

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

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成都中科唯实仪器有限责任公司

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一、产品特点

- 高可靠性
- 良好的密封性、超低放气率
- 运动平稳、噪音小、振动小
- 安装方便、结构紧凑
- 外形美观大方

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-35B	CCQ-50B	CCQ-63B
接口法兰		CF/ISO-F		
公称口径		DN35	DN50	DN63
适用范围(Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
漏率($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
阀门开启压差(Pa)		≤ 2700	≤ 2700	≤ 2700
驱动方式		气动	气动	气动
建议工作气压(MPa)		0.3~0.4	0.3~0.4	0.3~0.4
☆耐烘烤温度 (°C)	开	150	150	150
	关	120	120	120
*流导(L/S)		-	-	400
阀门重量(kg)		5	6	7.3
开/关阀时间(s)		1.2/1.0	1.2/1.0	1.5/1.0
安装方向		水平或气缸朝上		
阀门到位指示		磁感应开关		

型号		CCQ-80A	CCQ-100A	CCQ-150A
接口法兰		CF/ISO-F		
公称口径		DN80	DN100	DN150
适用范围(Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
漏率($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
阀门开启压差(Pa)		≤ 2700	≤ 2700	≤ 2700
驱动方式		气动	气动	气动
建议工作气压(MPa)		0.4~0.5	0.4~0.5	0.4~0.5
☆耐烘烤温度 (°C)	开	150	150	150
	关	120	120	120
*流导(L/S)		-	1100	3400
阀门重量(kg)		9.6	13	25
开/关阀时间(s)		1.8/1.2	1.8/1.2	1.8/1.2
安装方向		水平或气缸朝上		
阀门到位指示		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-200A	CCQ-250A
接口法兰		CF/ISO-F	
公称口径		DN200	DN250
适用范围 (Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
漏率 ($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
阀门开启压差 (Pa)		≤ 2700	≤ 2700
驱动方式		气动	气动
建议工作气压 (MPa)		0.5~0.6	0.5~0.6
☆耐烘烤温度 (°C)	开	150	150
	关	120	120
*流导 (L/S)		7300	12000
阀门重量 (kg)		36	59
开/关阀时间 (s)		3.5/2.5	4.5/3.5
安装方向		水平或气缸朝上	
阀门到位指示		磁感应开关	
型号		CCQ-320B	CCQ-400B
接口法兰		CF/ISO-F	
公称口径		DN320	DN400
适用范围 (Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
漏率 ($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
阀门开启压差 (Pa)		≤ 1700	≤ 1700
驱动方式		气动	气动
建议工作气压 (MPa)		0.6~0.7	0.6~0.7
☆耐烘烤温度 (°C)	开	150	150
	关	120	120
*流导 (L/S)		21000	30000
阀门重量 (kg)		111	170
开/关阀时间 (s)		8.5/6.5	10.5/8.5
安装方向		水平或气缸朝上	
阀门到位指示		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。

CC- 系列超高真空手动插板阀性能指标

型号		CC-35B	CC-50B	CC-63B
接口法兰		CF/ISO-F		
公称口径		DN35	DN50	DN63
适用范围(Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
漏率 ($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
阀门开启压差(Pa)		≤ 2700	≤ 2700	≤ 2700
驱动方式		手动	手动	手动
☆耐烘烤温度 (°C)	开	150	150	150
	关	120	120	120
*流导(L/S)		-	-	400
阀门重量 (kg)		3.2	5.2	6.3
安装方向		任意		
阀门到位指示		机械式		

型号		CC-80A	CC-100A	CC-150A
接口法兰		CF/ISO-F		
公称口径		DN80	DN100	DN150
适用范围(Pa)				$10^5 \sim 10^{-6}$
漏率 ($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
阀门开启压差(Pa)		≤ 2700	≤ 2700	≤ 2700
驱动方式		手动	手动	手动
☆耐烘烤温度 (°C)	开	150	150	150
	关	120	120	120
*流导(L/S)		-	1100	3400
阀门重量 (kg)		8	13.6	24
安装方向		任意		
阀门到位指示		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-200A	CC-250A
接口法兰		CF/ISO-F	
公称通径		DN200	DN250
适用范围 (Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
漏率 ($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
阀门开启压差 (Pa)		≤ 2700	≤ 2700
驱动方式		手动	手动
☆耐烘烤温度 (°C)	开	150	150
	关	120	120
*流导 (L/S)		7300	12000
阀门重量 (kg)		35.6	48
安装方向		任意	
阀门到位指示		机械式	

型号		CC-320B	CC-400B
接口法兰		CF/ISO-F	
公称通径		DN320	DN400
适用范围 (Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
漏率 ($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
阀门开启压差 (Pa)		≤ 1700	≤ 1700
驱动方式		手动	手动
☆耐烘烤温度 (°C)	开	150	150
	关	120	120
*流导 (L/S)		21000	30000
阀门重量 (kg)		80	163.5
安装方向		水平	
阀门到位指示		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-35B	CCD-50B	CCD-63B
接口法兰		CF/ISO-F		
公称口径		DN35	DN50	DN63
适用范围(Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
漏率 ($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
阀门开启压差(Pa)		≤ 2700	≤ 2700	≤ 2700
驱动方式		电动	电动	电动
驱动器电压(V)		$20 \leq \text{DC} \leq 50$ (DM556)		
驱动器电流(A)		1.8~5.6 (DM556)		
☆耐烘烤温度 (°C)	开	150	150	150
	关	120	120	120
*流导(L/S)		-	-	400
阀门重量(kg)		4.6	7.6	9.3
开/关阀时间(s)		0.8/0.6	0.8/0.6	0.9/0.6
安装方向		水平或电机朝上		
阀门到位指示		PNP 光电开关		

型号		CCD-80A	CCD-100A	CCD-150A
接口法兰		CF/ISO-F		
公称口径		DN80	DN100	DN150
适用范围(Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
漏率 ($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
阀门开启压差(Pa)		≤ 2700	≤ 2700	≤ 2700
驱动方式		电动	电动	电动
驱动器电压(V)		$20 \leq \text{DC} \leq 50$ (DM556)		$30 \leq \text{DC} \leq 100$
驱动器电流(A)		1.8~5.6		2.4~7.2
☆耐烘烤温度 (°C)	开	150	150	150
	关	120	120	120
*流导(L/S)		-	1100	3400
阀门重量(kg)		12.5	19.2	31.5
开/关阀时间(s)		1.2/1.0	1.3/1.0	1.6/1.3

安装方向	水平或电机朝上
阀门到位指示	PNP 光电开关

☆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-200A	CCD-250A
接口法兰		CF/ISO-F	
公称通径		DN200	DN250
适用范围(Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
漏率 ($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
阀门开启压差(Pa)		≤ 2700	≤ 2700
驱动方式		电动	电动
驱动器电压(V)		$30 \leq \text{DC} \leq 100$ (MA860C)	
驱动器电流(A)		2.4~7.2 (MA860C)	
☆耐烘烤温度 (°C)	开	150	150
	关	120	120
*流导(L/S)		7300	12000
阀门重量(kg)		37.2	58.2
开/关阀时间(s)		2.2/1.8	2.6/2.1
安装方向		水平或电机朝上	
阀门到位指示		PNP 光电开关	
型号		CCD-320B	CCD-400B
接口法兰		CF/ISO-F	
公称通径		DN320	DN400
适用范围(Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
漏率 ($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
阀门开启压差(Pa)		≤ 1700	≤ 1700
驱动方式		电动	电动
驱动器电压(V)		$180 \leq \text{AC} \leq 240$ (DM2282)	
驱动器电流(A)		2.2~8.2 (DM2282)	
☆耐烘烤温度 (°C)	开	150	150
	关	120	120
*流导(L/S)		21000	30000

开/关阀时间 (s)	8.5/6.5
安装方向	水平或电机朝上
阀门到位指示	PNP 光电开关

☆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-35B 电动插板阀的电机型号为：23E2240K4，最大静力矩为：2N.m；
CCD-50B、63B、80A、100A 电动插板阀的电机型号为：57HS28-ZK，最大静力矩为：3N.m；
CCD-150A、200A 电动插板阀的电机型号为：86HS85D，最大静力矩为：8N.m；
CCD-250A 电动插板阀的电机型号为：86HS156-14LY，最大静力矩为：12N.m；
CCD-320B、400B 电动插板阀的电机型号为：110HS28D，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-35B、50B、63B、80A、100A 电动插板阀采用 DM556 数字式两相步进驱动器，
CCD-150A、200A、250A 采用 MA860C 数字式两相步进驱动器，CCD-320B、

400B 采用 DM2282 高压数字式两相步进驱动器。

(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。

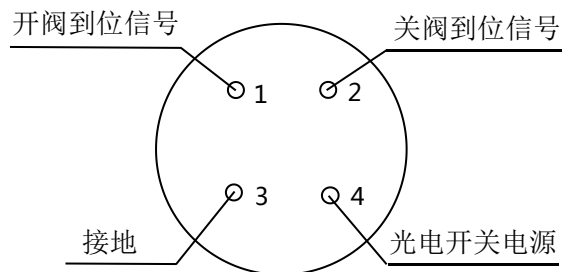
2. 步进电机驱动器介绍：

详见随机步进电机驱动器使用说明书

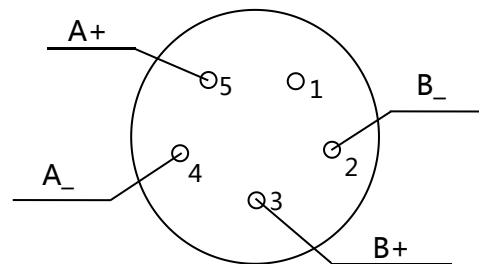
3. 电动插板阀接线说明：

(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。其中，步进电机驱动器、开关电源随插板阀一起发货，控制系统(脉冲源)需要客户自行提供。

(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(光电开关)：

(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，取决于光电开关型号，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，取决于光电开关型号，接外部控制器对应四芯航空插座 2 脚。

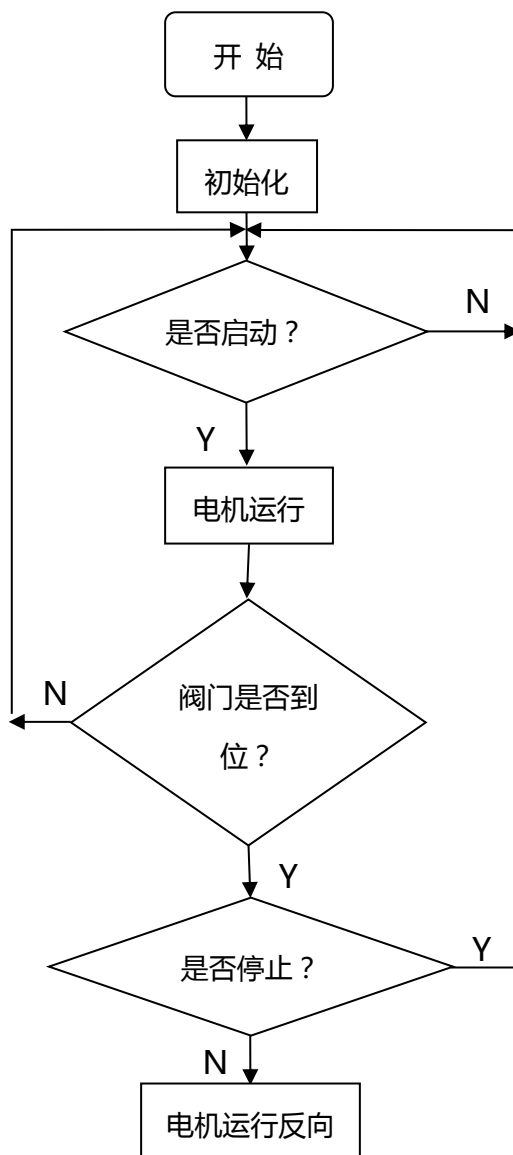
(3) 接地 对应四芯航空插座 3 脚。

(4) 光电开关电源 该电源为：5DCV~24VDC，对应四芯航空插座 4 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。

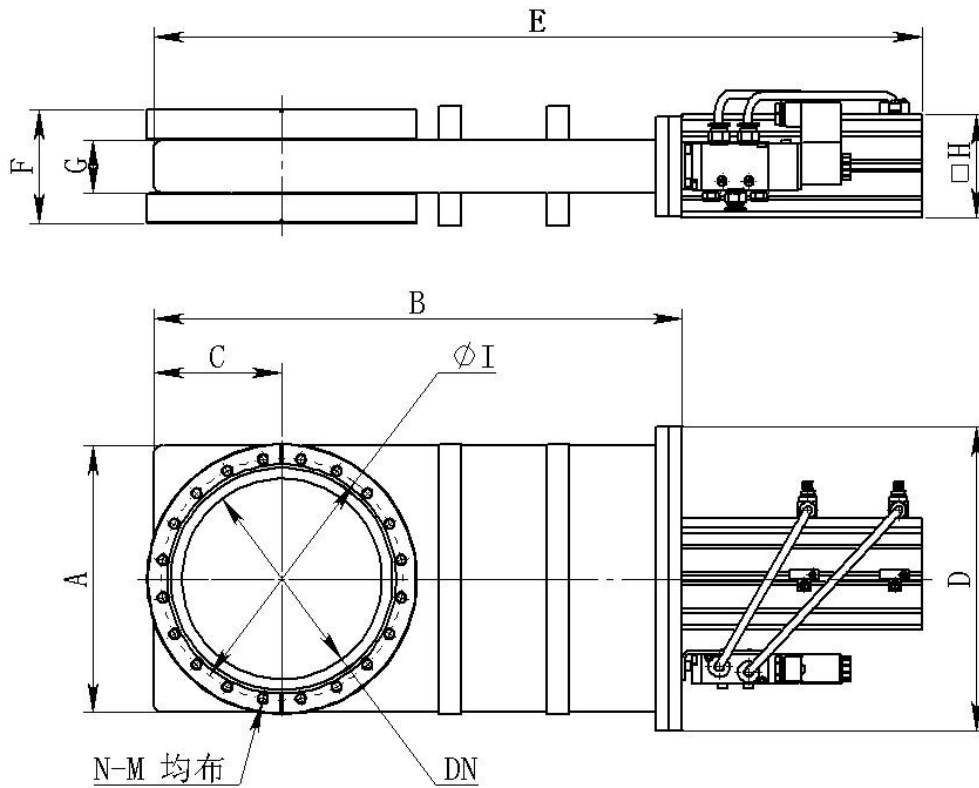
4. 电动插板阀控制程序流程图



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 法兰两种连接方式。
9. 本系列插板阀的外型及主要连接尺寸如下:

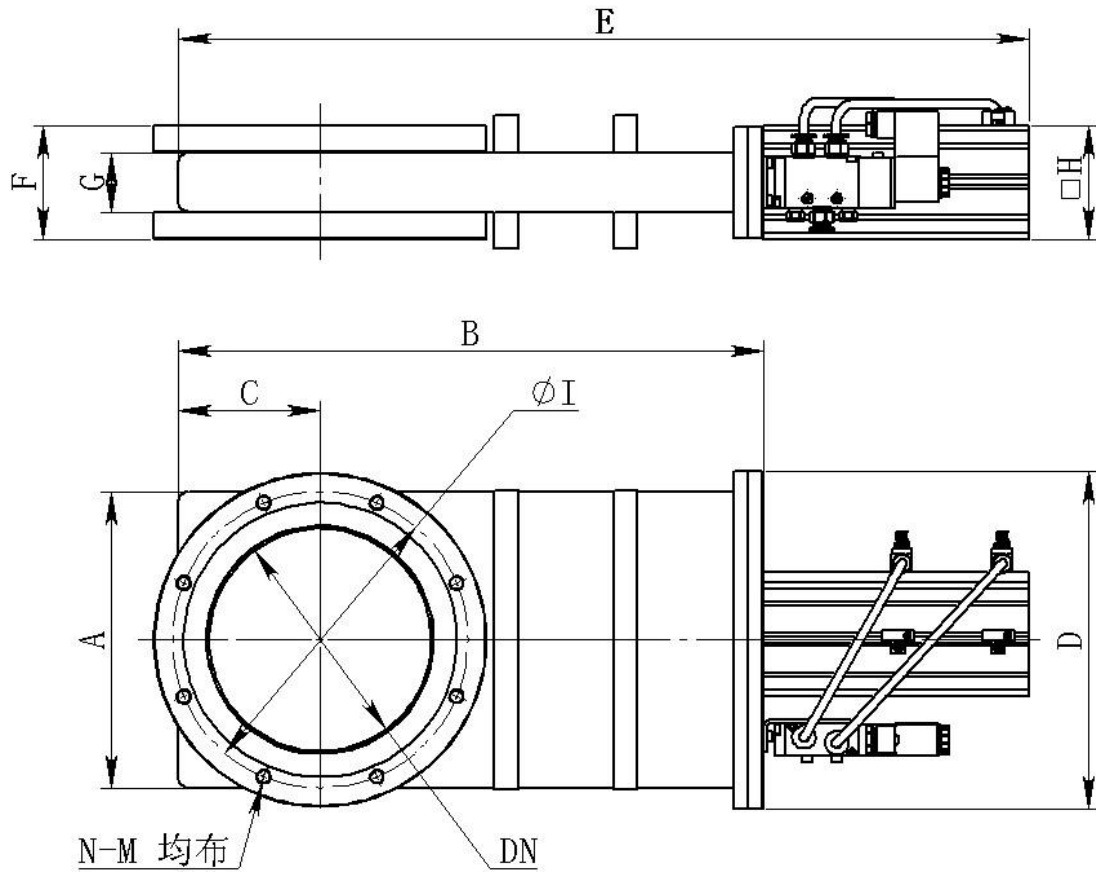
CCQ- 气动插板阀系列 CF 法兰连接形式外型尺寸



规格 型号	DN	外形尺寸											标准
		A	B	C	D	E	F	G	H	I	N-M	法 兰	
CCQ-35B	35	82	132	37	95	352	62.5	34.5	53	58.7	6-M6	CF35	GB/T 6071 -200 3 超 高真 空法 兰
CCQ-50B	50	92	184	42	124	304	71.5	34.5	64	72.4	8-M8	CF50	
CCQ-63B	63	105	214.5	48.5	130	334.5	71.5	34.5	64	92.2	8-M8	CF63	
CCQ-80A	80	136	255	64	164	382	70	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	710.5	94	42	98	231.8	24-M8	CF200	
CCQ-250A	250	310	610	150	342	812.5	101	48	117	284	32-M8	CF250	
CCQ-320B	320	391	788	195.5	415	990.5	124	60	117	338.1	32-M10	CF320	
CCQ-400B	400	480	978	240	509	1303	140	62	142	437.9	40-M10	CF400	

❖ 气动插板阀工作时，气源不应断掉，阀门出厂标配 AC220V 电磁换向阀，常闭结构。

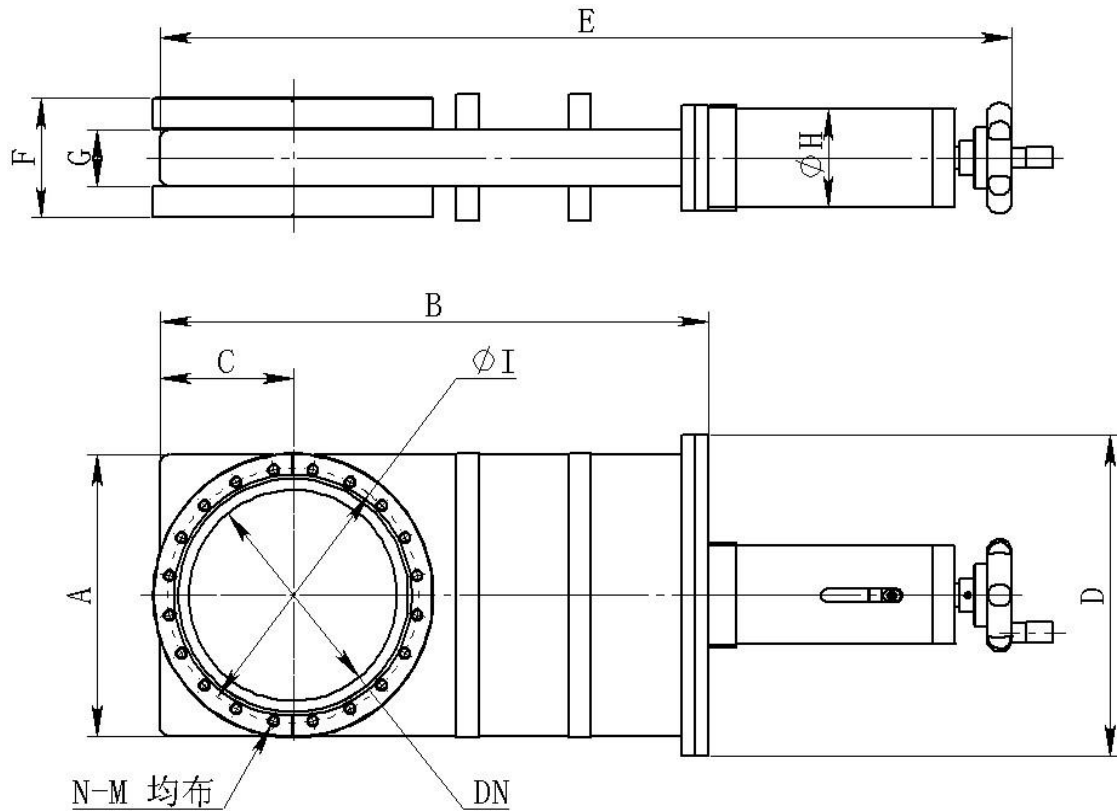
CCQ- 气动插板阀系列 ISO-F 法兰连接形式外型尺寸



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-35B	35	82	132	37	95	352	62.5	34.5	53	80	4-M8	ISO-F35	GB/T 6070-2 007 真空技 术 法兰尺 寸
CCQ-50B	50	92	184	42	124	304	71.5	34.5	64	90	4-M8	ISO-F50	
CCQ-63B	63	105	214.5	48.5	130	334.5	71.5	34.5	64	110	4-M8	ISO-F63	
CCQ-80A	80	136	255	64	158	382	70	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	710.5	86	42	98	260	12-M10	ISO-F200	
CCQ-250A	250	310	610	150	342	812.5	91	48	117	310	12-M10	ISO-F250	
CCQ-320B	320	391	788	195.5	415	990.5	124	60	117	395	12-M12	ISO-F320	
CCQ-400B	400	480	978	240	509	1303	140	62	142	480	16-M12	ISO-F400	

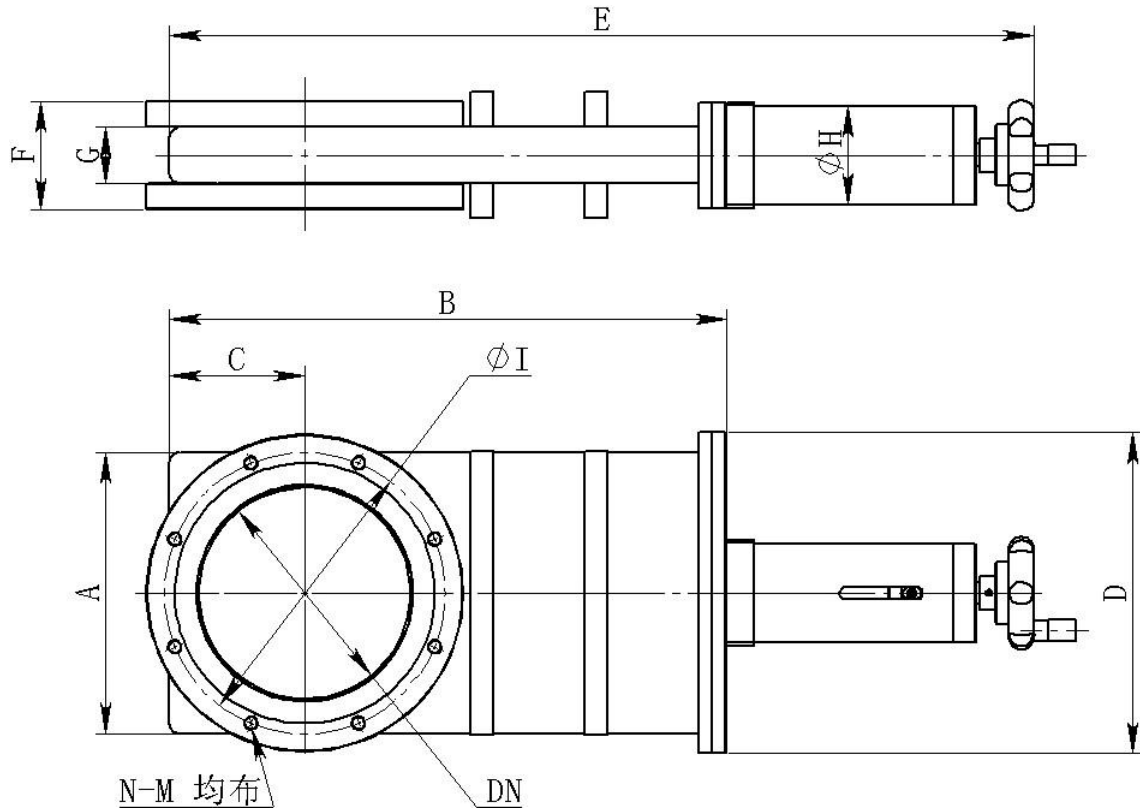
❖ 气动插板阀工作时，气源不应断掉，阀门出厂标配 AC220V 电磁换向阀，常闭结构。

CC- 手动插板阀系列 CF 法兰连接形式外型尺寸



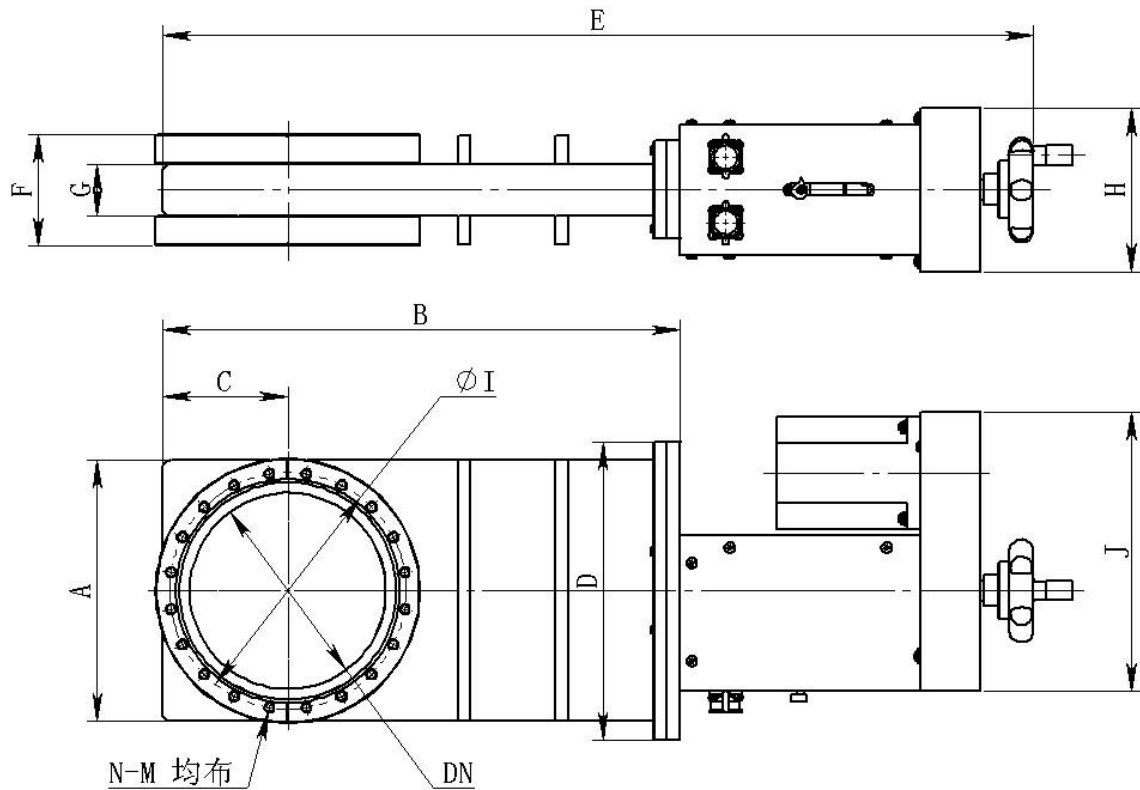
规格 型号	DN	外形尺寸											标准
		A	B	C	D	E	F	G	H	I	N-M	法 兰	
CC-35B	35	82	132	37	95	315	62.5	34.5	45	58.7	6-M6	CF35	GB/T 6071 -200 3 超 高真 空法 兰
CC-50B	50	92	184	42	124	331.5	71.5	34.5	60	72.4	8-M8	CF50	
CC-63B	63	105	214.5	48.5	130	362	71.5	34.5	60	92.2	8-M8	CF63	
CC-80A	80	136	255	64	158	409.5	70	34	60	110	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	614.5	80	40	70	181	20-M8	CF150	
CC-200A	200	248	508	123	276	728.5	94	42	70	231.8	24-M8	CF200	
CC-250A	250	310	610	150	342	830.5	101	48	70	284	32-M8	CF250	
CC-320B	320	391	788	195.5	415	1033	124	60	75	338.1	32-M10	CF320	
CC-400B	400	480	978	240	509	1236	140	62	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-35B	35	82	132	37	95	315	62.5	34.5	45	80	4-M8	ISO-F35	GB/T 6070-2 007 真空技 术 法兰尺 寸
CC-50B	50	92	184	42	124	331.5	71.5	34.5	60	90	4-M8	ISO-F50	
CC-63B	63	105	214.5	48.5	130	362	71.5	34.5	60	110	4-M8	ISO-F63	
CC-80A	80	136	255	64	158	409.5	70	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	614.5	80	40	70	200	8-M10	ISO-F150	
CC-200A	200	248	508	123	276	728.5	86	42	70	260	12-M10	ISO-F200	
CC-250A	250	310	610	150	342	830.5	91	48	70	310	12-M10	ISO-F250	
CC-320B	320	391	788	195.5	415	1033	124	60	75	395	12-M12	ISO-F320	
CC-400B	400	480	978	240	509	1236	140	62	75	480	16-M12	ISO-F400	

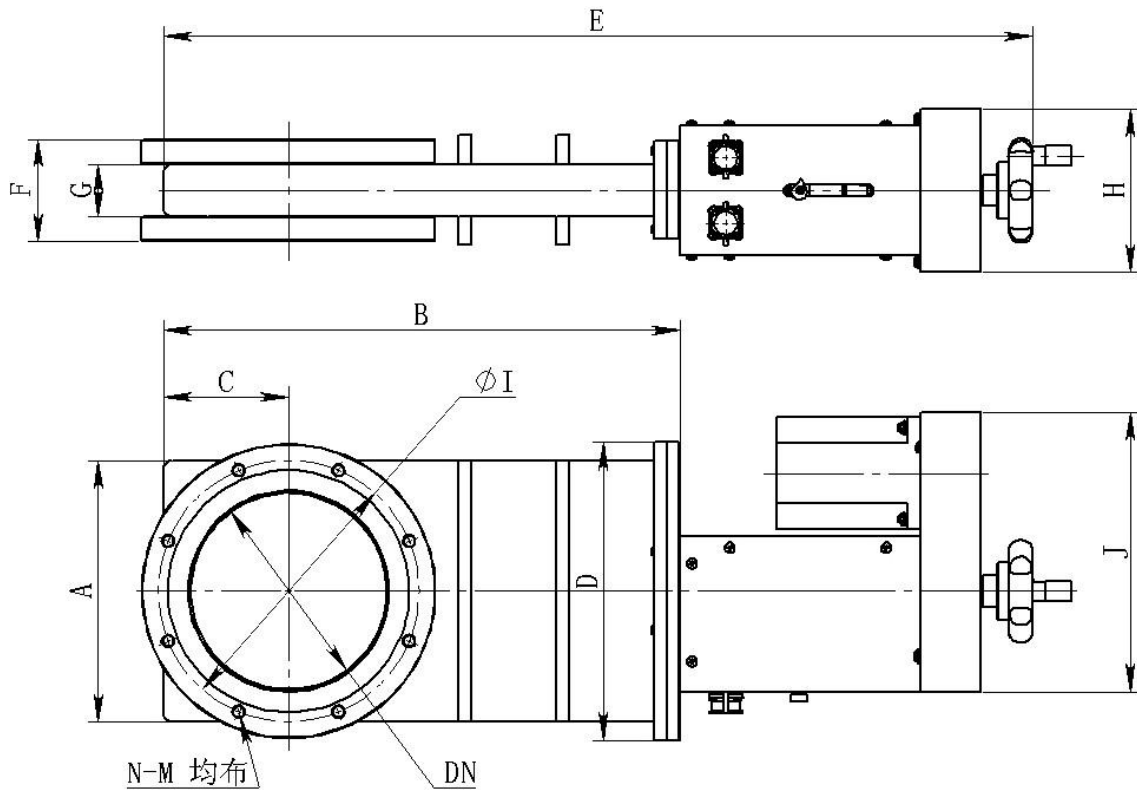
CCD- 电动插板阀系列 CF 法兰连接形式外型尺寸



规格 型号	DN	外形尺寸											法兰	标准
		A	B	C	D	E	F	G	H	I	J	N-M		
CCD-35B	35	82	132	37	95	348	62.5	34.5	62	58.7	95	6-M6	CF35	GB/T 6071 -200 3 超 高真 空法 兰
CCD-50B	50	92	184	42	124	383.5	71.5	34.5	110	72.4	184	8-M8	CF50	
CCD-63B	63	105	214.5	48.5	130	414	71.5	34.5	110	92.2	184	8-M8	CF63	
CCD-80A	80	136	255	64	158	461.5	70	34	110	110	184	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	780	94	42	125	231.8	214	24-M8	CF200	
CCD-250A	250	310	610	150	342	882	101	48	125	284	214	32-M8	CF250	
CCD-320B	320	391	788	195.5	415	1105	124	60	154	338.1	261	32-M10	CF320	
CCD-400B	400	480	978	240	509	1307	140	62	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											法兰	标准
		A	B	C	D	E	F	G	H	I	J	N-M		
CCD-35B	35	82	132	37	95	348	62.5	34.5	62	80	95	4-M8	ISO-F35	GB/T 6070- 2007 真空 技术 法兰 尺寸
CCD-50B	50	92	184	42	124	383.5	71.5	34.5	110	90	184	4-M8	ISO-F50	
CCD-63B	63	105	214.5	48.5	130	414	71.5	34.5	110	110	184	4-M8	ISO-F63	
CCD-80A	80	136	255	64	158	461.5	70	34	110	125	184	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	780	86	42	125	260	214	12-M10	ISO-F200	
CCD-250A	250	310	610	150	342	882	91	48	125	310	214	12-M10	ISO-F250	
CCD-320B	320	391	788	195.5	415	1105	124	60	154	395	261	12-M12	ISO-F320	
CCD-400B	400	480	978	240	509	1307	140	62	154	480	261	16-M12	ISO-F400	

❖ 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；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，尽可能避免垂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。

5. 所有气动阀门出厂时，阀门的开关速度均已调好，非维修情况勿动调速接头调节阀门开关速度。

十、可能发生的故障及消除方法

故障	故障原因	消除方法
密封问题	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
	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	
5	装箱单	1	份	

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。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-35B	CCQ-50B	CCQ-63B
Interface Flange		CF/ISO-F		
Nominal Diameter		DN35	DN50	DN63
Range of Application (Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
Leak Rate ($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
Opening differential pressure of valves(Pa)		≤ 2700	≤ 2700	≤ 2700
Drive Mode		Pneumatic	Pneumatic	Pneumatic
Recommended Working Air Pressure(MPa)		0.3~0.4	0.3~0.4	0.3~0.4
☆Baking Temperature (°C)	On	150	150	150
	Off	120	120	120
*Conductance(L/S)		-	-	400
Weight (kg)		5	6	7.3
On-off time (s)		1.2/1.0	1.2/1.0	1.5/1.0
Installation Direction		Horizontal or cylinder up		
Valve In-place Indication		Magnetic switch		

Model		CCQ-80A	CCQ-100A	CCQ-150A
Interface Flange		CF/ISO-F		
Nominal Diameter		DN80	DN100	DN150
Range of Application (Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
Leak Rate ($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$

Opening differential pressure of valves(Pa)		≤2700	≤2700	≤2700
Drive Mode		Pneumatic	Pneumatic	Pneumatic
Recommended Working Air Pressure (MPa)		0.4~0.5	0.4~0.5	0.4~0.5
☆Baking Temperature (°C)	On	150	150	150
	Off	120	120	120
*Conductance (L/S)		-	1100	3400
Weight (kg)		9.6	13	25
On-off time (s)		1.8/1.2	1.8/1.2	1.8/1.2
Installation Direction	Horizontal or cylinder up			
Valve In-place 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-200A	CCQ-250A
Interface Flange	CF/ISO-F	
Nominal Diameter	DN200	DN250
Range of Application (Pa)	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
Leak Rate (Pa · m ³ /s)	≤1.3x10 ⁻¹⁰	≤1.3x10 ⁻¹⁰
Opening differential pressure of valves(Pa)	≤2700	≤2700

Drive Mode		Pneumatic	Pneumatic
Recommended Working Air Pressure (MPa)		0.5~0.6	0.5~0.6
☆Baking Temperature(°C)	On	150	150
	Off	120	120
*Conductance (L/S)		7300	12000
Weight (kg)		36	59
On-off time (s)		3.5/2.5	4.5/3.5
Installation Direction		Horizontal or cylinder up	
Valve In-place Indication		Magnetic switch	

Model		CCQ-320B	CCQ-400B
Interface Flange	CF/ISO-F		
Nominal Diameter		DN320	DN400
Range of Application (Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
Leak Rate (Pa · m ³ /s)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
Opening differential pressure of valves(Pa)		≤ 1700	≤ 1700
Drive Mode		Pneumatic	Pneumatic
Recommended Working Air Pressure (MPa)		0.6~0.7	0.6~0.7
☆Baking Temperature(°C)	On	150	150
	Off	120	120
*Conductance (L/S)		21000	30000

Weight (kg)	111	170
On-off time (s)	8.5/6.5	10.5/8.5
Installation Direction	Horizontal or cylinder up	
Valve In-place 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.

Performance Index of CC-series Ultrahigh Vacuum Manual Gate Valve

Model		CC-35B	CC-50B	CC-63B
Interface Flange		CF/ISO-F		
Nominal Diameter		DN35	DN50	DN63
Range of Application (Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
Leak Rate ($\text{Pa} \cdot \text{m}^3/\text{s}$)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
Opening differential pressure of valves(Pa)		≤ 2700	≤ 2700	≤ 2700
Drive Mode		Manual	Manual	Manual
☆Baking Temperature($^{\circ}\text{C}$)	On	150	150	150
	Off	120	120	120
*Conductance (L/S)		-	-	400
Installation Direction		At any direction		
Valve In-place 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-80A	CC-100A	CC-150A
Interface Flange		CF/ISO-F		
Nominal Diameter		DN80	DN100	DN150
Range of Application (Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
Leak Rate (Pa · m ³ /s)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
Opening differential pressure of valves(Pa)		≤ 2700	≤ 2700	≤ 2700
Drive Mode		Manual	Manual	Manual
☆Baking Temperature(°C)	On	150	150	150
	Off	120	120	120
*Conductance (L/S)		-	1100	3400
Installation Direction		At any direction		
Valve In-place Indication		Mechanical type		

Model		CC-200A	CC-250A
Interface Flange		CF/ISO-F	
Nominal Diameter		DN200	DN250
Range of Application (Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
Leak Rate (Pa · m ³ /s)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
Opening differential pressure of valves(Pa)		≤ 2700	≤ 2700

Drive Mode		Manual	Manual
☆Baking Temperature(°C)	On	150	150
	Off	120	120
*Conductance (L/S)		7300	12000
Installation Direction		At any direction	
Valve In-place Indication		Mechanical type	
Model		CC-320B	CC-400B
Interface Flange		CF/ISO-F	
Nominal Diameter		DN320	DN400
Range of Application (Pa)		$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
Leak Rate (Pa · m ³ /s)		$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$
Opening differential pressure of valves(Pa)		≤ 1700	≤ 1700
Drive Mode		Manual	Manual
☆Baking Temperature(°C)	On	150	150
	Off	120	120
*Conductance (L/S)		21000	30000
Installation Direction		Horizontal	
Valve In-place 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-35B	CCD-50B	CCD-63B	
Interface Flange	CF/ISO-F			
Nominal Diameter	DN35	DN50	DN63	
Range of Application (Pa)	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$	
Leak Rate($\text{Pa} \cdot \text{m}^3/\text{s}$)	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$	
Opening differential pressure of valves(Pa)	≤ 2700	≤ 2700	≤ 2700	
Drive Mode	Electric	Electric	Electric	
Drive Voltage(V)	$20 \leq \text{DC} \leq 50$ (DM556)			
Drive Current (A)	1.8~5.6 (DM556)			
☆Baking Temperature($^{\circ}\text{C}$)	On	150	150	150
	Off	120	120	120
*Conductance (L/S)	-	-	400	
Installation Direction	Horizontal or motor up			
Valve In-place Indication	PNP Photoelectric switch			

Model	CCD-80A	CCD-100A	CCD-150A
Interface Flange	CF/ISO-F		
Nominal Diameter	DN80	DN100	DN150
Range of Application (Pa)	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$
Leak Rate($\text{Pa} \cdot \text{m}^3/\text{s}$)	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$

Opening differential pressure (Pa) of valves		≤2700	≤2700	≤2700
Drive Mode		Electric	Electric	Electric
Drive Voltage(V)		20≤DC≤50 (DM556)		30≤DC≤100
Drive Current (A)		1.8~5.6 (DM556)		2.4~7.2
☆Baking Temperature(°C)	On	150	150	150
	Off	120	120	120
*Conductance (L/S)		-	1100	3400
Installation Direction		Horizontal or motor up		
Valve In-place Indication		PNP Photoelectric switch		

Model	CCD-200A	CCD-250A	
Interface Flange	CF/ISO-F		
Nominal Diameter	DN200	DN250	
Range of Application (Pa)	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$	
Leak Rate(Pa · m ³ /s)	≤1.3x10 ⁻¹⁰	≤1.3x10 ⁻¹⁰	
Opening differential pressure of valves(Pa)	≤2700	≤2700	
Drive Mode	Electric	Electric	
Drive Voltage(V)	30≤DC≤100 (MA860C)		
Drive Current (A)	2.4~7.2 (MA860C)		
☆Baking Temperature(°C)	On	150	150
	Off	120	120

*Conductance (L/S)	7300	12000
Installation Direction	Horizontal or motor up	
Valve In-place Indication	PNP Photoelectric switch	

Model	CCD-320B	CCD-400B	
Interface Flange	CF/ISO-F		
Nominal Diameter	DN320	DN400	
Range of Application (Pa)	$10^5 \sim 10^{-6}$	$10^5 \sim 10^{-6}$	
Leak Rate(Pa · m ³ /s)	$\leq 1.3 \times 10^{-10}$	$\leq 1.3 \times 10^{-10}$	
Opening differential pressure of valves(Pa)	≤ 1700	≤ 1700	
Drive Mode	Electric	Electric	
Drive Voltage(V)	180 \leq AC \leq 240 (DM2282)		
Drive Current (A)	2.2~8.2 (DM2282)		
☆Baking Temperature(°C)	On	150	150
	Off	120	120
*Conductance (L/S)	21000	30000	
Installation Direction	Horizontal or motor up		
Valve In-place Indication	PNP Photoelectric 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-35B electric gate valve series motor model: 23E2240K, maximum static moment: 2N.M; CCD-50B,63B,80A,100A electric gate valve series motor model: 57HS28-ZK, maximum static moment: 3N.M; CCD-150A,200A series electric gate valve motor model: 86HS85D, maximum static moment:8N.M; CCD-250A electric gate valve motor model: 86HS156-14LY, maximum static moment:12N.M; CCD-320B, 400B series electric gate valve motor model: 110HS28D, maximum static moment: 35N.M, all motors are two-phase stepper motors and stepping angle is 1.8°.

(2) CCD-35B、50B、63B、80A and 100A employ DM556 stepper motor driver, and

CCD-150A, 200A, 250A employ MA860C stepper motor driver, and CCD-320B、400B employ DM2282 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.

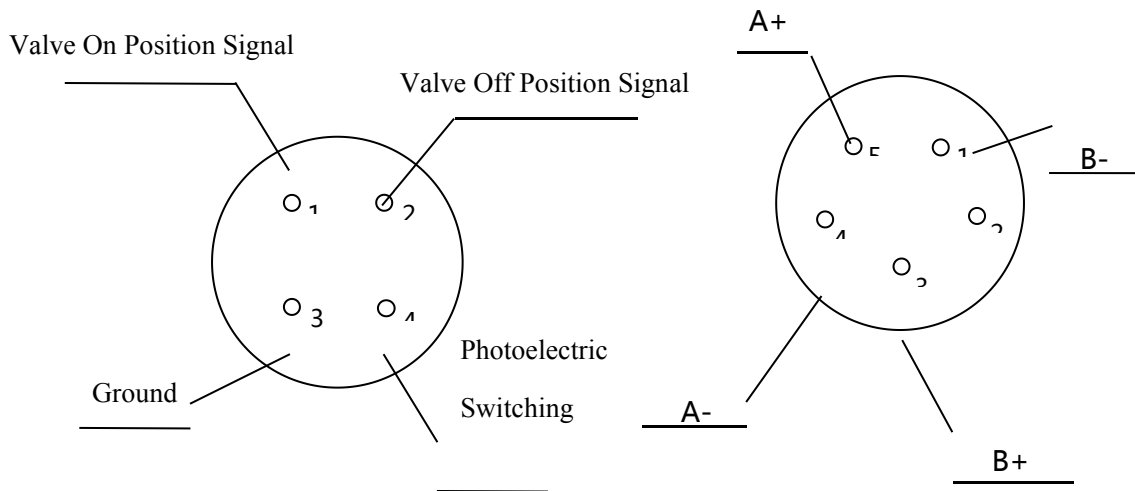
2. Introduction of Stepper Motor Driver

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 photoelectric switch model. 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 photoelectric switch model. It shall be connected with peripheral control unit, corresponding to pin 2 of

four-core aviation socket.

(3) Grounding: it shall correspond to pin 3 of four-core aviation socket.

(4) Photoelectric switching Power supply: 5DCV~24DCV, it shall correspond to pin 4 of four-core aviation socket.

Motor Driving Power:

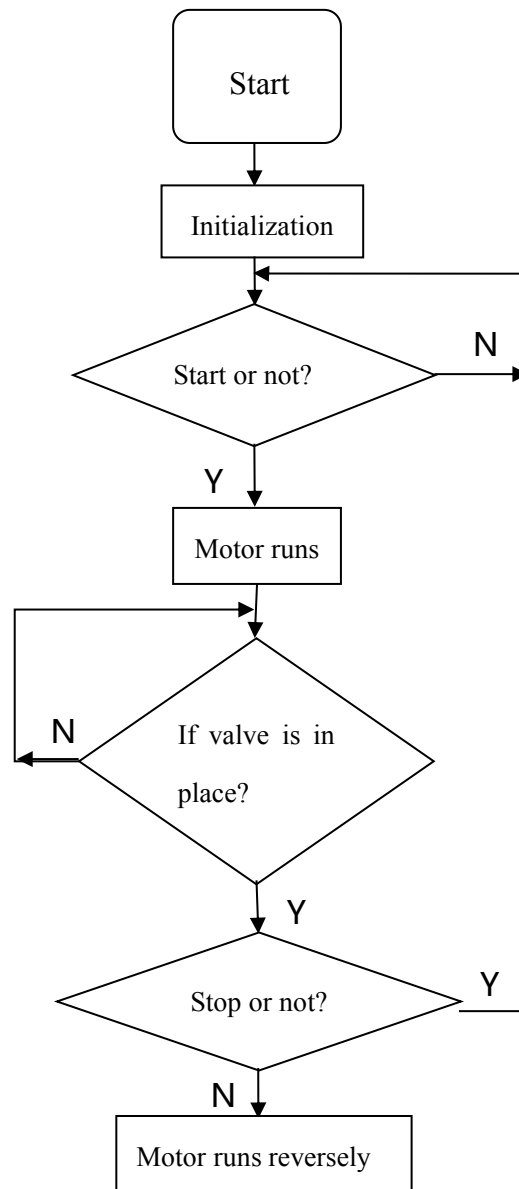
(1)B_ It shall be connected with phase B of stepper motor, corresponding to pin 2 of five-core aviation socket.

(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.

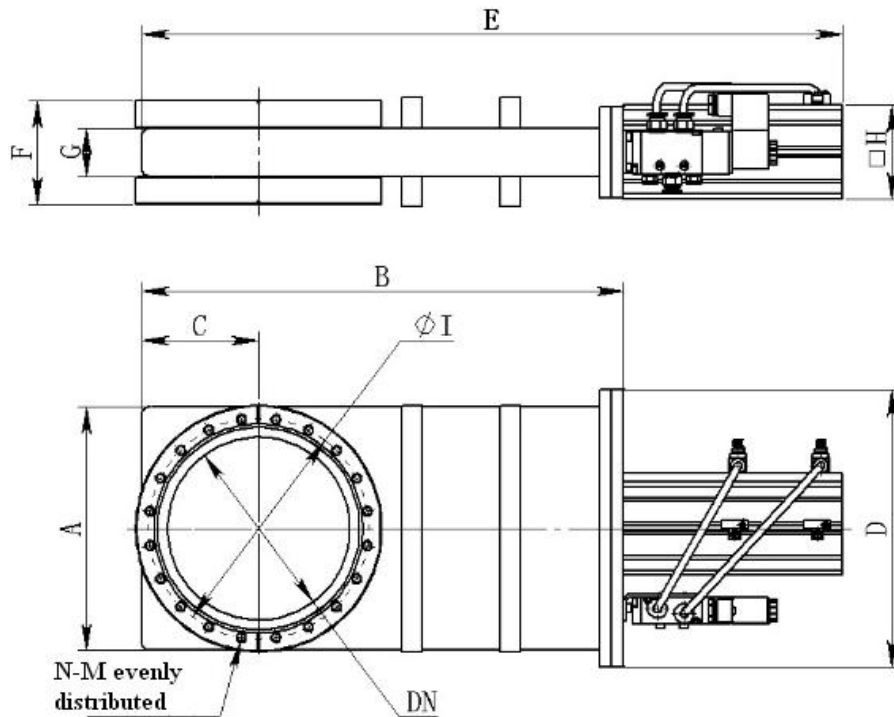
6. Drive shaft (link) is sealed with 316L stainless steel welded bellow, with good sealing performance, and can be installed at any position.

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 two connection methods in vacuum system: CF flange sealed with copper washer and ISO-F flanges sealed with fluorine rubber ring.

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

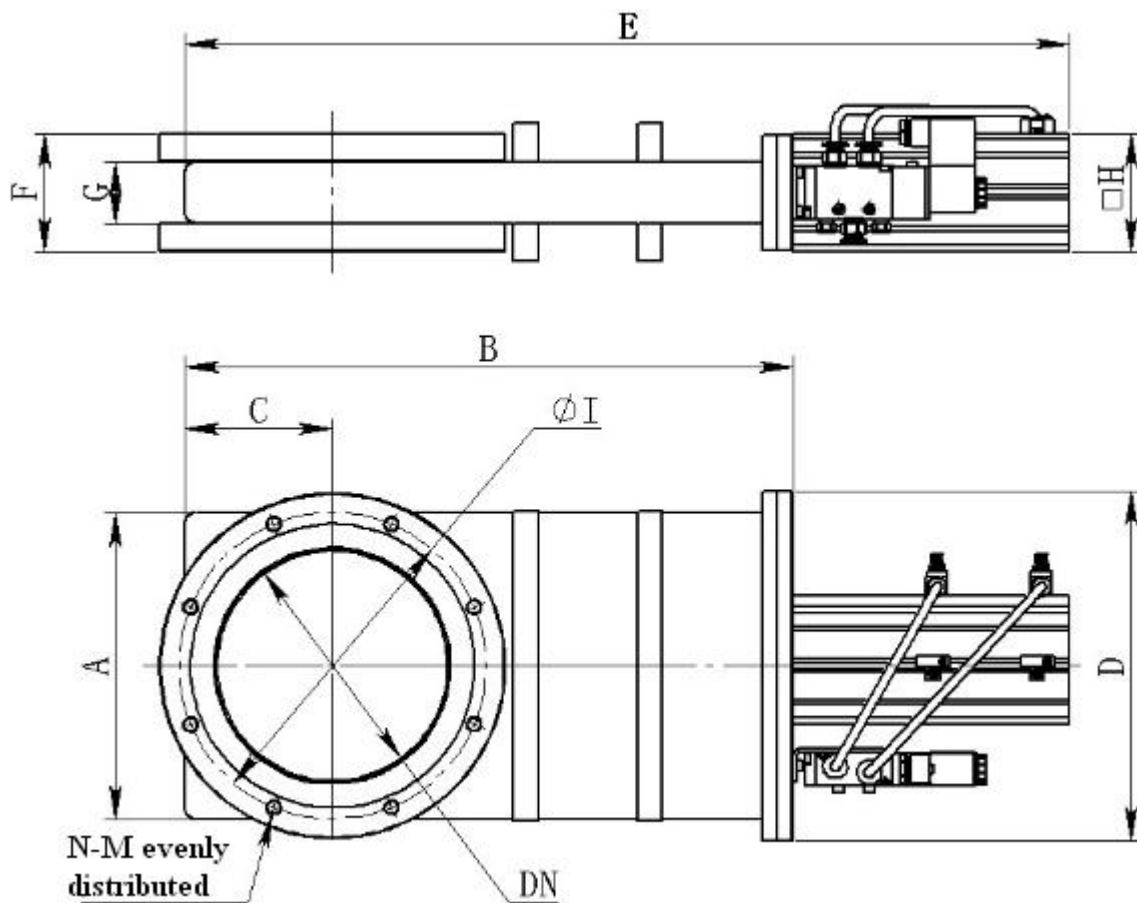
CCQ- Overall Dimension of CF Flange Connection Mode of Pneumatic Gate Valve Series



Specification and Model	DN	Overall Dimensions											Standard
		A	B	C	D	E	F	G	H	I	N-M	Flange	
CCQ-35B	35	82	132	37	95	352	62.5	34.5	53	58.7	6-M6	CF35	GB/T 6071-2 003
CCQ-50B	50	92	184	42	124	304	71.5	34.5	64	72.4	8-M8	CF50	
CCQ-63B	63	105	214.5	48.5	130	334.5	71.5	34.5	64	92.2	8-M8	CF63	
CCQ-80A	80	136	255	64	164	382	70	34	64	110	16-M8	CF80	Ultrahigh Vacuum Flange
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	Ultrahigh Vacuum Flange
CCQ-200A	200	248	508	123	276	710.5	94	42	98	231.8	24-M8	CF200	
CCQ-250A	250	310	610	150	342	812.5	101	48	117	284	32-M8	CF250	Ultrahigh Vacuum Flange
CCQ-320B	320	391	788	195.5	415	990.5	124	60	117	338.1	32-M10	CF320	
CCQ-400B	400	480	978	240	509	1303	140	62	142	437.9	40-M10	CF400	

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

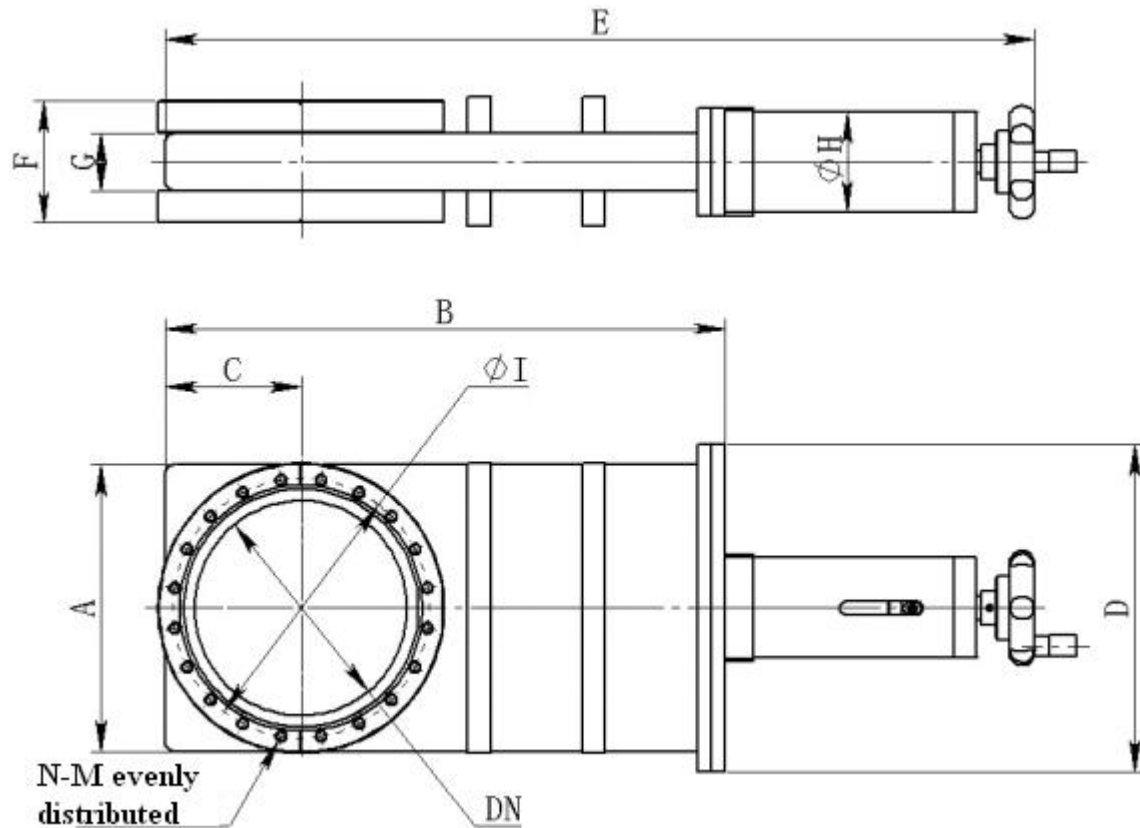
Overall Dimensions of ISO-F Flange Connection Mode of CCQ-Pneumatic Gate Valve Series



Specification and Model	DN	Overall Dimensions										Standard	
		A	B	C	D	E	F	G	H	I	N-M		Flange
CCQ-35B	35	82	132	37	95	352	62.5	34.5	53	80	4-M8	ISO-F35	GB/T 6070-2007 Vacuum technology Flange size
CCQ-50B	50	92	184	42	124	304	71.5	34.5	64	90	4-M8	ISO-F50	
CCQ-63B	63	105	214.5	48.5	130	334.5	71.5	34.5	64	110	4-M8	ISO-F63	
CCQ-80A	80	136	255	64	158	382	70	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	710.5	86	42	98	260	12-M10	ISO-F200	
CCQ-250A	250	310	610	150	342	812.5	91	48	117	310	12-M10	ISO-F250	
CCQ-320B	320	391	788	195.5	415	990.5	124	60	117	395	12-M12	ISO-F320	
CCQ-400B	400	480	978	240	509	1303	140	62	142	480	16-M12	ISO-F400	

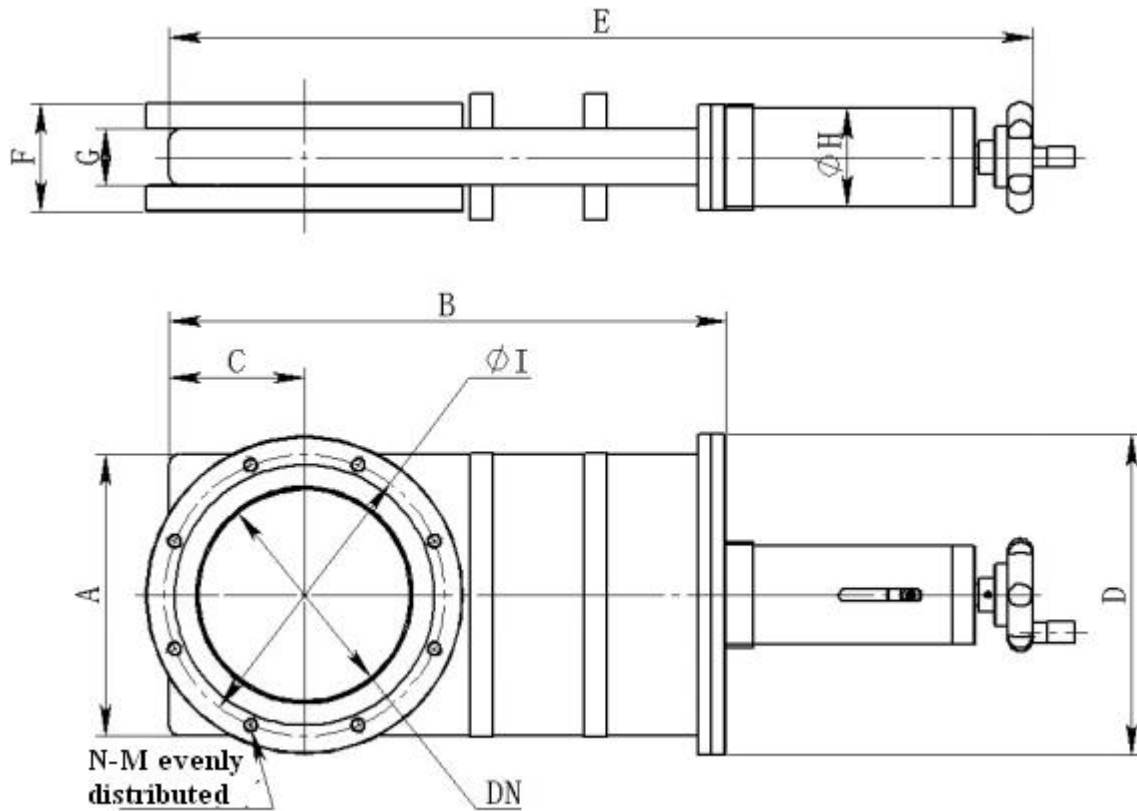
❖ When pneumatic gate valve operates, air source shall not be cut off

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



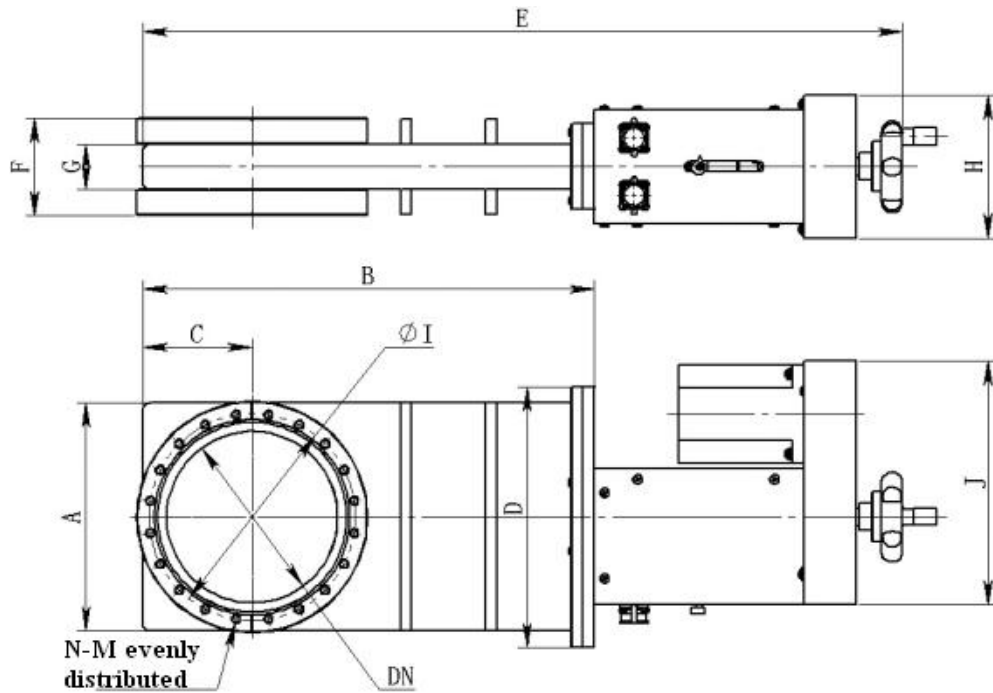
Specification and Model	DN	Overall Dimensions											Standard
		A	B	C	D	E	F	G	H	I	N-M	Flange	
CC-35B	35	82	132	37	95	315	62.5	34.5	45	58.7	6-M6	CF35	GB/T 6071-2 003 Ultrahigh Vacuum Flange
CC-50B	50	92	184	42	124	331.5	71.5	34.5	60	72.4	8-M8	CF50	
CC-63B	63	105	214.5	48.5	130	362	71.5	34.5	60	92.2	8-M8	CF63	
CC-80A	80	136	255	64	158	409.5	70	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	614.5	80	40	70	181	20-M8	CF150	
CC-200A	200	248	508	123	276	728.5	94	42	70	231.8	24-M8	CF200	
CC-250A	250	310	610	150	342	830.5	101	48	70	284	32-M8	CF250	
CC-320B	320	391	788	195.5	415	1033	124	60	75	338.1	32-M10	CF320	
CC-400B	400	480	978	240	509	1236	140	62	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											Standard
		A	B	C	D	E	F	G	H	I	N-M	Flange	
CC-35B	35	82	132	37	95	315	62.5	34.5	45	80	4-M8	ISO-F35	GB/T 6070-2007 Vacuum technology Flange size
CC-50B	50	92	184	42	124	331.5	71.5	34.5	60	90	4-M8	ISO-F50	
CC-63A	63	105	214.5	48.5	130	362	71.5	34.5	60	110	4-M8	ISO-F63	
CC-80A	80	136	255	64	158	409.5	70	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	614.5	80	40	70	200	8-M10	ISO-F150	
CC-200A	200	248	508	123	276	728.5	86	42	70	260	12-M10	ISO-F200	
CC-250A	250	310	610	150	342	830.5	91	48	70	310	12-M10	ISO-F250	
CC-320A	320	391	788	195.5	415	1033	124	60	75	395	12-M12	ISO-F320	
CC-400A	400	480	978	240	509	1236	140	62	75	480	16-M12	ISO-F400	

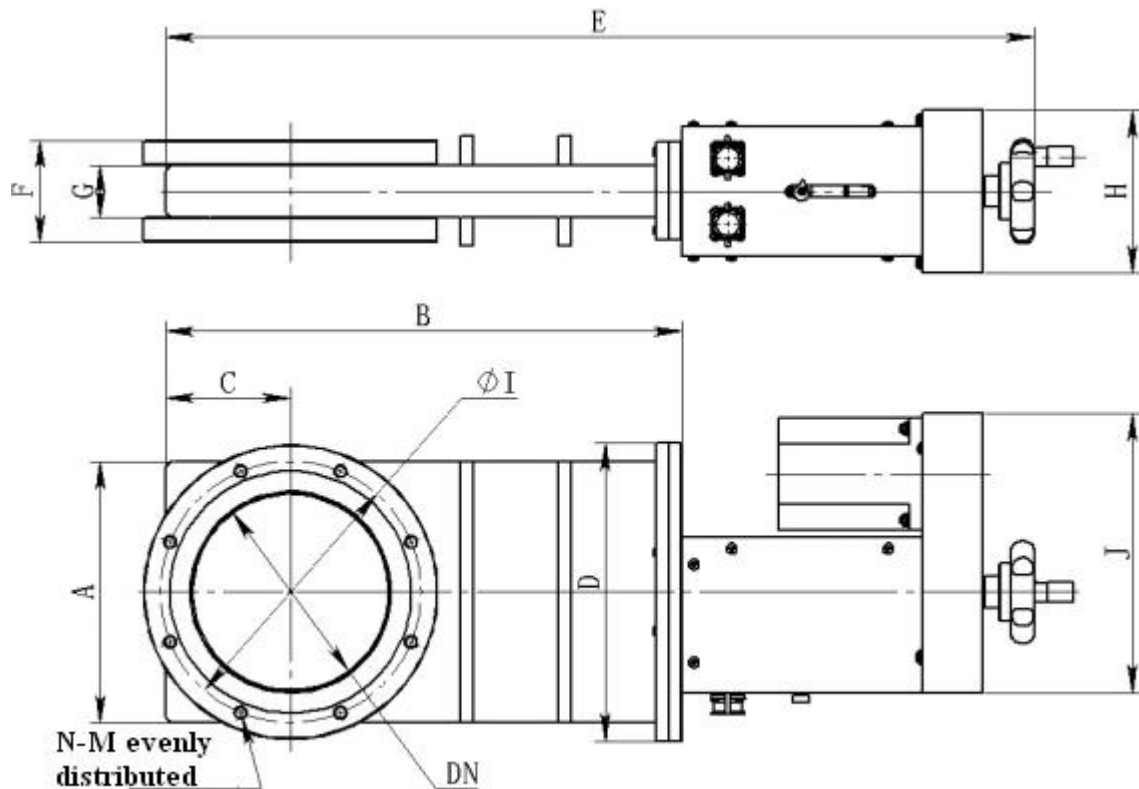
Overall Dimensions of CF Flange Connection Mode of CCD-Electric Gate Valve Series



Specification and Model	DN	Overall Dimensions												Standard
		A	B	C	D	E	F	G	H	I	J	N-M	Flange	
CCD-35B	35	82	132	37	95	348	62.5	34.5	62	58.7	95	6-M6	CF35	GB/T 6071- 2003 Ultra high Vacu um Flang e
CCD-50B	50	92	184	42	124	383.5	71.5	34.5	110	72.4	184	8-M8	CF50	
CCD-63B	63	105	214.5	48.5	130	414	71.5	34.5	110	92.2	184	8-M8	CF63	
CCD-80A	80	136	255	64	158	461.5	70	34	110	110	184	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	780	94	42	125	231.8	214	24-M8	CF200	
CCD-250A	250	310	610	150	342	882	101	48	125	284	214	32-M8	CF250	
CCD-320B	320	391	788	195.5	415	1105	124	60	154	338.1	261	32-M10	CF320	
CCD-400B	400	480	978	240	509	1307	140	62	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											Standard	
		A	B	C	D	E	F	G	H	I	J	N-M		Flange
CCD-35B	35	82	132	37	95	348	62.5	34.5	62	80	95	4-M8	ISO-F35	GB/T 6070- 2007 Vacuum technology Flange size
CCD-50B	50	92	184	42	124	383.5	71.5	34.5	110	90	184	4-M8	ISO-F50	
CCD-63B	63	105	214.5	48.5	130	414	71.5	34.5	110	110	184	4-M8	ISO-F63	
CCD-80A	80	136	255	64	158	461.5	70	34	110	125	184	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	780	86	42	125	260	214	12-M10	ISO-F200	
CCD-250A	250	310	610	150	342	882	91	48	125	310	214	12-M10	ISO-F250	
CCD-320B	320	391	788	195.5	415	1105	124	60	154	395	261	12-M12	ISO-F320	

CCD-400B	400	480	978	240	509	1307	140	62	154	480	261	16-M12	ISO-F400
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❖ **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 valve after maintenance and assembly, which shall be installed into the system after passing inspection.

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

6. 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.

7. 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.

8. 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.

9. 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: _____



公司总部:

地址: 四川省成都市科园南一路 7 号

电话: 028-85121820-843/807

传真: 028-82121830

电子信箱: rancj@cdzkws.com

Address: No. 7, South Ke Yuan 1st
Road, Chengdu City, Sichuan Province

Telephone: 028-85121820-843/807

Fax: 028-82121830

Website: rancj@cdzkws.com

附件

电动插板阀电气接口说明（光电开关）

一、电动插板阀航空接头接线说明

电动插板阀的电气接口接线，如图 1-1 所示，说明见表 1-1。

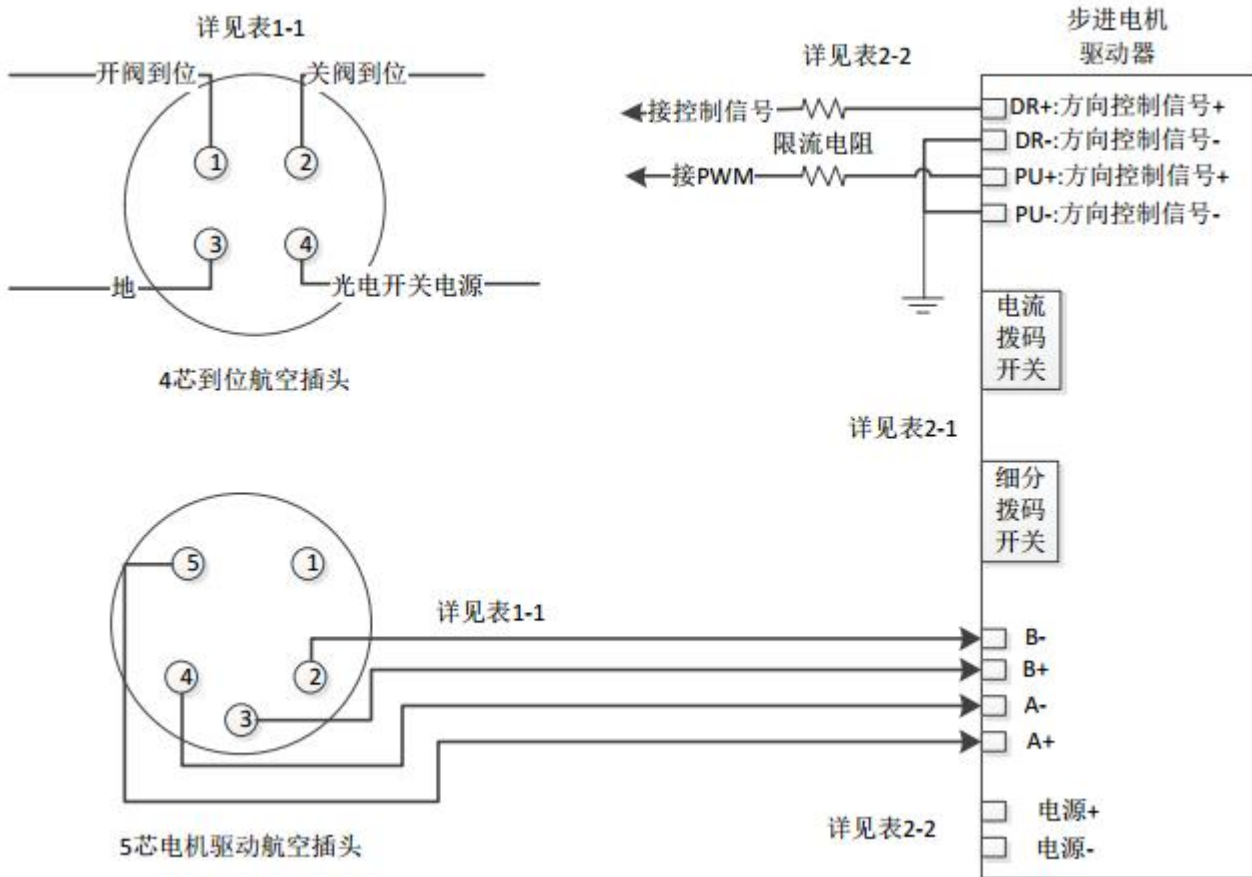


图 1-1 电动插板阀连接示意图

表 1-1 电动插板阀插头接线说明

序号	电动插板阀插头引脚	引脚接线说明
1	5 芯插头-1	不接
2	5 芯插头-2	接步进电机驱动器 B-
3	5 芯插头-3	接步进电机驱动器 B+
4	5 芯插头-4	接步进电机驱动器 A-
5	5 芯插头-5	接步进电机驱动器 A+
6	4 芯插头-1	开阀到位信号：当开阀到位信号有效时，为高电平

7	4 芯插头-2	关阀到位信号：当关阀到位信号有效时，为高电平
8	4 芯插头-3	接地
9	4 芯插头-4	光电开关电源：5DCV~24DCV

二、驱动器设置说明

1、拨号开关设置如表 2-1。

表 2-1 驱动拨码开关设置说明

序号	拨码开关名称	设置说明
1	电流设置拨码开关	按照驱动器说明，建议设置有效值电流（RMS或REF Current）为： 6.0A ；星 火和雷赛驱动器上电流拨码开关英文名称分别：Current setting和Current Table
2	细分设置拨码开关	按照驱动器说明，建议设置细分为： 1600 ；星火和雷赛驱动器上细分拨码开关英文名称分别为：Subdivision setting和Pulse/rev Table
3	PWM频率	建议设置驱动器的PWM频率为： 3000HZ

2、驱动器控制信号说明如表2-2，接线示意图见图1-1

表 2-2驱动器控制信号说明

序号	信号名称	设置说明
1	DR(DIR)+	方向信号+：建议接用户控制器的IO端
2	DR(DIR)-	方向信号-：建议接地
3	PU(PUL)+	驱动器脉冲输入+：建议接用户控制器的PWM输出端
4	PU(PUL)-	驱动器脉冲输入-：建议接地
5	限流电阻	限流电阻选配建议使用：输入5V信号阻值100Ω，12V信号阻值1KΩ，24V信号阻值2KΩ，48V阻值4.7KΩ。
6	电源	电源接 DC48V，不分正负。