISO—K
公称通径		DN250	DN320	DN400
适用范围(Pa)		$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$
漏率($Pa\cdot m^3/s$)		$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$
阀门开启压差(Pa)		≤2800	≤2800	≤2800
驱动方式		气动	气动	气动
建议工作气压(MPa)		0.6	0.6	0.7
☆烘烤温度(°C)	开	150	150	150
	关	120	120	120
*流导(L/S)		12000	21000	30000
安装方向		任意(最佳工作状态为水平安装,最好避免气缸朝下)		
阀门到位指示		带有启闭位置指示(磁感应开关)		

CC— 系列超高真空手动插板阀性能指标

型号		CC—50A	CC—63A	CC—80A
接口法兰		CF/ISO—F/ISO—K	CF/ISO—F/ISO—K	CF/ISO—F/ISO—K
公称通径		DN50	DN63	DN80
适用范围(Pa)		$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$
漏率($Pa\cdot m^3/s$)		$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$
阀门开启压差(Pa)		≤2800	≤2800	≤2800
驱动方式		手动	手动	手动
☆烘烤温度(°C)	开	150	150	150
	关	120	120	120
*流导(L/S)		—	400	—
安装方向		任意(最佳工作状态为水平安装)		
阀门到位指示		带有启闭位置指示(机械式)		

☆如需烘烤，请参考温度指标，以免损害阀门或者影响阀门密封的可靠性；

*分子流状态下按长管计算的理论值，不作验收依据。

型号		CC—100A	CC—150A	CC—200A
接口法兰		CF/ISO—F/ISO—K	CF/ISO—F/ISO—K	CF/ISO—F/ISO—K
公称通径		DN100	DN150	DN200
适用范围(Pa)		10^5 ~1.3×10^{-7}	10^5 ~1.3×10^{-7}	10^5 ~1.3×10^{-7}
漏率($Pa\cdot m^3/s$)		≤$1.3x10^{-10}$	≤$1.3x10^{-10}$	≤$1.3x10^{-10}$
阀门开启压差(Pa)		⩽2800	⩽2800	⩽2800
驱动方式		手动	手动	手动
☆烘烤温度(°C)	开	150	150	150
	关	120	120	120
*流导(L/S)		1100	3400	7300
安装方向		任意(最佳工作状态为水平安装)		
阀门到位指示		带有启闭位置指示(机械式)		

型号		CC—250A	CC—320A	CC—400A
接口法兰		CF/ISO—F/ISO—K	CF/ISO—F/ISO—K	CF/ISO—F/ISO—K
公称通径		DN250	DN320	DN400
适用范围(Pa)		10^5 ~1.3×10^{-7}	10^5 ~1.3×10^{-7}	10^5 ~1.3×10^{-7}
漏率($Pa\cdot m^3/s$)		≤$1.3x10^{-10}$	≤$1.3x10^{-10}$	≤$1.3x10^{-10}$
阀门开启压差(Pa)		⩽2800	⩽2800	⩽2800
驱动方式		手动	手动	手动
☆烘烤温度(°C)	开	150	150	150
	关	120	120	120
*流导(L/S)		12000	21000	30000
安装方向		任意(最佳工作状态为水平安装)		
阀门到位指示		带有启闭位置指示(机械式)		

☆如需烘烤，请参考温度指标，以免损害阀门或者影响阀门密封的可靠性；

*分子流状态下按长管计算的理论值，不作验收依据。

CCD— 系列超高真空电动插板阀性能指标

型号		CCD—50A	CCD—63A	CCD—80A
接口法兰		CF/ISO—F/ISO—K	CF/ISO—F/ISO—K	CF/ISO—F/ISO—K
公称通径		DN50	DN63	DN80
适用范围(Pa)		10^5 ~1.3×10^{-7}	10^5 ~1.3×10^{-7}	10^5 ~1.3×10^{-7}
漏率($Pa\cdot m^3/s$)		≤$1.3x10^{-10}$	≤$1.3x10^{-10}$	≤$1.3x10^{-10}$
阀门开启压差(Pa)		⩽2800	⩽2800	⩽2800
驱动方式		电动	电动	电动
驱动器电压(V)		24⩽DC⩽80，典型值48 (STD268M)		
驱动器电流(A)		1.2～6.0 (STD268M)		
☆烘烤温度(°C)	开	150	150	150
	关	120	120	120
*流导(L/S)		—	400	—
安装方向		任意(最佳工作状态为水平安装，最好避免电机朝下)		
阀门到位指示		带有启闭位置指示(触动开关)		

型号		CCD—100A	CCD—150A	CCD—200A
接口法兰		CF/ISO—F/ISO—K	CF/ISO—F/ISO—K	CF/ISO—F/ISO—K
公称通径		DN100	DN150	DN200
适用范围(Pa)		10^5 ~1.3×10^{-7}	10^5 ~1.3×10^{-7}	10^5 ~1.3×10^{-7}
漏率($Pa\cdot m^3/s$)		≤$1.3x10^{-10}$	≤$1.3x10^{-10}$	≤$1.3x10^{-10}$
阀门开启压差(Pa)		⩽2800	⩽2800	⩽2800
驱动方式		电动	电动	电动
驱动器电压(V)		24⩽DC⩽80	90⩽AC⩽240(STD2522M)	
驱动器电流(A)		1.2～6.0	0.5～5.0(STD2522M)	
☆烘烤温度(°C)	开	150	150	150
	关	120	120	120
*流导(L/S)		1100	3400	7300
安装方向		任意(最佳工作状态为水平安装，最好避免电机朝下)		
阀门到位指示		带有启闭位置指示(触动开关)		

☆如需烘烤，请参考温度指标，以免损害阀门或者影响阀门密封的可靠性；

*分子流状态下按长管计算的理论值，不作验收依据。

型号		CCD—250A	CCD—320A	CCD—400A
接口法兰		CF/ISO—F/ISO—K	CF/ISO—F/ISO—K	CF/ISO—F/ISO—K
公称通径		DN250	DN320	DN400
适用范围(Pa)		10^5 ~1.3×10^{-7}	10^5 ~1.3×10^{-7}	10^5 ~1.3×10^{-7}
漏率($Pa\cdot m^3/s$)		≤$1.3x10^{-10}$	≤$1.3x10^{-10}$	≤$1.3x10^{-10}$
阀门开启压差(Pa)		≤2800	≤2800	≤2800
驱动方式		电动	电动	电动
驱动器电压(V)		90≤AC≤240，典型值220 (STD2522M)		
驱动器电流(A)		0.5～5.0(STD2522M)		
☆烘烤温度(℃)	开	150	150	150
	关	120	120	120
*流导(L/S)		12000	21000	30000
安装方向		任意(最佳工作状态为水平安装，最好避免电机朝下)		
阀门到位指示		带有启闭位置指示(触动开关)		

☆如需烘烤，请参考温度指标，以免损害阀门或者影响阀门密封的可靠性；

*分子流状态下按长管计算的理论值，不作验收依据。

五、工作原理

阀门利用螺杆（手动和电动）或气缸杆(气动)推动，在密封轴的轴向运动下，推(拉)动连杆机构，从而带动阀芯组件沿轴向运动。当阀芯组件上的限位块运动到终端时，密封板和支撑板就停止轴向移动，此时，密封板和支撑板就与外侧的法兰孔同心，若继续推动阀芯组件，则位于密封板和支撑板钢球凹槽内的钢球被阀芯组件逐步推出，从而使密封板和支撑板被钢球撑开，而分别压向法兰的密封面和支撑面，当钢球完全离开凹槽而位于密封板和支撑板的平面上时，压紧力达到最大，阀门完全关闭，在氟橡胶密封圈的作用下，就起到了所需的密封效果；当阀芯组件被拉动向后运动时，由于密封板和支撑板与法兰面间的摩擦力很大，则钢球首先被拉回到密封板和支撑板的钢球凹槽内，在弹簧片的作用下，密封板和支撑板离开

法兰的密封面和支撑面，又将钢球压紧在钢球凹槽内，并且整个阀芯组件在连杆机构的带动下一同向后运动，离开法兰孔口，使阀门完全打开。

六、电动插板阀系列使用说明

1．电机与驱动器概述：

(1) CCD—50A、63A、80A、100A 电动插板阀的电机型号为：VLM56112T，最大静力矩为：3N.m；CCD—150A、200A 电动插板阀的电机型号为：VLM86118T，最大静力矩为:8N.m；CCD—250A 电动插板阀的电机型号为：VLM86156T，最大静力矩为:12N.m；CCD—320A、400A 电动插板阀的电机型号为：VLM110201T，最大静力矩为:35N.M，以上型号电机均为两相混合式步进电机，步距角均为：1.8°。

(2) CCD—50A、63A、80A、100A 电动插板阀采用 STD268M 两相混合式步进驱动器，CCD—150A、200A、250A、320A、400A 采用 STD2522M 两相混合式步进驱动器。

(3) 步进电机驱动器采用了双极恒流斩波方式、噪声吸收抑制等技术工艺，使步进电机系统具有高可靠性、体积小、重量轻、效率高、运行平衡、静态及高速力矩大等优点。

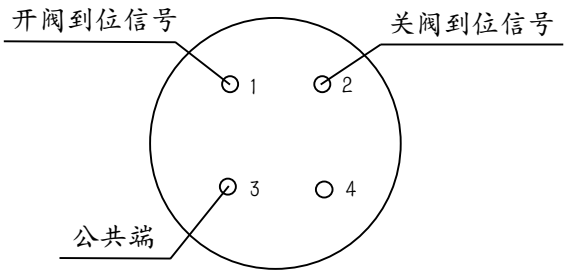
2．步进电机驱动器介绍：

详见随机步进电机驱动器使用说明书

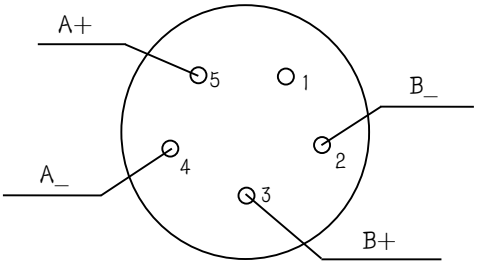
3．电动插板阀接线说明：

(1) 完整的电动插板阀控制系统应含有**步进电机(插板阀)**、**步进电机驱动器**、**控制系统(脉冲源)**以及**供电电源**。

(2) 电动插板阀航空插座接线示意图及说明：



到位信号航空插座(四芯)



驱动电源航空插座(五芯)

到位信号(触动开关)：

(1)开阀到位信号　当阀门完全打开时有信号输出，该信号可以是正或负逻辑电平，取决于公共端的接法，接外部控制器对应四芯航空插座 1 脚。

(2)关阀到位信号　当阀门完全关闭时有信号输出，该信号可以是正或负逻辑电平，取决于公共端的接法，接外部控制器对应四芯航空座 2 脚。

(3)公共端　接外部控制器，根据接法的不同来决定开/关阀信号的输出为正或负逻辑电平，对应四芯航空插座 3 脚。

电机驱动电源：

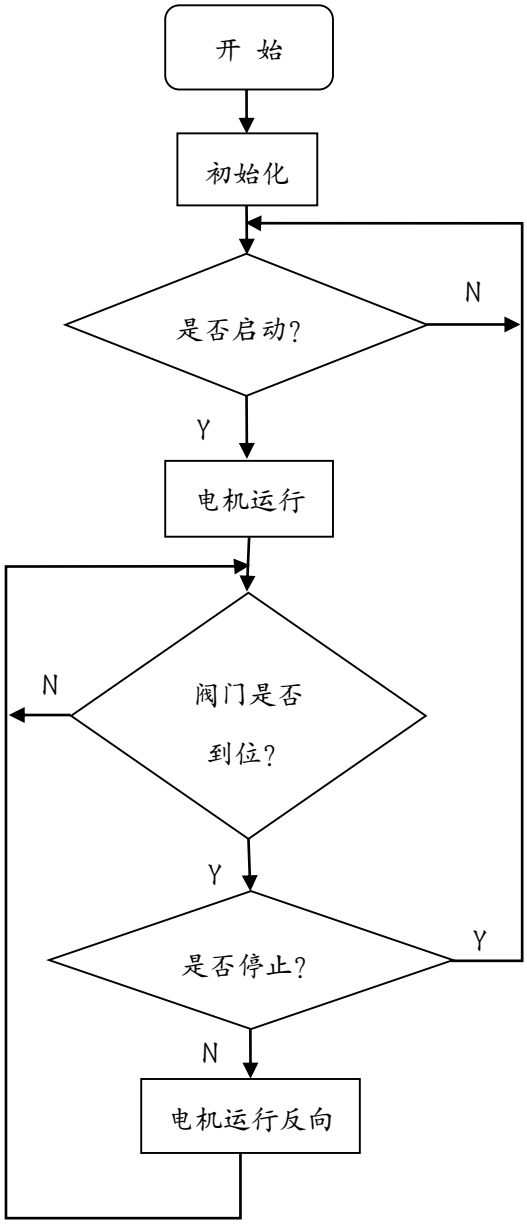
(1)B_　接步进电机 B 相，对应五芯航空插座 2 脚。

(2)B+　接步进电机 B 相，对应五芯航空插座 3 脚。

(3)A_　接步进电机 A 相，对应五芯航空插座 4 脚。

(4)A+　接步进电机 A 相，对应五芯航空插座 5 脚。

4.电动插板阀控制程序流程图



七、结构特性

1．不锈钢整体内焊阀体,密封性好，体积小,重量轻,外型美观。

2．阀芯组件结构简单,焊接件少,焊接工艺简单,装配调试方便，其轴向运动采用双导轨滚轮轴承机构,运动平稳,导向精度高。

3．密封板和支撑板均采用整体板式结构,支撑力分布均匀,刚性好。

4．阀门打开时,支撑钢球位于钢球球套孔和密封板及支撑板上的钢球凹槽

里,阀门关闭时,钢球被推出凹槽,而位于密封板和支撑板的平面上,起到撑开和支撑的作用。

5. 传动机构采用平面连杆机构,结构简单,承载能力大,动作稳定性高,气缸（或手柄）位于阀门中轴线上。

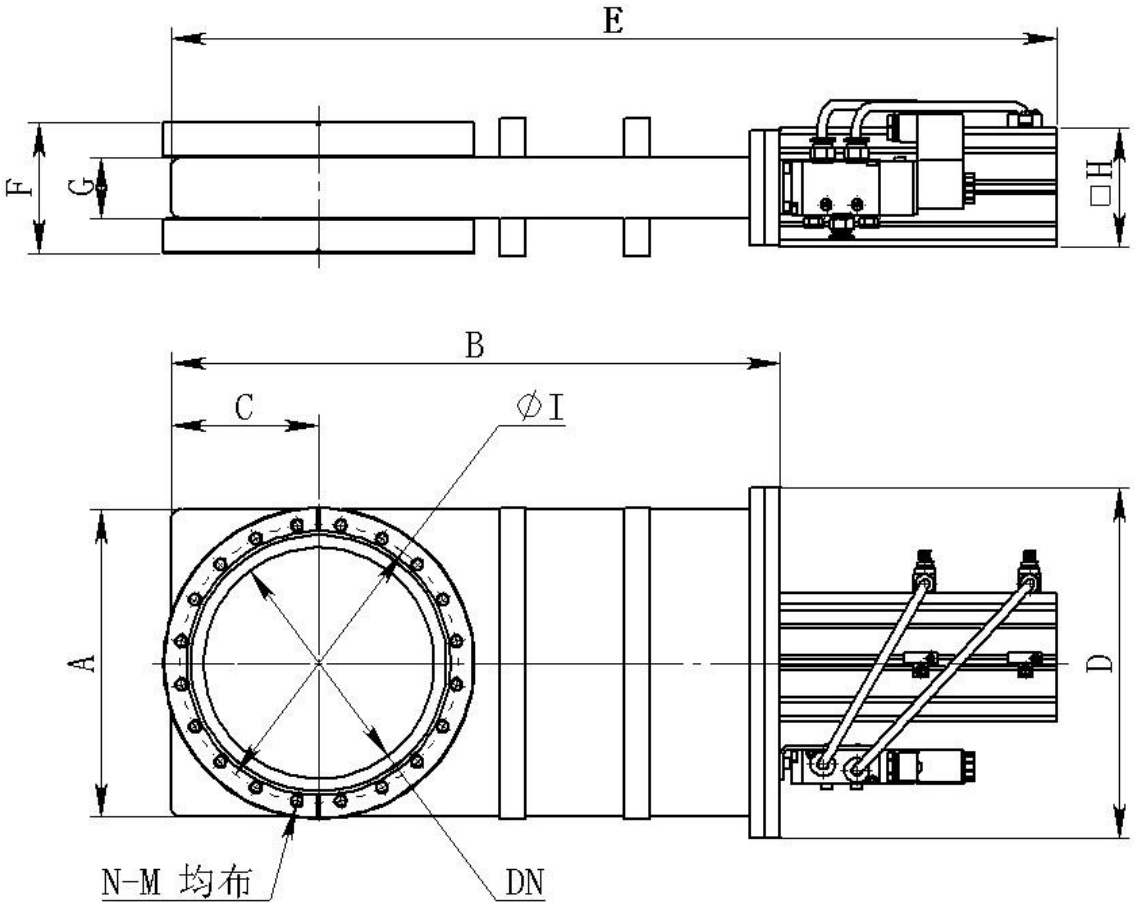
6. 传动轴(杆)采用 316L 制成的不锈钢焊接波纹管密封,密封性能好,可以任意位置安装。

7. 用户可根据需要选择手动、气动或电动形式,手动结构简单,操作方便灵活,气动和电动适用于自动控制。

8. 本系列插板阀在真空系统中的连接形式有：用铜垫圈密封的 CF 法兰和用氟胶圈密封的 ISO—F、ISO—K 法兰三种连接方式。

9. 本系列插板阀的外型及主要连接尺寸如下：

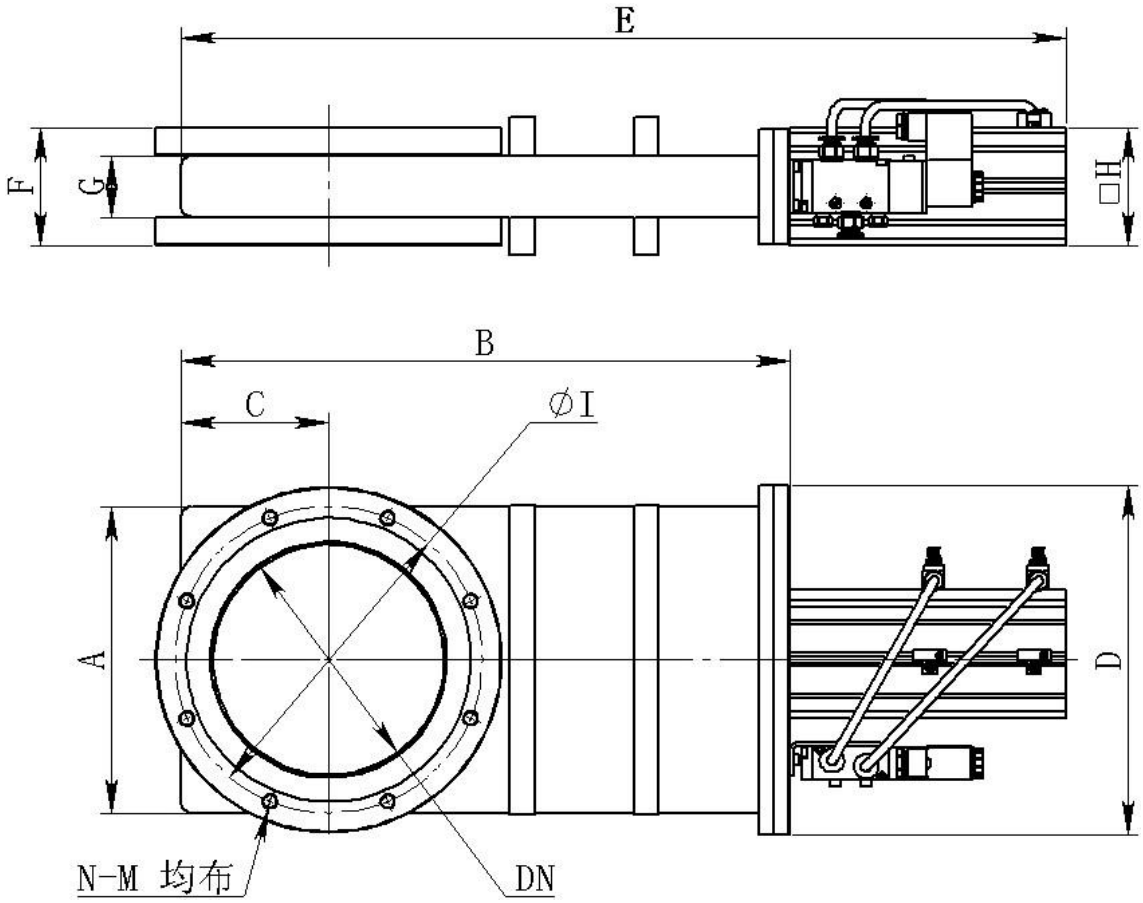
CCQ— 气动插板阀系列 CF 法兰连接形式外型尺寸



规格 型号	DN	外形尺寸											
		A	B	C	D	E	F	G	H	I	N—M	法 兰	标 准
CCQ—50A	50	92	178	42	124	298	64	32	64	72.4	8—M8	CF50	
CCQ—63A	63	110	215	52	130	335	68	34	64	92.2	8—M8	CF63	
CCQ—80A	80	130	255	64	158	382	68	34	64	110	16—M8	CF80	GB/T
CCQ—100A	100	152	301	75	178	447	76	36	64	130.3	16—M8	CF100	6071—
CCQ—150A	150	200	396	96	228	576	80	40	77	181	20—M8	CF150	2003
CCQ—200A	200	248	508	123	276	711	94	42	98	231.8	24—M8	CF200	超高真
CCQ—250A	250	310	610	150	342	813	101	48	117	284	32—M8	CF250	空法兰
CCQ—320A	320	405	774	190	440	976	106	50	117	338.1	32—M10	CF320	
CCQ—400A	400	466	943	236	504	1277	107	51	142	437.9	40—M10	CF400	

❖ 气动插板阀工作时，气源不应断掉

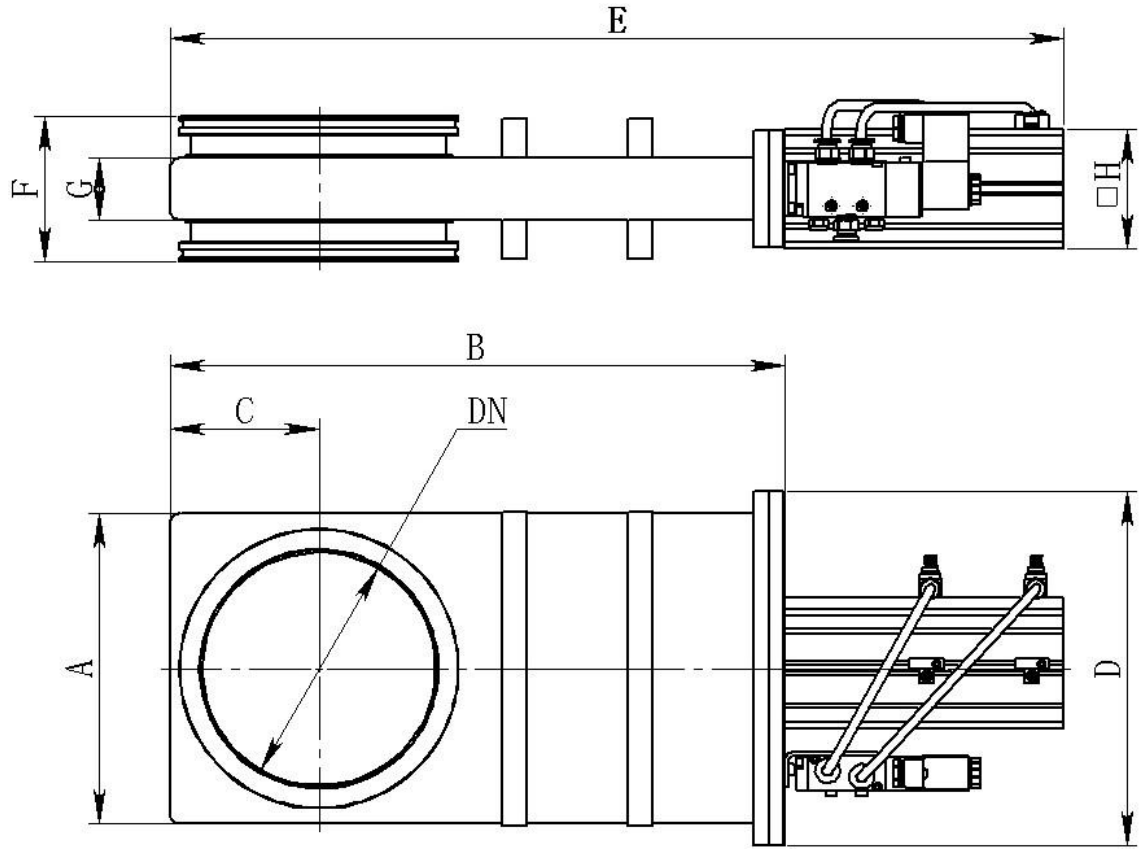
CCQ— 气动插板阀系列 ISO—F 法兰连接形式外型尺寸



规格 型号	DN	外形尺寸											
		A	B	C	D	E	F	G	H	I	N—M	法 兰	标 准
CCQ—50A	50	92	178	42	124	298	64	32	64	90	4—M8	ISO—F50	
CCQ—63A	63	110	215	52	130	335	68	34	64	110	4—M8	ISO—F63	
CCQ—80A	80	130	255	64	158	382	68	34	64	125	8—M8	ISO—F80	GB/T
CCQ—100A	100	152	301	75	178	447	76	36	64	145	8—M8	ISO—F100	6070—
CCQ—150A	150	200	396	96	228	576	80	40	77	200	8—M10	ISO—F150	2007
CCQ—200A	200	248	508	123	276	711	86	42	98	260	12—M10	ISO—F200	真空技术
CCQ—250A	250	310	610	150	342	813	91	48	117	310	12—M10	ISO—F250	法兰尺寸
CCQ—320A	320	405	774	190	440	976	96	50	117	395	12—M12	ISO—F320	
CCQ—400A	400	466	943	236	504	1277	95	51	142	480	16—M12	ISO—F400	

❖ 气动插板阀工作时，气源不应断掉

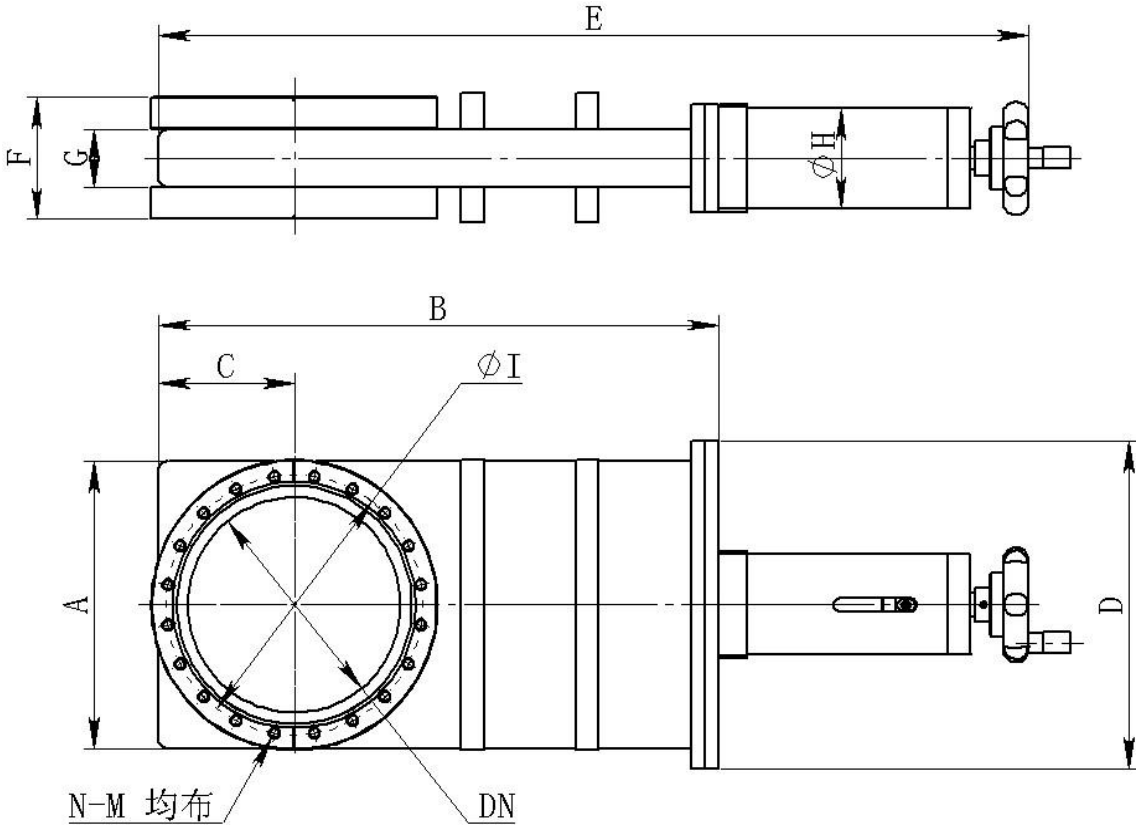
CCQ— 气动插板阀系列 ISO—K 法兰连接形式外型尺寸



规格 型号	DN	外形尺寸									
		A	B	C	D	E	F	G	H	法 兰	标 准
CCQ—50A	50	92	178	42	124	298	84	32	64	ISO—K50	
CCQ—63A	63	110	215	52	130	335	86	34	64	ISO—K63	
CCQ—80A	80	130	255	64	158	382	88	34	64	ISO—K80	GB/T
CCQ—100A	100	152	301	75	178	447	89	36	64	ISO—K100	6070—
CCQ—150A	150	200	396	96	228	576	93	40	77	ISO—K150	2007
CCQ—200A	200	248	508	123	276	711	94	42	98	ISO—K200	真空技术
CCQ—250A	250	310	610	150	342	813	101	48	117	ISO—K250	法兰尺寸
CCQ—320A	320	405	774	190	440	976	116	50	117	ISO—K320	
CCQ—400A	400	466	943	236	504	1277	119	51	142	ISO—K400	

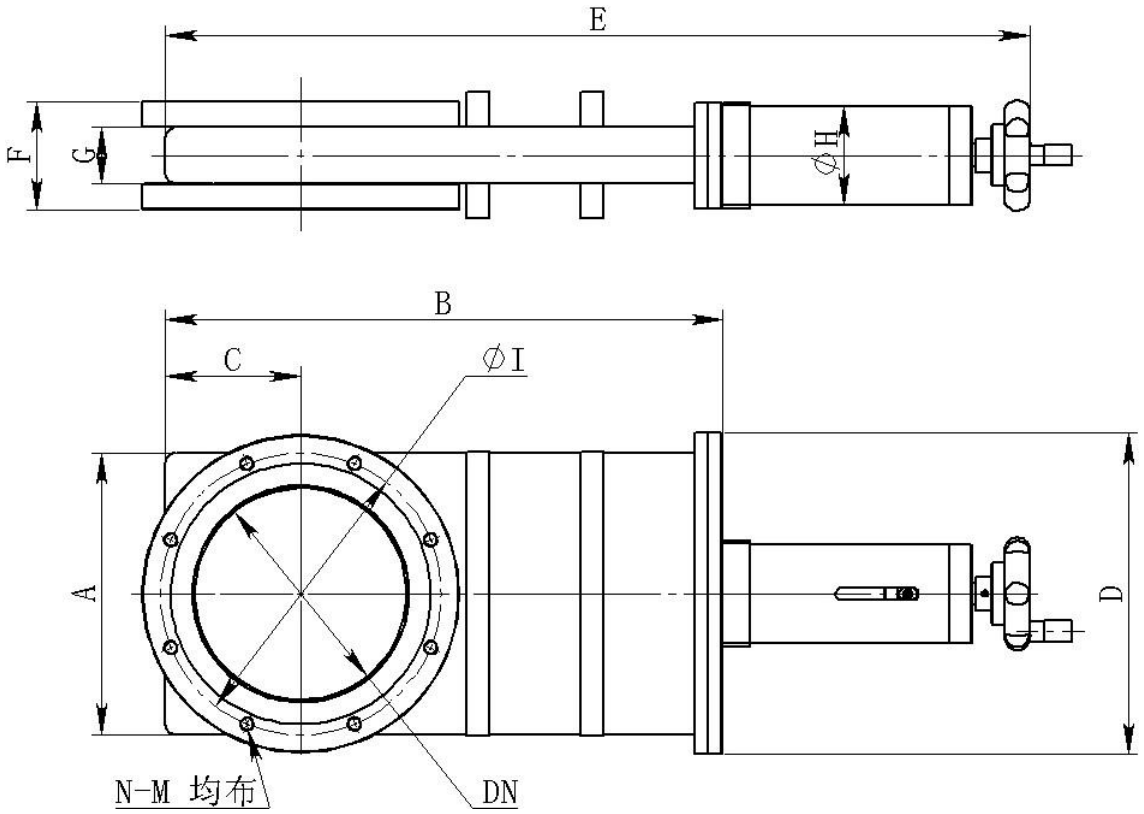
❖ 气动插板阀工作时，气源不应断掉

CC— 手动插板阀系列 CF 法兰连接形式外型尺寸



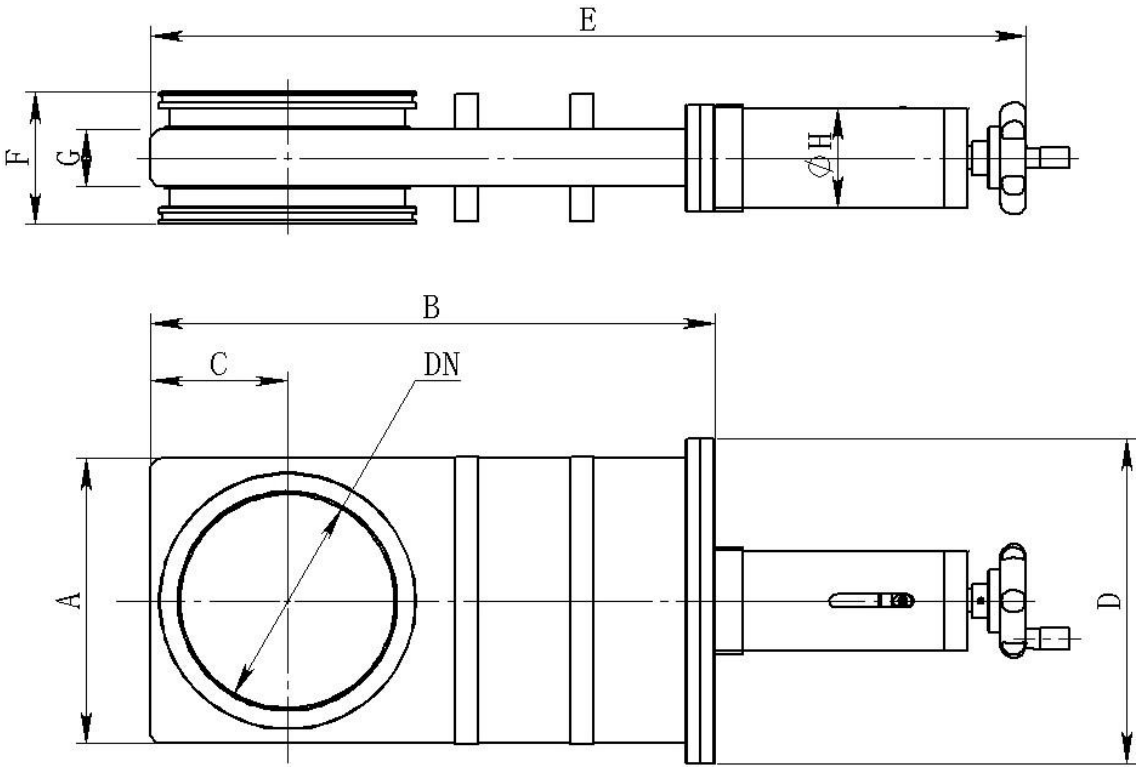
规格 型号	DN			外形尺寸									
		A	B	C	D	E	F	G	H	I	N—M	法 兰	标 准
CC—50A	50	92	178	42	124	323	64	32	60	72.4	8—M8	CF50	
CC—63A	63	110	215	52	130	363	68	34	60	92.2	8—M8	CF63	
CC—80A	80	130	255	64	158	413	68	34	60	110	16—M8	CF80	GB/T
CC—100A	100	152	301	75	178	468	76	36	60	130.3	16—M8	CF100	6071—
CC—150A	150	200	396	96	228	615	80	40	70	181	20—M8	CF150	2003
CC—200A	200	248	508	123	276	734	94	42	70	231.8	24—M8	CF200	超高真
CC—250A	250	310	610	150	342	836	101	48	70	284	32—M8	CF250	空法兰
CC—320A	320	405	774	190	440	1009	106	50	70	338.1	32—M10	CF320	
CC—400A	400	466	943	236	504	1205	107	51	75	437.9	40—M10	CF400	

CC— 手动插板阀系列 ISO—F 法兰连接形式外型尺寸



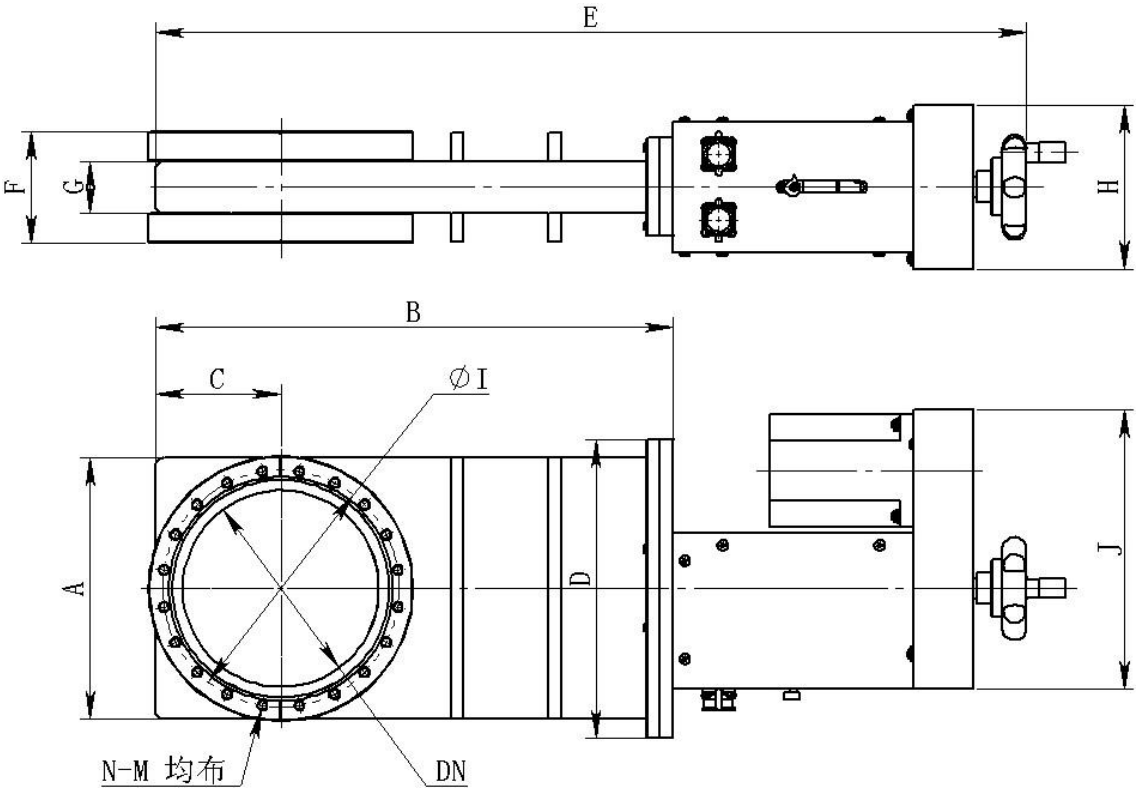
规格 型号	DN	外形尺寸											
		A	B	C	D	E	F	G	H	I	N—M	法 兰	标 准
CC—50A	50	92	178	42	124	323	64	32	60	90	4—M8	ISO—F50	GB/T 6070—2007 真空技术 法兰尺寸
CC—63A	63	110	215	52	130	363	68	34	60	110	4—M8	ISO—F63	
CC—80A	80	130	255	64	158	413	68	34	60	125	8—M8	ISO—F80	
CC—100A	100	152	301	75	178	468	76	36	60	145	8—M8	ISO—F100	
CC—150A	150	200	396	96	228	615	80	40	70	200	8—M10	ISO—F150	
CC—200A	200	248	508	123	276	734	86	42	70	260	12—M10	ISO—F200	
CC—250A	250	310	610	150	342	836	91	48	70	310	12—M10	ISO—F250	
CC—320A	320	405	774	190	440	1009	96	50	70	395	12—M12	ISO—F320	
CC—400A	400	466	943	236	504	1205	95	51	75	480	16—M12	ISO—F400	

CC— 手动插板阀系列 ISO—K 法兰连接形式外型尺寸



规格 型号	DN	外形尺寸									
		A	B	C	D	E	F	G	H	法 兰	标 准
CC—50A	50	92	178	42	124	323	84	32	60	ISO—K50	
CC—63A	63	110	215	52	130	363	86	34	60	ISO—K63	
CC—80A	80	130	255	64	158	413	88	34	60	ISO—K80	GB/T
CC—100A	100	152	301	75	178	468	89	36	60	ISO—K100	6070—
CC—150A	150	200	396	96	228	615	93	40	70	ISO—K150	2007
CC—200A	200	248	508	123	276	734	94	42	70	ISO—K200	真空技术
CC—250A	250	310	610	150	342	836	101	48	70	ISO—K250	法兰尺寸
CC—320A	320	405	774	190	440	1009	116	50	70	ISO—K320	
CC—400A	400	466	943	236	504	1205	119	51	75	ISO—K400	

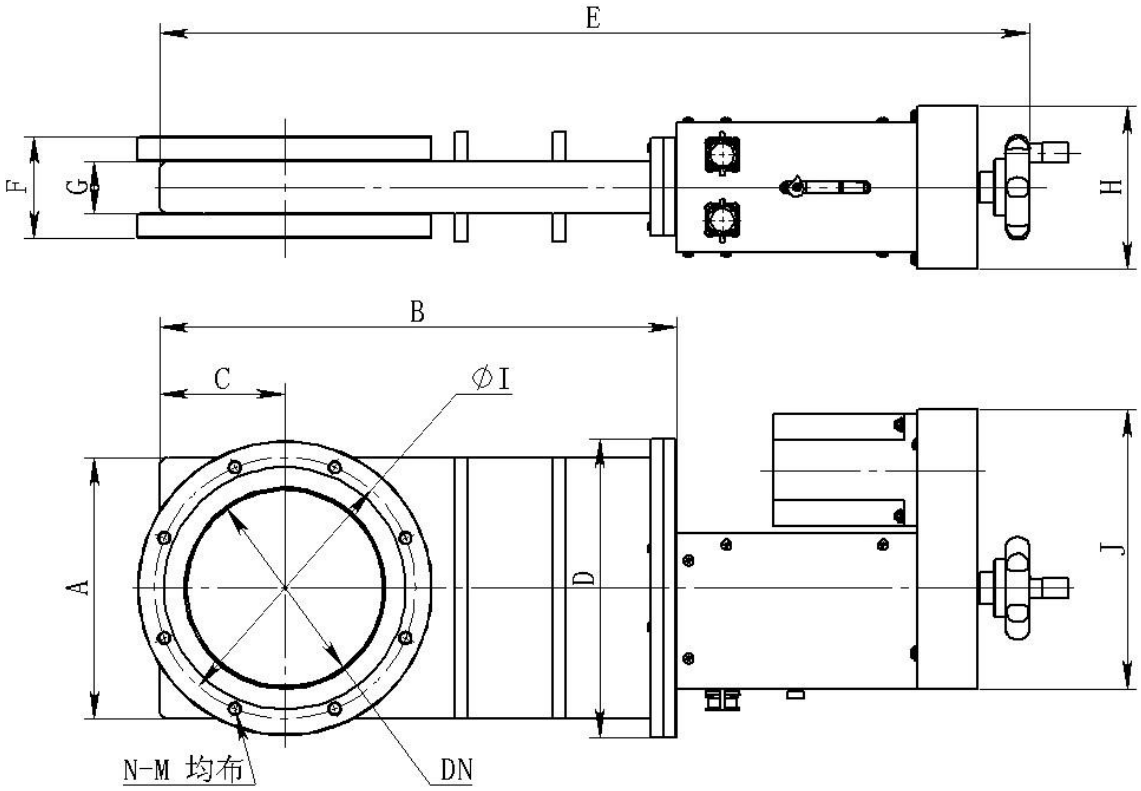
CCD— 电动插板阀系列 CF 法兰连接形式外型尺寸



规格 型号	DN	外形尺寸												
		A	B	C	D	E	F	G	H	I	J	N—M	法 兰	标 准
CCD—50A	50	92	178	42	124	376	64	32	119	72.4	193	8—M8	CF50	GB/T 6071—2003 超高真空法兰
CCD—63A	63	110	215	52	130	413	68	34	119	92.2	193	8—M8	CF63	
CCD—80A	80	130	255	64	158	474	68	34	114	110	197	16—M8	CF80	
CCD—100A	100	152	301	75	178	521	76	36	114	130.3	197	16—M8	CF100	
CCD—150A	150	200	396	96	228	666	80	40	125	181	214	20—M8	CF150	
CCD—200A	200	248	508	123	276	777	94	42	125	231.8	214	24—M8	CF200	
CCD—250A	250	310	610	150	342	840	101	48	125	284	214	32—M8	CF250	
CCD—320A	320	405	774	190	440	1063	106	50	154	338.1	261	32—M10	CF320	
CCD—400A	400	466	943	236	504	1265	107	51	154	437.9	261	40—M10	CF400	

❖ 当停电时，可摇动手柄开、关阀

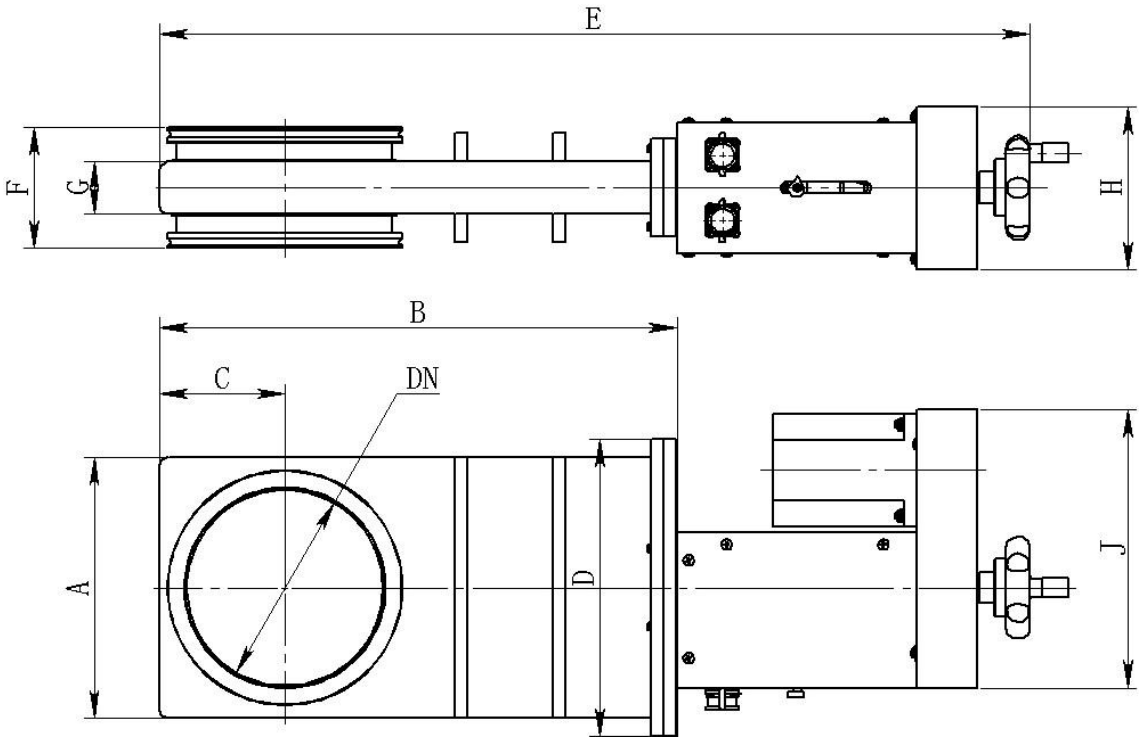
CCD— 电动插板阀系列 ISO—F 法兰连接形式外型尺寸



规格 型号	DN	外形尺寸												
		A	B	C	D	E	F	G	H	I	J	N—M	法 兰	标 准
CCD—50A	50	92	178	42	124	376	64	32	119	90	193	4—M8	ISO—F50	GB/T 6070—2007 真空技术 法兰尺寸
CCD—63A	63	110	215	52	130	413	68	34	119	110	193	4—M8	ISO—F63	
CCD—80A	80	130	255	64	158	474	68	34	114	125	197	8—M8	ISO—F80	
CCD—100A	100	152	301	75	178	521	76	36	114	145	197	8—M8	ISO—F100	
CCD—150A	150	200	396	96	228	666	80	40	125	200	214	8—M10	ISO—F150	
CCD—200A	200	248	508	123	276	777	86	42	125	260	214	12—M10	ISO—F200	
CCD—250A	250	310	610	150	342	840	91	48	125	310	214	12—M10	ISO—F250	
CCD—320A	320	405	774	190	440	1063	96	50	154	395	261	12—M12	ISO—F320	
CCD—400A	400	466	943	236	504	1265	95	51	154	480	261	16—M12	ISO—F400	

❖ 当停电时，可摇动手柄开、关阀

CCD— 电动插板阀系列 ISO—K 法兰连接形式外型尺寸



规格 型号	DN	外形尺寸										
		A	B	C	D	E	F	G	H	J	法 兰	标 准
CCD—50A	50	92	178	42	124	376	84	32	119	193	ISO—K50	
CCD—63A	63	110	215	52	130	413	86	34	119	193	ISO—K63	
CCD—80A	80	130	255	64	158	474	88	34	114	197	ISO—K80	GB/T
CCD—100A	100	152	301	75	178	521	89	36	114	197	ISO—K100	6070—
CCD—150A	150	200	396	96	228	666	93	40	125	214	ISO—K150	2007
CCD—200A	200	248	508	123	276	777	94	42	125	214	ISO—K200	真空技术
CCD—250A	250	310	610	150	342	840	101	48	125	214	ISO—K250	法兰尺寸
CCD—320A	320	405	774	190	440	1063	116	50	154	261	ISO—K320	
CCD—400A	400	466	943	236	504	1265	119	51	154	261	ISO—K400	

❖ 当停电时，可摇动手柄开、关阀

八、安装使用和维护保养

1． 安装前应对阀的主要零部件进行检查：

(1) 运输过程中是否有损坏。

(2) 所有密封面及刀口处均不允许有划痕及斑点等。

(3) 检查腔体及连接面是否清洁，应保证符合真空卫生要求。

(4) 应对阀的驱动机构进行检查，如：手动阀的传动螺杆是否转动灵活；气动阀的电磁换向阀是否可以自由换向，活塞运动是否灵活可靠。

(5) 阀经维修及装配后，应进行真空卫生及真空密封性能的检验检验合格后方可装入系统。

2． 阀门在运输和存放过程中应注意维护保养，以提高其使用寿命。

(1) 阀门应经常保持清洁、卫生，并存放于室内干燥处。

(2) 阀门长期不用时，应注意保护各密封面，各法兰必须罩上塑料盖；长期不使用时，阀门应处于打开状态，以免氟胶圈长期受压变形，影响使用寿命。

(3) 在运输过程中阀门应处于关闭状态，以免内部机件受震动而变形，影响传动和密封。

九、使用中的注意事项

1．本阀为薄壳器件且勿受外压或受撞击，**安装时切不可让阀体再作为承重体，以免壳体承重变形**，造成阀门打不开或关不上，影响其使用和密封性能。

2．阀门长期放置而再次启动时，可能由于密封圈与密封面的粘连而导致阀板打不开，气动阀尤为严重，此时可将电磁换向阀置于开阀状态，而从正面轻轻敲击阀板，即可将阀打开，然后方可装入系统中使用。

3．原则上阀门应在阀两侧气压平衡的条件下开阀，否则会导致阀门打不开。若强行开阀，易损伤密封圈和传动机构。

4. 阀门最好水平安装，使密封板朝向系统的高真空端；或者竖直安装而驱动部分朝上，尽可能避免竖直安装而驱动部分在下，气动阀尤其应注意这一点，以避免关阀时阀板反弹，不能在正常的密封位置锁紧，造成阀门无法关闭或密封不严。

十、可能发生的故障及消除方法

故障	故障原因	消除方法
密封不良	密封面有油污附着	将污物清除干净
	密封面有划痕	用抛光纸或用机床修去划痕
	氟胶圈破损	更换新的密封圈
	波纹管损坏	更换波纹管或补焊
阀关不上或打不开	气源压力不够	升高气源压力到标准值
	阀作为了承重件	改善支撑使阀不作为承载体
	阀两侧气压不平衡	调整气压平衡
阀开关失灵	气源压力不够	升高气源压力
	电磁换向阀电源未接通	接通电源
	电磁换向阀损坏	更换新阀
	驱动器或步进电机接线错误	按照说明重新接线

十一、仪器成套

序号	名称	数量	单位	备注
1	超高真空插板阀	1	台	
2	使用说明书	1	份	
3	检验合格证	1	份	
4	保护盖	2	个	

保修说明

凡购买我公司生产的插板阀产品，从购机日起凭保修单可保修一年。外地用户可延长一个月。在保修期内不收修理费，如需更换零件，一般核收半费，不超过半年可免费。

凡属下列情况之一的不予保修：

1．用户对产品私自拆卸或对其工艺结构有人为修改、加工。

2．用户保管或使用不当。

3．属于用户其他原因造成的损坏。

产品保修单

产品名称：CC_____超高真空插板阀

产品编号：_____

出厂日期：_____

用户单位：_____

日期	维修内容	维修人

……剪……开……盖……章……处…

以下请用户详细填写并寄回我公司以备查询

产品名称：CC_____超高真空插板阀　　联系人：_____

产品编码：_____　　联系电话：_____

购机日期：_____　　邮政编码：_____

单位地址：_____

联系单位：_____

I. Product Characteristics

- High reliability
- Good tightness and ultra-low air bleeding rate
- Stable motion, small noise and vibration
- Easy installation and compact structure
- Elegant appearance

II. Product Introduction

New type (A-type) ultrahigh vacuum gate valve series are ultra-thin type gate valves developed based on original old-type gate valves, which are applicable for ultrahigh vacuum. External surface of valve adopts silver gray matte finishing. It looks high-grade and generous. Main parts and components such as valve body and valve plate are made from 304 stainless steel with very low air bleeding amount, and drive component which realizes movement of valve body adopts 316L stainless steel welded bellows. Imported fluorine rubber gasket with very low air bleeding amount is used for sealing of valve plate.

III. Usage and Use Range

1. The series ultrahigh vacuum gate valve is one of important elements of Ultrahigh vacuum system, which can be used as a switching mechanism of Ultrahigh vacuum line.

2. The series Ultrahigh vacuum gate valve is applicable for the occasions with air and non-corrosive gas as working media.

IV. Main Performance Index

Performance Index of CCQ-series Ultrahigh Vacuum Pneumatic Gate Valve

Model	CCQ-50A	CCQ-63A	CCQ-80A
Interface Flange	CF/ISO-F/ISO-K	CF/ISO-F/ISO-K	CF/ISO-F/ISO-K
Nominal Diameter	DN50	DN63	DN80
Range of Application (Pa)	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$
Leak Rate ($Pa\cdot m^3/s$)	$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$
Opening differential pressure of valves(Pa)	≤2800	≤2800	≤2800
Drive Mode	Pneumatic	Pneumatic	Pneumatic
Recommended Working Air Pressure(MPa)	0.4	0.5	0.5

☆ Baking Temperature (°C)	On	150	150	150
	Off	120	120	120
*Conductance(L/S)		-	400	-
Installation Direction		At any direction (horizontal installation for optimum working state and it is best to avoid the cylinder facing downward)		
Valve In-place Indication		With on/off position indication (magnetic switch)		

Model		**CCQ-100A**	**CCQ-150A**	**CCQ-200A**
Interface Flange		CF/ISO-F/ISO-K	CF/ISO-F/ISO-K	CF/ISO-F/ISO-K
Nominal Diameter		DN100	DN150	DN200
Range of Application (Pa)		$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$
Leak Rate ($Pa\cdot m^3/s$)		$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$
Opening differential pressure of valves(Pa)		≤2800	≤2800	≤2800
Drive Mode		Pneumatic	Pneumatic	Pneumatic
Recommended Working Air Pressure (MPa)		0.5	0.5	0.5
☆ Baking Temperature (°C)	On	150	150	150
	Off	120	120	120
*Conductance (L/S)		1100	3400	7300
Installation Direction		At any direction (horizontal installation for optimum working state and it is best to avoid the cylinder facing downward)		
Valve In-place Indication		With on/off position indication (magnetic switch)		

☆If baking is required, please refer to the Temperature Index. So that it prevents the valve from being damaged or reliability of valve seal from being affected.

*The theoretical value calculated as per long pipe at molecular flow state shall not be used as acceptance basis.

Model	**CCQ-250A**	**CCQ-320A**	**CCQ-400A**
Interface Flange	CF/ISO-F/ISO-K	CF/ISO-F/ISO-K	CF/ISO-F/ISO-K
Nominal Diameter	DN250	DN320	DN400
Range of Application (Pa)	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$

Leak Rate ($Pa \cdot m^3/s$)		$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$
Opening differential pressure of valves(Pa)		≤2800	≤2800	≤2800
Drive Mode		Pneumatic	Pneumatic	Pneumatic
Recommended Working Air Pressure (MPa)		0.6	0.6	0.7
☆ Baking Temperature(°C)	On	150	150	150
	Off	120	120	120
*Conductance (L/S)		12000	21000	30000
Installation Direction		At any direction (horizontal installation for optimum working state and it is best to avoid the cylinder facing downward)		
Valve In-place Indication		With on/off position indication (magnetic switch)		

Performance Index of CC-series Ultrahigh Vacuum Manual Gate Valve

Model		**CC-50A**	**CC-63A**	**CC-80A**
Interface Flange		CF/ISO-F/ISO-K	CF/ISO-F/ISO-K	CF/ISO-F/ISO-K
Nominal Diameter		DN50	DN63	DN80
Range of Application (Pa)		$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$
Leak Rate ($Pa \cdot m^3/s$)		$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$
Opening differential pressure of valves(Pa)		≤2800	≤2800	≤2800
Drive Mode		Manual	Manual	Manual
☆ Baking Temperature(°C)	On	150	150	150
	Off	120	120	120
*Conductance (L/S)		-	400	-
Installation Direction		At any direction (horizontal installation for optimum working state)		
Valve In-place Indication		With on/off position indication (mechanical type)		

☆ If baking is required, please refer to the Temperature Index. So that it prevents the valve from being damaged or reliability of valve seal from being affected.

*The theoretical value calculated as per long pipe at molecular flow state shall not be used as acceptance basis.

Model		CC-100A	CC-150A	CC-200A
Interface Flange		CF/ISO-F/ISO-K	CF/ISO-F/ISO-K	CF/ISO-F/ISO-K
Nominal Diameter		DN100	DN150	DN200
Range of Application (Pa)		$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$
Leak Rate ($Pa\cdot m^3/s$)		$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$
Opening differential pressure of valves(Pa)		≤2800	≤2800	≤2800
Drive Mode		Manual	Manual	Manual
☆ Baking Temperature($^\circ C$)	On	150	150	150
	Off	120	120	120
*Conductance (L/S)		1100	3400	7300
Installation Direction		At any direction (horizontal installation for optimum working state)		
Valve In-place Indication		With on/off position indication (mechanical type)		

Model		CC-250A	CC-320A	CC-400A
Interface Flange		CF/ISO-F/ISO-K	CF/ISO-F/ISO-K	CF/ISO-F/ISO-K
Nominal Diameter		DN250	DN320	DN400
Range of Application (Pa)		$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$
Leak Rate ($Pa\cdot m^3/s$)		$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$
Opening differential pressure of valves(Pa)		≤2800	≤2800	≤2800
Drive Mode		Manual	Manual	Manual
☆ Baking Temperature($^\circ C$)	On	150	150	150
	Off	120	120	120
*Conductance (L/S)		12000	21000	30000
Installation Direction		At any direction (horizontal installation for optimum working state)		
Valve In-place Indication		With on/off position indication (mechanical type)		

☆If baking is required, please refer to the Temperature Index. So that it prevents the valve from being damaged or reliability of valve seal from being affected.

*The theoretical value calculated as per long pipe at molecular flow state shall not be used as acceptance basis.

Performance Index of CCD-series Ultrahigh Vacuum Electric Gate Valve

Model		CCD-50A	CCD-63A	CCD-80A
Interface Flange		CF/ISO-F/ISO-K	CF/ISO-F/ISO-K	CF/ISO-F/ISO-K
Nominal Diameter		DN50	DN63	DN80
Range of Application (Pa)		$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$
Leak Rate($Pa\cdot m^3/s$)		$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$
Opening differential pressure of valves(Pa)		≤2800	≤2800	≤2800
Drive Mode		Electric	Electric	Electric
Drive Voltage(V)		24≤DC≤80,Typical Valve 48 (STD268M)		
Drive Current (A)		1.2~6.0 (STD268M)		
☆ Baking Temperature($^\circ C$)	On	150	150	150
	Off	120	120	120
*Conductance (L/S)		-	400	-
Installation Direction		At any direction (horizontal installation for optimum working state and it is best to avoid the cylinder facing downward)		
Valve In-place Indication		With on/off position indication (tact switch)		

Model		CCD-100A	CCD-150A	CCD-200A
Interface Flange		CF/ISO-F/ISO-K	CF/ISO-F/ISO-K	CF/ISO-F/ISO-K
Nominal Diameter		DN100	DN150	DN200
Range of Application (Pa)		$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$
Leak Rate($Pa\cdot m^3/s$)		$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$
Opening differential pressure (Pa) of valves		≤2800	≤2800	≤2800
Drive Mode		Electric	Electric	Electric
Drive Voltage(V)		24≤DC≤80	90≤AC≤240,Typical Valve 220 (STD2522M)	
Drive Current (A)		1.2~6.0	0.5~5.0 (STD2522M)	
☆ Baking Temperature($^\circ C$)	On	150	150	150
	Off	120	120	120
*Conductance (L/S)		1100	3400	7300

Installation Direction	At any direction (horizontal installation for optimum working state and it is best to avoid the cylinder facing downward)
Valve In-place Indication	With on/off position indication (tact switch)

☆If baking is required, please refer to the Temperature Index. So that it prevents the valve from being damaged or reliability of valve seal from being affected.

*The theoretical value calculated as per long pipe at molecular flow state shall not be used as acceptance basis.

Model		**CCD-250A**	**CCD-320A**	**CCD-400A**
Interface Flange		CF/ISO-F/ISO-K	CF/ISO-F/ISO-K	CF/ISO-F/ISO-K
Nominal Diameter		DN250	DN320	DN400
Range of Application (Pa)		$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$	$10^5 \sim 1.3\times10^{-7}$
Leak Rate($Pa\cdot m^3/s$)		$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$	$\leq 1.3x10^{-10}$
Opening differential pressure of valves(Pa)		≤2800	≤2800	≤2800
Drive Mode		Electric	Electric	Electric
Drive Voltage(V)		90≤AC≤240,Typical Valve 220 (STD2522M)		
Drive Current (A)		0.5~5.0 (STD2522M)		
☆ Baking Temperature(°C)	On	150	150	150
	Off	120	120	120
*Conductance (L/S)		12000	21000	30000
Installation Direction		At any direction (horizontal installation for optimum working state and it is best to avoid the cylinder facing downward)		
Valve In-place Indication		With on/off position indication (tact switch)		

☆If baking is required, please refer to the Temperature Index. So that it prevents the valve from being damaged or reliability of valve seal from being affected.

*The theoretical value calculated as per long pipe at molecular flow state shall not be used as acceptance basis.

V. Working Principle

The valve utilizes screw (manual and electric) or cylinder rod (pneumatic) drive to push (pull) link mechanism under the axial movement of seal shaft, thus to drive valve spool assembly to do axial movement. When stop block on the valve spool assembly moves to the end, seal plate and support plate will stop axial movement, at this point, seal plate and support plate will be concentric with lateral flange hole, if continue to push the valve spool assembly, the steel ball which lies in the steel

ball groove of seal plate and support plate will be gradually pushed out, thus to make seal plate and support be split off by the steel ball, and respectively press against sealing surface and supporting surface of flange, when the steel ball completely leaves the groove and is located at the plane of seal plate and support plate, it will reach maximum pressing force, the valve will be fully closed, and under the action of fluorine rubber sealing ring, it plays a desired sealing effect; when the valve spool assembly is pulled to move backwards, due to very large friction between seal plate and support plate and flange surfaces, the steel ball will be firstly pulled back to the steel ball groove of seal plate and support plate, under the action of spring, seal plate and support leave the sealing surface and supporting surface of flange and press the steel ball into the steel ball groove, and the whole valve spool assembly moves backward under the drive of link mechanism, leaves the flange orifice and make the valve be fully opened.

VI. Operating Instructions of Electric Gate Valve Series

1. Overview of Motor and Driver:

(1) CCD-50A,63A, 80A, 100A electric gate valve series motor model: VLM56112T, maximum static moment: 3N.M; CCD-150A, 200A series electric gate valve motor model: VLM86118T, maximum static moment: 8N.M; CCD-250A electric gate valve motor model: VLM86156T, maximum static moment: 12N.M; CCD-320A, 400A series electric gate valve motor model: VLM110201T, maximum static moment: 35N.M, all motors are two-phase stepper motors and stepping angle is 1.8 °.

(2) CCD-50A, 63A, 80A and 100A employSTD268M stepper motor driver, and CCD-150A, 200A, 250A, 320A and 400A employ STD2522M stepper motor driver.

(3) Stepper motor driver adopts the technologies such as bipolar constant current chopping mode and noise absorption suppression to make the stepper motor system have the advantages of high reliability, small volume, light weight, high efficiency, balanced operation , static state, high speed and high torque, etc.

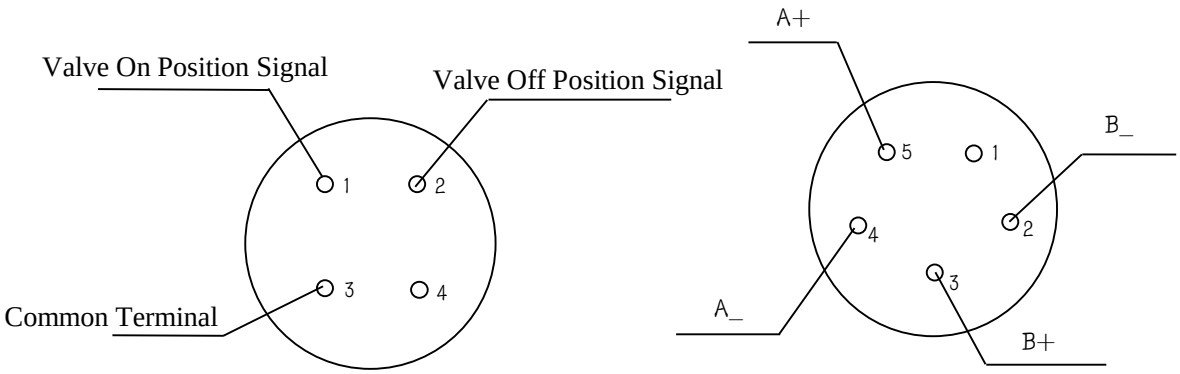
2. Introduction of Stepper Motor Driver

See operating instructions of stepper motor driver for details.

3. Wiring instructions of electric gate valve:

(1) Complete electric gate valve control system shall comprise **stepper motor (gate valve), step driver, control system (pulse source)** and **power supply**.

(2) Wiring diagram and detailed description of electric gate valve aviation socket:



Position Signal Aviation Socket (Four-core) Drive Power Aviation Socket (Five-core)

Position Signal (Tact Switch):

(1) Valve on position signal: there is a signal output when valve is fully opened. Such signal can be positive or negative logic level, which depends on connection method of common terminal. It shall be connected with peripheral control unit, corresponding to pin 1 of four-core aviation socket.

(2) Valve off position signal: there is a signal output when valve is fully closed. Such signal can be positive or negative logic level, which depends on connection method of common terminal. It shall be connected with peripheral control unit, corresponding to pin 2 of four-core aviation socket.

(3) Common terminal: it shall be connected with peripheral control unit, valve on/off signal output as positive or negative logic level depends on its connection method, it shall correspond to pin 3 of four-core aviation socket.

Motor Driving Power:

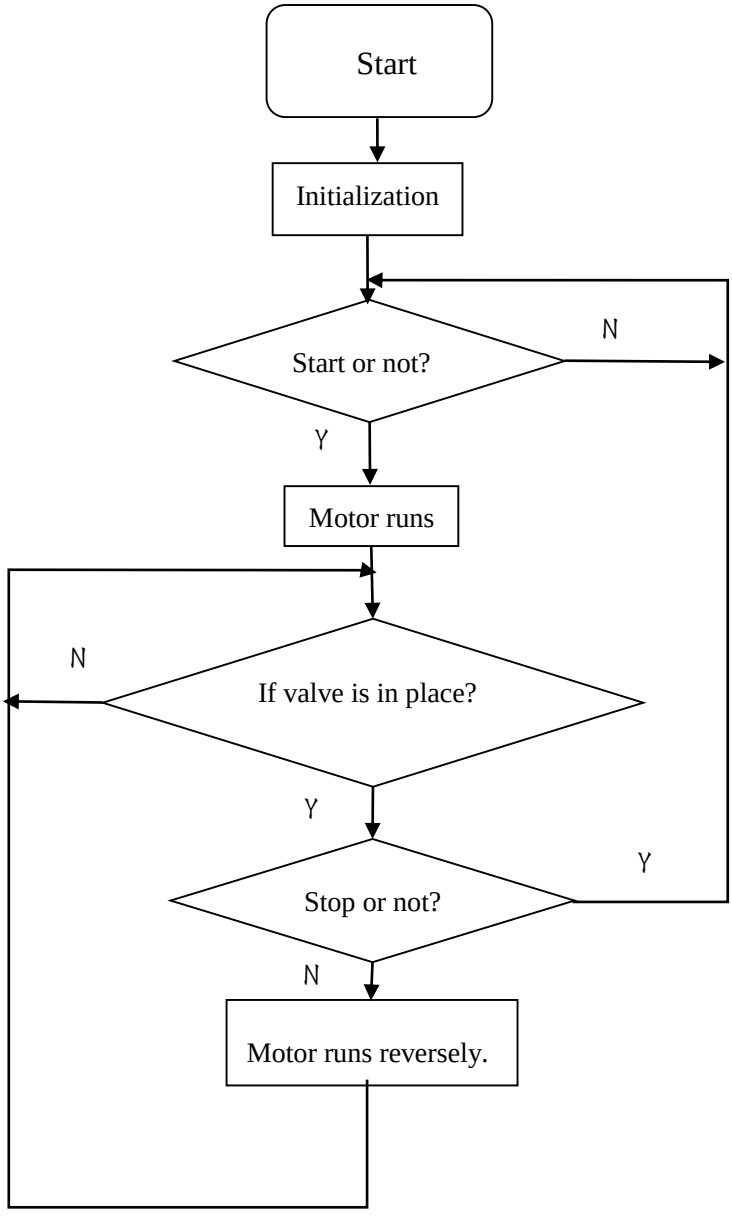
(1) B_ It shall be connected with phase B of stepper motor, corresponding to pin 2 of five-core aviation socket.

(2) B+ It shall be connected with phase B of stepper motor, corresponding to pin 3 of five-core aviation socket.

(3) A_ It shall be connected with phase A of stepper motor, corresponding to pin 4 of five-core aviation socket.

(4) A+ It shall be connected with phase A of stepper motor, corresponding to pin 5 of five-core aviation socket.

4. Electric Gate Valve Control Process Flow Chart



VII. Structural Characteristics

1. Stainless steel whole internal welding valve body, with good sealing, small volume, light weight and elegant appearance.

2. Valve spool assembly has simple structure, less welding parts, simple welding process, convenient

assembly and debugging, and dual-rail roller bearing mechanism is used for its axial movement, with stable movement and high steering accuracy.

3. Seal plate and support plate adopt whole plate structure, and have even support force distribution and good rigidity.

4. When the valve is opened, the support steel ball is located at steel ball sleeve hole and steel ball groove of seal plate and support plate; when the valve is closed, the steel ball will be pushed out from the groove and located at the plane of seal plate and support plate, playing a role of splitting and supporting.

5. Drive mechanism adopts planar linkage mechanism, with simple structure, large bearing capacity and high action stability. Cylinder (or handle) is located at axle wire of valve.

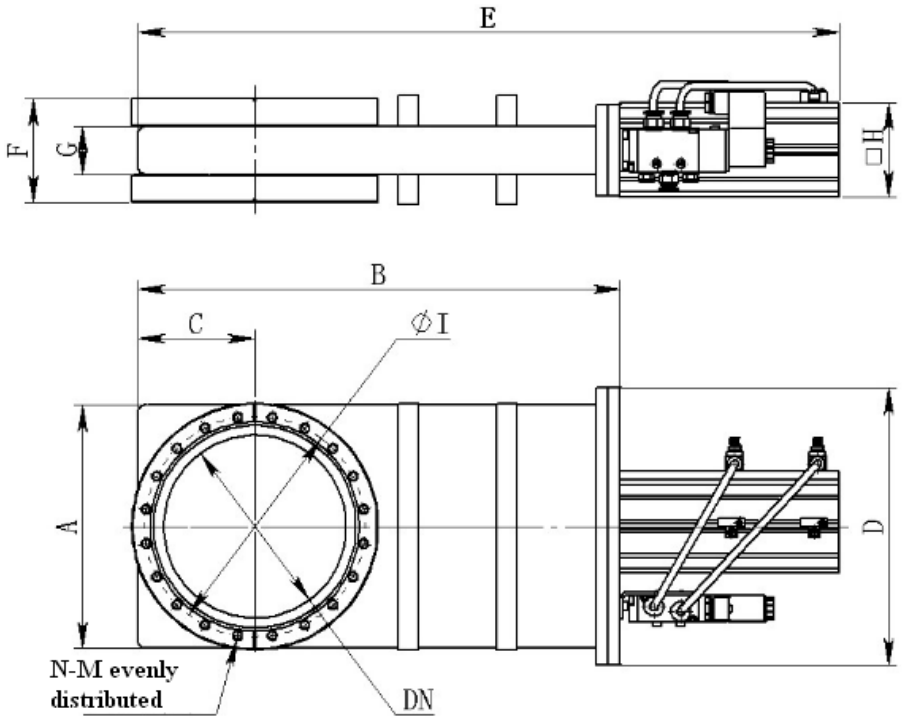
6. Drive shaft (link) is sealed with 316L stainless steel welded bellow, with good sealing performance, and can be installed at any position.

7. The user can select manual, pneumatic or electric mode as required. Manual valve has simple structure, which operates easily and flexibly; and pneumatic and electric valve are suitable for automatic control.

8. The series gate valve have three connection methods in vacuum system: CF flange sealed with copper washer and ISO-F and ISO-K flanges sealed with fluorine rubber ring.

9. Overall dimensions and main connection dimensions of the series gate valve:

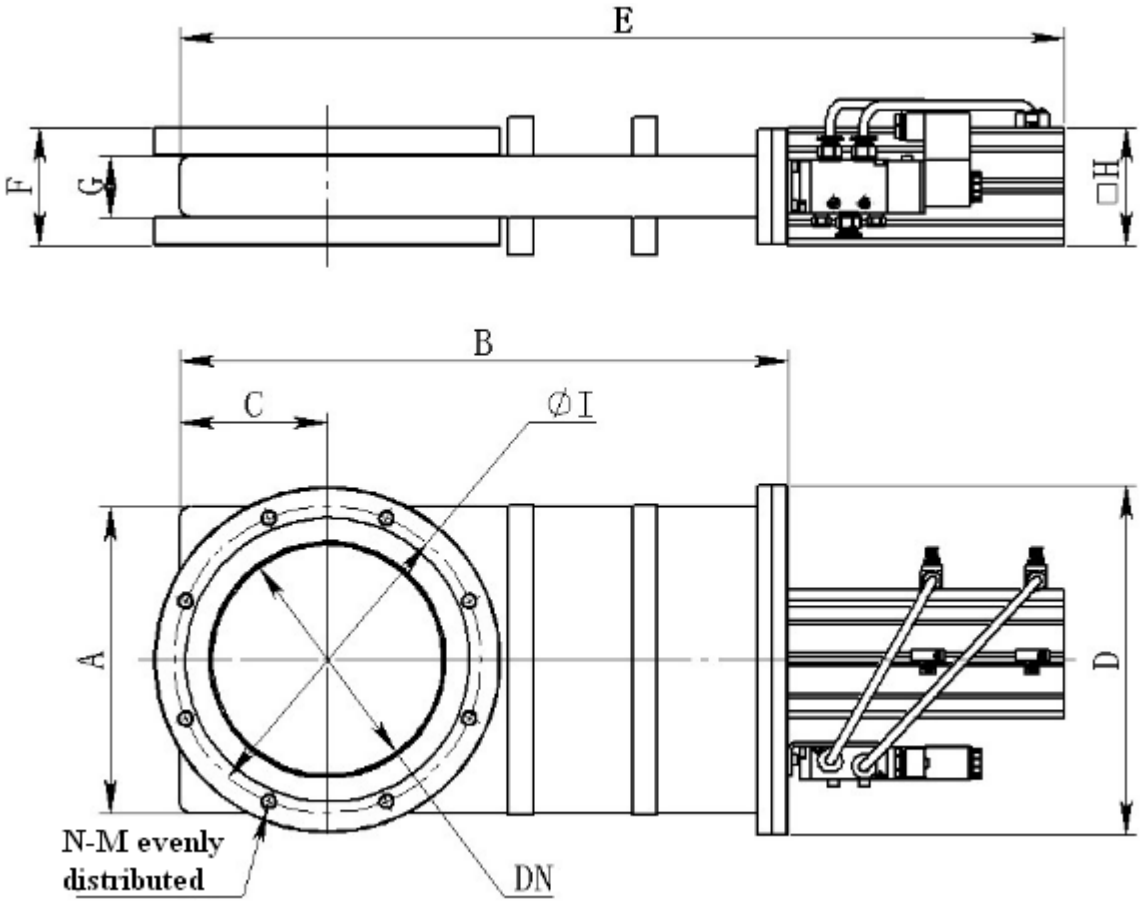
CCQ- Overall Dimension of CF Flange Connection Mode of Pneumatic Gate Valve Series



Specification and Model	DN	Overall Dimensions											
		A	B	C	D	E	F	G	H	I	N-M	Flange	Standard
CCQ-50A	50	92	178	42	124	298	64	32	64	72.4	8-M8	CF50	GB/T 6071-2003 Ultrahigh Vacuum Flange
CCQ-63A	63	110	215	52	130	335	68	34	64	92.2	8-M8	CF63	
CCQ-80A	80	130	255	64	158	382	68	34	64	110	16-M8	CF80	
CCQ-100A	100	152	301	75	178	447	76	36	64	130.3	16-M8	CF100	
CCQ-150A	150	200	396	96	228	576	80	40	77	181	20-M8	CF150	
CCQ-200A	200	248	508	123	276	711	94	42	98	231.8	24-M8	CF200	
CCQ-250A	250	310	610	150	342	813	101	48	117	284	32-M8	CF250	
CCQ-320A	320	405	774	190	440	976	106	50	117	338.1	32-M10	CF320	
CCQ-400A	400	466	943	236	504	1277	107	51	142	437.9	40-M10	CF400	

❖ **When pneumatic gate valve operates, air source shall not be cut off**

Overall Dimensions of ISO-F Flange Connection Mode of CCQ-Pneumatic Gate Valve Series

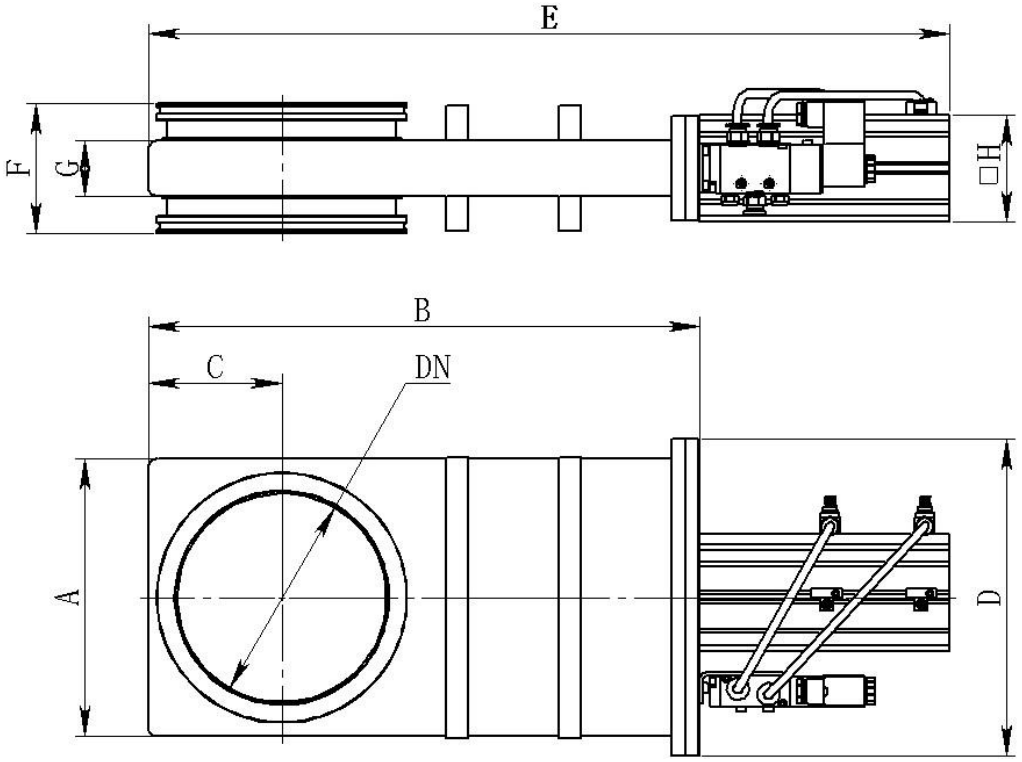


Specification and Model	DN	Overall Dimensions											
		A	B	C	D	E	F	G	H	I	N-M	Flange	Standard
CCQ-50A	50	92	178	42	124	298	64	32	64	90	4-M8	ISO-F50	GB/T 6070-2007 Vacuum technology Flange size
CCQ-63A	63	110	215	52	130	335	68	34	64	110	4-M8	ISO-F63	
CCQ-80A	80	130	255	64	158	382	68	34	64	125	8-M8	ISO-F80	
CCQ-100A	100	152	301	75	178	447	76	36	64	145	8-M8	ISO-F100	
CCQ-150A	150	200	396	96	228	576	80	40	77	200	8-M10	ISO-F150	
CCQ-200A	200	248	508	123	276	711	86	42	98	260	12-M10	ISO-F200	
CCQ-250A	250	310	610	150	342	813	91	48	117	310	12-M10	ISO-F250	

CCQ-320A	320	405	774	190	440	976	96	50	117	395	12-M12	ISO-F320	
CCQ-400A	400	466	943	236	504	1277	95	51	142	480	16-M12	ISO-F400	

❖ **When pneumatic gate valve operates, air source shall not be cut off**

Overall Dimensions of ISO-K Flange Connection Mode of CCQ-Pneumatic Gate Valve Series

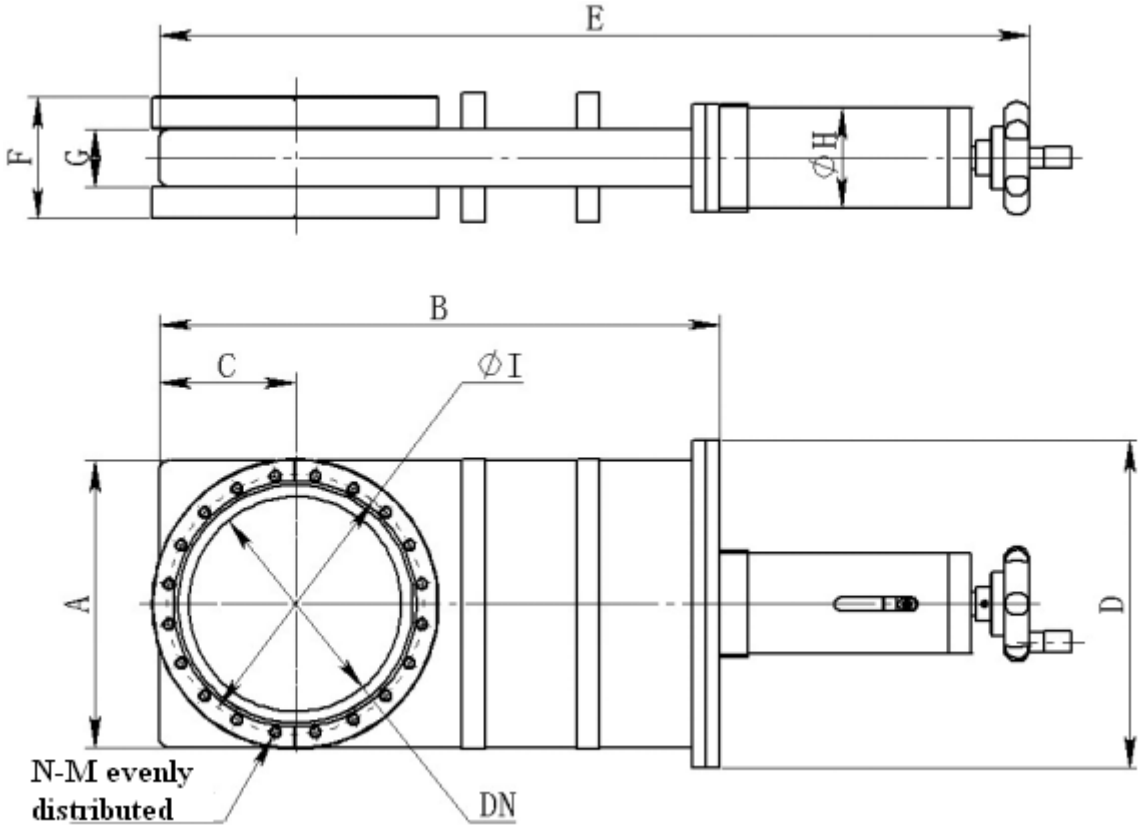


Specification and Model	DN	Overall Dimensions									
		A	B	C	D	E	F	G	H	Flange	Standard
CCQ-50A	50	92	178	42	124	298	84	32	64	ISO-K50	GB/T 6070-2007 Vacuum technology Flange size
CCQ-63A	63	110	215	52	130	335	86	34	64	ISO-K63	
CCQ-80A	80	130	255	64	158	382	88	34	64	ISO-K80	
CCQ-100A	100	152	301	75	178	447	89	36	64	ISO-K100	
CCQ-150A	150	200	396	96	228	576	93	40	77	ISO-K150	
CCQ-200A	200	248	508	123	276	711	94	42	98	ISO-K200	

CCQ-250A	250	310	610	150	342	813	101	48	117	ISO-K250	
CCQ-320A	320	405	774	190	440	976	116	50	117	ISO-K320	
CCQ-400A	400	466	943	236	504	1277	119	51	142	ISO-K400	

❖ **When pneumatic gate valve operates, air source shall not be cut off**

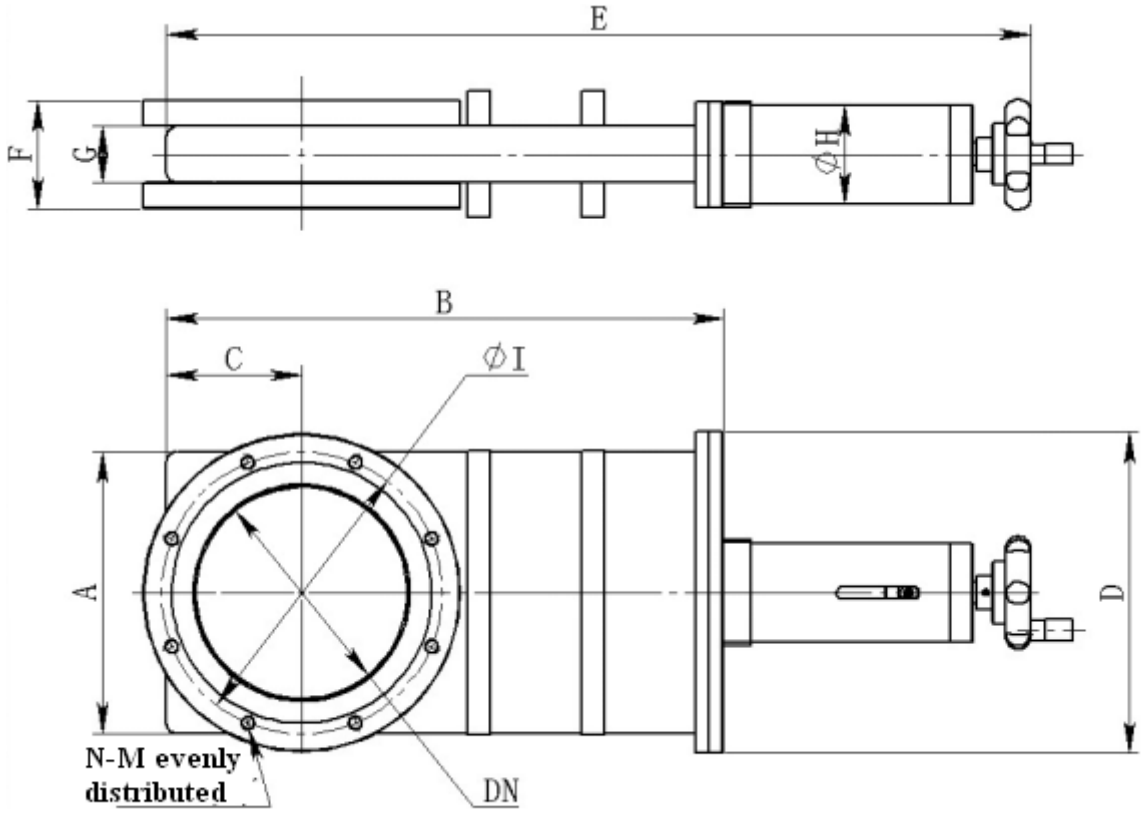
Overall Dimensions of CF Flange Connection Mode of CC-Manual Gate Valve Series



Specification and Model	DN			Overall Dimensions									
		A	B	C	D	E	F	G	H	I	N-M	Flange	Standard
CC-50A	50	92	178	42	124	323	64	32	60	72.4	8-M8	CF50	GB/T 6071-2003 Ultrahigh Vacuum Flange
CC-63A	63	110	215	52	130	363	68	34	60	92.2	8-M8	CF63	
CC-80A	80	130	255	64	158	413	68	34	60	110	16-M8	CF80	
CC-100A	100	152	301	75	178	468	76	36	60	130.3	16-M8	CF100	

CC-150A	150	200	396	96	228	615	80	40	70	181	20-M8	CF150
CC-200A	200	248	508	123	276	734	94	42	70	231.8	24-M8	CF200
CC-250A	250	310	610	150	342	836	101	48	70	284	32-M8	CF250
CC-320A	320	405	774	190	440	1009	106	50	70	338.1	32-M10	CF320
CC-400A	400	466	943	236	504	1205	107	51	75	437.9	40-M10	CF400

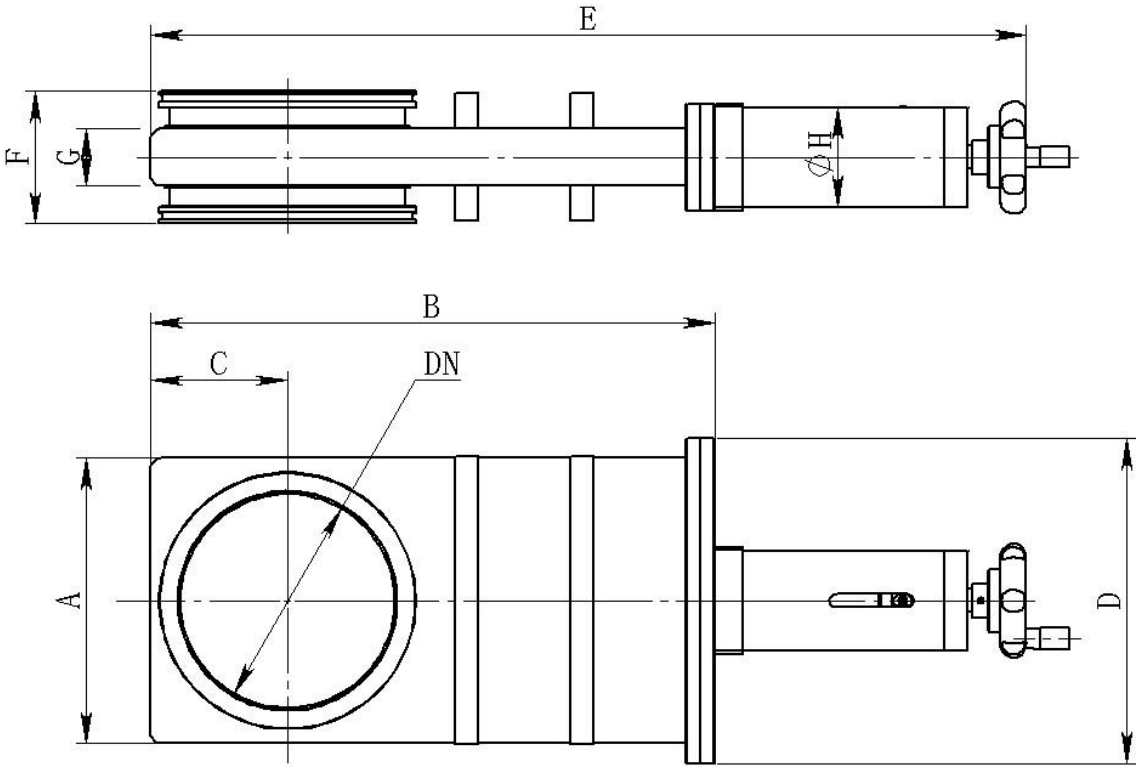
Overall Dimensions of ISO-F Flange Connection Mode of CC-Manual Gate Valve Series



Specification and Model	DN	Overall Dimensions											
		A	B	C	D	E	F	G	H	I	N-M	Flange	Standard
CC-50A	50	92	178	42	124	323	64	32	60	90	4-M8	ISO-F50	GB/T 6070-2007 Vacuum technology
CC-63A	63	110	215	52	130	363	68	34	60	110	4-M8	ISO-F63	
CC-80A	80	130	255	64	158	413	68	34	60	125	8-M8	ISO-F80	

CC-100A	100	152	301	75	178	468	76	36	60	145	8-M8	ISO-F100	Flange size
CC-150A	150	200	396	96	228	615	80	40	70	200	8-M10	ISO-F150	
CC-200A	200	248	508	123	276	734	86	42	70	260	12-M10	ISO-F200	
CC-250A	250	310	610	150	342	836	91	48	70	310	12-M10	ISO-F250	
CC-320A	320	405	774	190	440	1009	96	50	70	395	12-M12	ISO-F320	
CC-400A	400	466	943	236	504	1205	95	51	75	480	16-M12	ISO-F400	

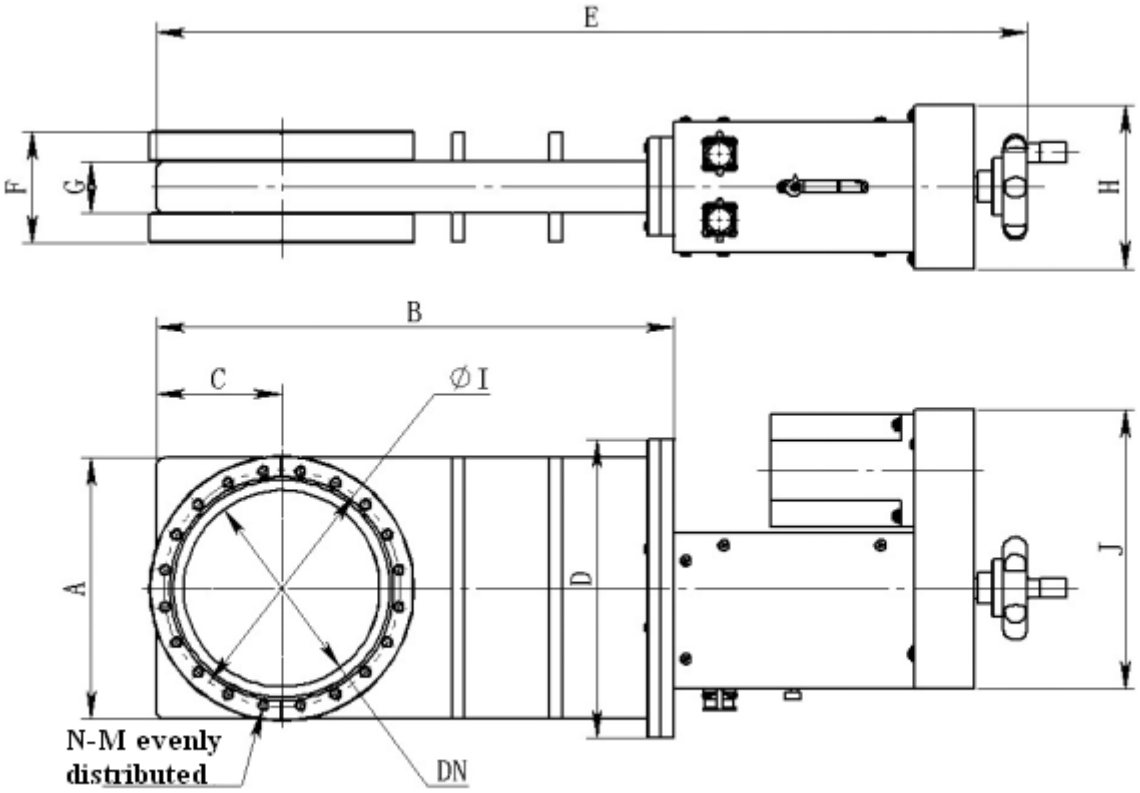
Overall Dimensions of ISO-K Flange Connection Mode of CC-Manual Gate Valve Series



Specification and Model	DN	Overall Dimensions									
		A	B	C	D	E	F	G	H	Flange	Standard
CC-50A	50	92	178	42	124	323	84	32	60	ISO-K50	GB/T 6070-2007 Vacuum technology
CC-63A	63	110	215	52	130	363	86	34	60	ISO-K63	
CC-80A	80	130	255	64	158	413	88	34	60	ISO-K80	

CC-100A	100	152	301	75	178	468	89	36	60	ISO-K100	Flange size
CC-150A	150	200	396	96	228	615	93	40	70	ISO-K150	
CC-200A	200	248	508	123	276	734	94	42	70	ISO-K200	
CC-250A	250	310	610	150	342	836	101	48	70	ISO-K250	
CC-320A	320	405	774	190	440	1009	116	50	70	ISO-K320	
CC-400A	400	466	943	236	504	1205	119	51	75	ISO-K400	

Overall Dimensions of CF Flange Connection Mode of CCD-Electric Gate Valve Series

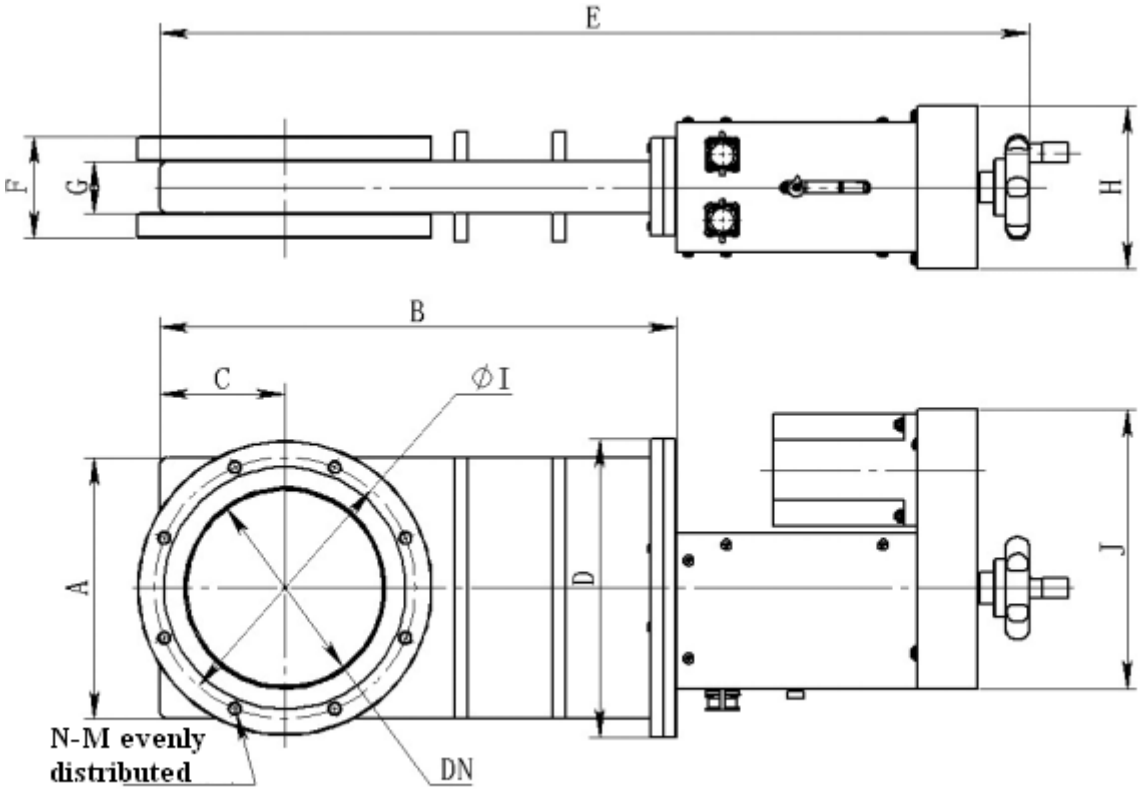


Specification and Model	DN	Overall Dimensions												
		A	B	C	D	E	F	G	H	I	J	N-M	Flange	Standard
CCD-50A	50	92	178	42	124	376	64	32	119	72.4	193	8-M8	CF50	GB/T 6071-2003 Ultrahigh
CCD-63A	63	110	215	52	130	413	68	34	119	92.2	193	8-M8	CF63	

CCD-80A	80	130	255	64	158	474	68	34	114	110	197	16-M8	CF80	Vacuum Flange
CCD-100A	100	152	301	75	178	521	76	36	114	130.3	197	16-M8	CF100	
CCD-150A	150	200	396	96	228	666	80	40	125	181	214	20-M8	CF150	
CCD-200A	200	248	508	123	276	777	94	42	125	231.8	214	24-M8	CF200	
CCD-250A	250	310	610	150	342	840	101	48	125	284	214	32-M8	CF250	
CCD-320A	320	405	774	190	440	1063	106	50	154	338.1	261	32-M10	CF320	
CCD-400A	400	466	943	236	504	1265	107	51	154	437.9	261	40-M10	CF400	

- **At the time of power outage, handle can be rotated to open/close valve**

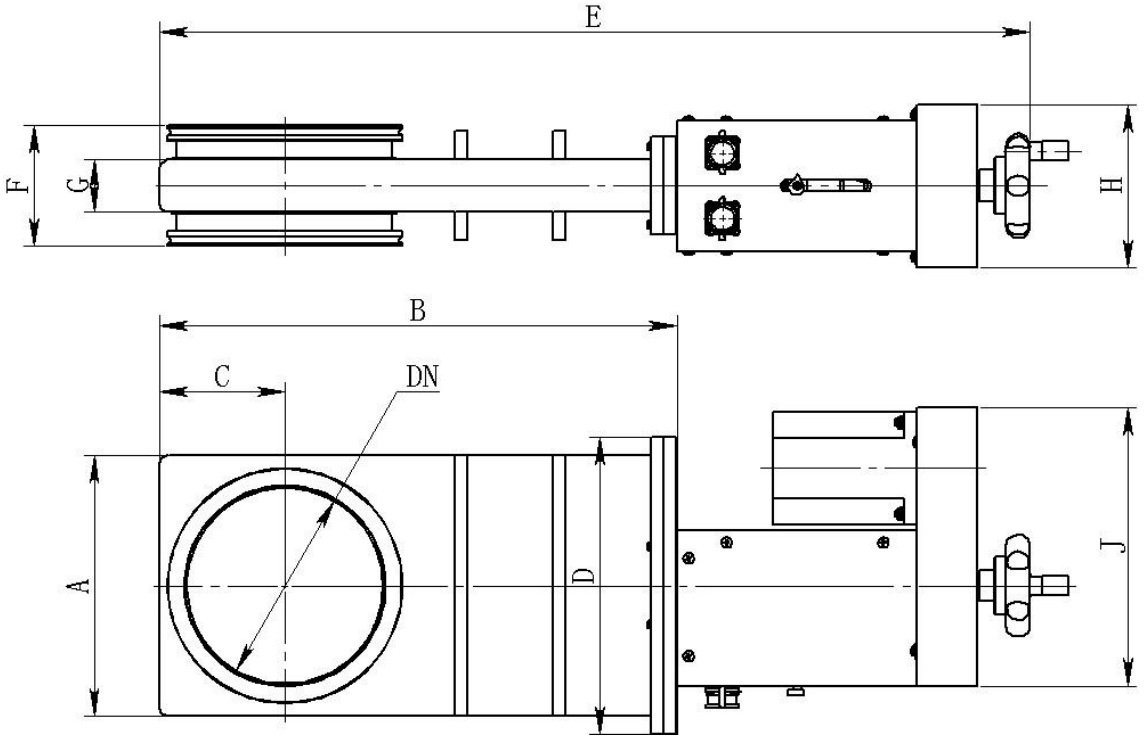
Overall Dimensions of ISO-F Flange Connection Mode of CCD-Electric Gate Valve Series



Specification and Model	DN	Overall Dimensions												
		A	B	C	D	E	F	G	H	I	J	N-M	Flange	Standard
CCD-50A	50	92	178	42	124	376	64	32	119	90	193	4-M8	ISO-F50	GB/T 6070-2007 Vacuum technology Flange size
CCD-63A	63	110	215	52	130	413	68	34	119	110	193	4-M8	ISO-F63	
CCD-80A	80	130	255	64	158	474	68	34	114	125	197	8-M8	ISO-F80	
CCD-100A	100	152	301	75	178	521	76	36	114	145	197	8-M8	ISO-F100	
CCD-150A	150	200	396	96	228	666	80	40	125	200	214	8-M10	ISO-F150	
CCD-200A	200	248	508	123	276	777	86	42	125	260	214	12-M10	ISO-F200	
CCD-250A	250	310	610	150	342	840	91	48	125	310	214	12-M10	ISO-F250	
CCD-320A	320	405	774	190	440	1063	96	50	154	395	261	12-M12	ISO-F320	
CCD-400A	400	466	943	236	504	1265	95	51	154	480	261	16-M12	ISO-F400	

- **At the time of power outage, handle can be rotated to open/close valve**

Overall Dimensions of ISO-K Flange Connection Mode of CCD-Electric Gate Valve Series



Specification and Model	DN	Overall Dimensions										
		A	B	C	D	E	F	G	H	J	Flange	Standard
CCD-50A	50	92	178	42	124	376	84	32	119	193	ISO-K50	GB/T 6070-2007 Vacuum technology Flange size
CCD-63A	63	110	215	52	130	413	86	34	119	193	ISO-K63	
CCD-80A	80	130	255	64	158	474	88	34	114	197	ISO-K80	
CCD-100A	100	152	301	75	178	521	89	36	114	197	ISO-K100	
CCD-150A	150	200	396	96	228	666	93	40	125	214	ISO-K150	
CCD-200A	200	248	508	123	276	777	94	42	125	214	ISO-K200	
CCD-250A	250	310	610	150	342	840	101	48	125	214	ISO-K250	
CCD-320A	320	405	774	190	440	1063	116	50	154	261	ISO-K320	
CCD-400A	400	466	943	236	504	1265	119	51	154	261	ISO-K400	

❖ **At the time of power outage, handle can be rotated to open/close valve**

VIII. Installation Use and Maintenance

3. Before installation, main parts and components of valve shall be checked:

(1) If they are damaged during transportation.

(2) Scratches, spots, etc. are not allowed at all sealing surfaces and knife edges.

(3) Check if chamber and connection surface are clean, which shall comply with vacuum sanitary requirements.

(4) Check drive mechanism of valve, for example, check if drive screw of manual valve can rotate flexibly, magnetic exchange valve of pneumatic valve can freely change direction and piston motion is flexibly and reliably.

(5) Vacuum sanitation and vacuum sealing performance inspection shall be conducted for va lve after maintenance and assembly, which shall be installed into the system after passing i nspection.

4. Pay attention to maintenance of valve during transportation and storage, so as to improve its service life.

(1) Valve shall be often kept clean and sanitary and stored at indoor dry place.

(2) Each sealing surface shall be protected and each flange must be covered with plastic cap if valve will not be used for long time; When the valve isn't used for long time, it will be in "On" state to prevent its service life from be affected due to long-time compressive deformation of fluorine rubber ring.

(3) Valve shall be in "Off "state during transportation in order to prevent transmission and sealing from being affected due to deformation of internal parts suffering vibration.

IX. Precautions for Use

5. The valve is a thin-shell device, which shall not be pressed or impacted. During installation, valve body shall not be used as load-bearing body, so as to avoid shell bearing deformation, causing valve can't be opened or closed ,thus to affect its use and sealing performance.

6. When valve is restarted after it is placed aside for long time, valve plate may not be opened due to adhesion between sealing ring and sealing surface. Such situation is severe especially for pneumatic valve. At this point, set magnetic exchange valve at "On" state, and lightly knock at valve plate from the front, the valve can be opened, and then it can be installed into the system for use.

7. In principle, the valve shall be opened under the condition that air pressures at both sides of valve are balanced, otherwise, it will be unable to open the valve. If you force to open the valve, it may damage sealing ring and drive mechanism.

8. The valve shall be installed horizontally with seal plate facing upward high vacuum end of system; or installed vertically with drive section facing upward. Try to avoid vertical installation with drive section facing downward as far as possible, especially for pneumatic valve, in order to avoid that valve plate rebounds and can't be locked at normal position when valve is closed, resulting in that valve can't be closed or closed tightly.

X. Possible Troubles and Troubleshooting Method

Trouble	Causes	Troubleshooting Methods
Poor sealing	Sealing surface has oil stain	Remove the dirt
	Sealing surface has scratches	Trim scratches with polishing paper or machine
	Fluorine rubber ring is broken	Replace it with a new seal ring
	Bellows is broken	Replace the bellows or conduct repair welding
Valve can't be closed or opened	Air source pressure is inadequate	Increase air source pressure to standard value
	Valve is used as supporting part	Improve support to make valve not as supporting body
	Air pressures at both sides of valve are not balanced	Adjust air pressure balance
Valve switch malfunctions	Air source pressure is inadequate	Increase air source pressure
	Magnetic exchange valve power supply isn't switched on	Power on
	Magnetic exchange valve is broken	Replace it with a new valve
	Driver or stepper motor wiring is error	Conduct wiring again as specified

XI. Instrument Kits

S/N	Description	Q'ty	Unit	Remarks
1	Ultrahigh vacuum gate valve	1	Set	
2	Operation manual	1	Copy	
3	Inspection certificate	1	Copy	
4	Protective cap	2	PC	

Warranty Instructions

Any gate valve product that you purchase from our company can be guaranteed for one year since the date of buying with warranty bill. But for non-local users, the guarantee period can be extended for one month. Repair cost will not be charged within the guarantee period. If it is necessary to replace parts, generally half fee will be charged, and it will be free of charge if no more than half year.

For any of the following situations, we have no warranty responsibility:

1. If the product is disassembled by the user privately and its technological structure is modified and processed artificially.

2. It is kept or used improperly by user.

3. It is damaged due to user’s other reasons.

Product's Warranty Bill

Product Name: CC_____Ultrahigh Vacuum Gate Valve

Product Number:_____

Date of Production:_____

User Unit:_____

Date	Maintenance Content	Maintainer

.....Cut off.....Stamp.....

Please fill in the Product's Warranty Bill in detail and send it back to our company for query.

Product Name: CC____Ultrahigh Vacuum Gate Valve Contact Person: _____

Product Number: _____ Phone: _____

Date of Machine Purchasing: _____ Postal Code: _____

Unit Address: _____

Contact Unit:_____

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