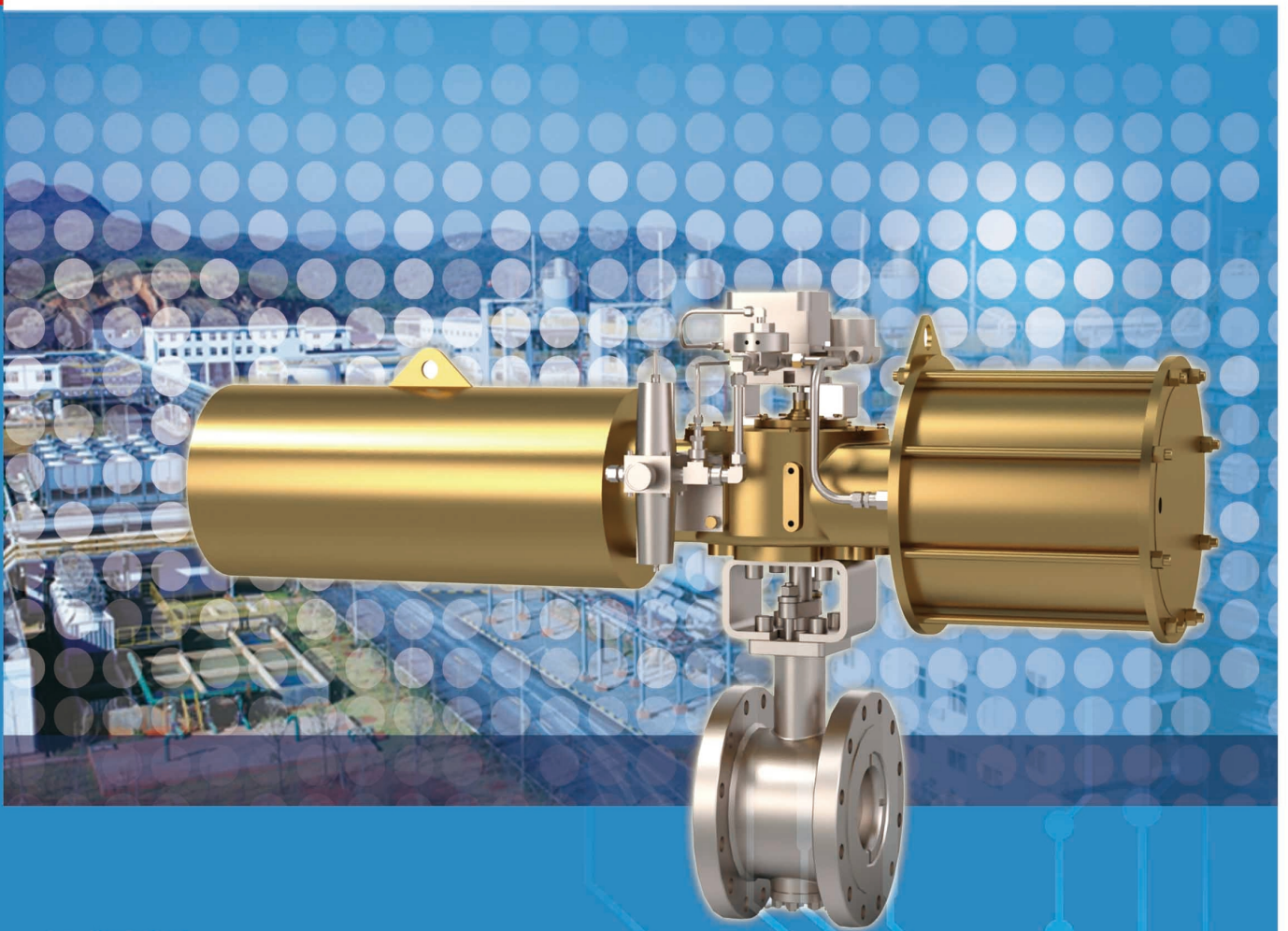


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艾坦姆流体控制技术有限公司  
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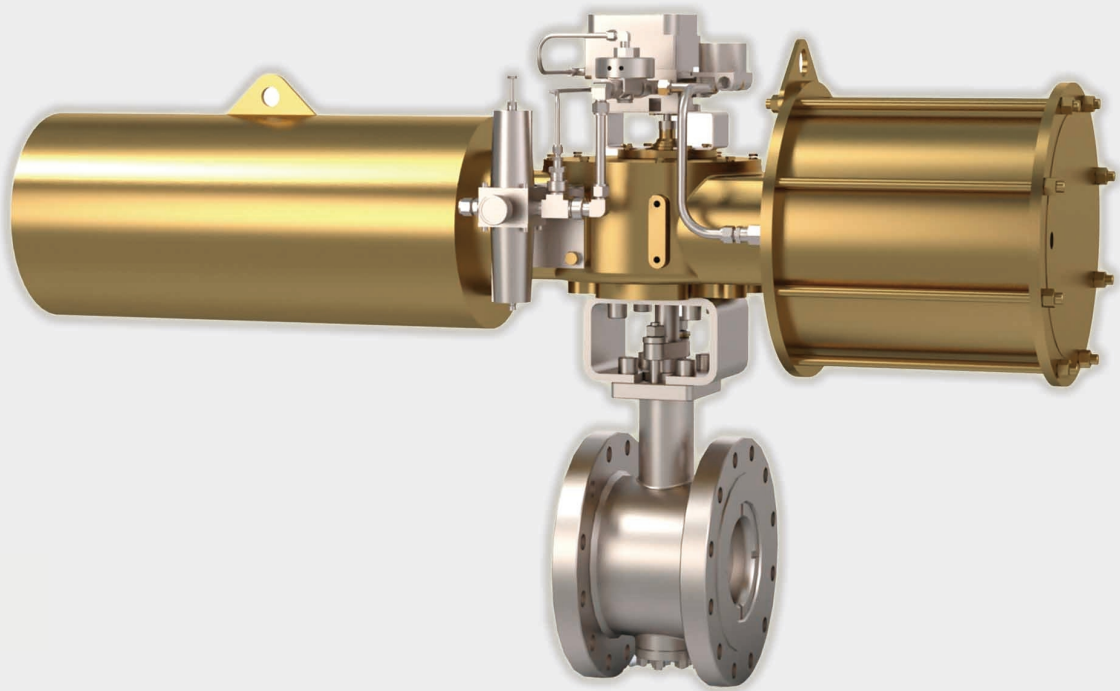


艾坦姆

EC-C/D系列偏心旋转调节阀

EC-C/D Series Eccentric Rotary Regulating Valve





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**Utmost**<sup>®</sup>

## EC-C/D系列偏心旋转调节阀

EC-C/D Series Eccentric Rotary Regulating Valve

### EC-C/D系列偏心旋转调节阀简介

### EC-C/D Series Eccentric Rotary Control Valves Introduction

偏心旋转调节阀亦称凸轮挠曲阀，综合了单阀、蝶阀、球阀等优点，特别适用于含固体颗粒液态介质流量调节，具有结构简单、体积小、重量轻，流通能力强、可调范围大、使用温度范围广，泄漏量小、稳定性好、成本低、使用寿命长等突出优点。其工作原理就是一个偏心转动的扇形球阀，利用偏心球芯与阀座相切，打开时，球芯脱离阀座。关闭时，球芯逐步接触阀座，使球对阀座产生压紧力。该阀阀体流路简单，阻力小，与同口径单、双座阀相比，有较大的流通能力，但重量只有其1/3左右。球芯、主轴只作旋转运动，所以它开关转动时所承受摩擦力很小，当球芯和阀座相接触关闭时，球芯柔臂在执行机构推力作用下产生微小弹性变形及弹性涨紧力，使球芯与阀座接触更加紧密牢固，故偏心旋转调节阀泄漏量很小。同时关闭阀门所需的推力与球阀、蝶阀相比要小。

偏心旋转调节阀的密封形式采用硬密封，与气动执行器、配合定位器、电磁阀等附件连接，可以实现比例调节。

Eccentric rotary regulating valve, also known as cam deflection valve, integrates the advantages of single valve, butterfly valve and ball valve, and is especially suitable for the flow regulating of liquid medium containing solid particles. It has the outstanding advantages of simple structure, small volume, lightweight, strong flow capacity, wide adjustable range, wide service temperature range, small leakage, good stability, low cost and long service life. Its working principle is a fan-shaped ball valve with eccentric rotation. The eccentric ball core is tangent to the valve seat, and when it is opened, the spool is separated from the valve seat. When closed, the spool gradually contacts the valve seat, so that the ball exerts a pressing force on the valve seat. The valve has simple flow path and low resistance. Compared with single and double seat valves with the same caliber, it has larger flow capacity, but its weight is only about 1/3. The spool and the main shaft only rotate, so the friction force it bears when the switch rotates is very small. The flexible arm of the spool produces small elastic deformation and elastic tension under the thrust of the actuator, which makes the contact between the spool and the valve seat more close and firm, so the leakage of the eccentric rotary control valve is very small. At the same time, the thrust required to close the valve is smaller than that of ball valve and butterfly valve.

The sealing form of eccentric rotary regulating valve is hard seal, which is connected with pneumatic actuator, matching positioner, solenoid valve and other accessories to realize proportional adjustment.

### 应用领域

### Application Area

广泛应用于煤化工、石油化工、电力、造纸、轻纺、食品、医药等行业对介质进行切断或调节控制。

Can be widely used in coal chemical industry, petrochemical industry, electric power, papermaking, textile, food, medicine and other industries to cut off or regulate the medium.

## EC-C/D系列偏心旋转调节阀特点 EC-C/D Series Eccentric Rotary Control Valve Characteristic

### 结构特点

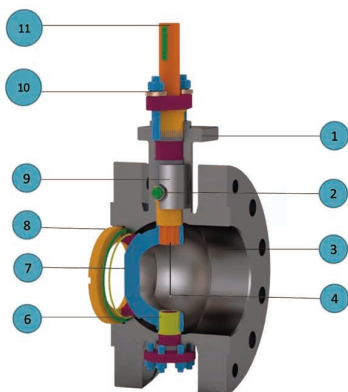
#### Structural Characteristics

艾坦姆偏心旋转调节阀有C系列与D系列两种结构

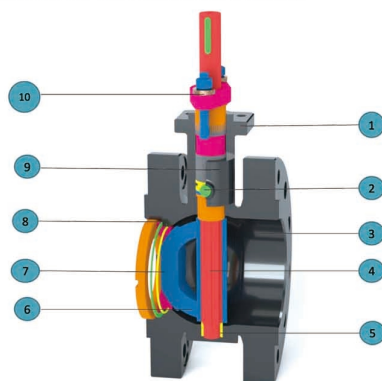
- ① 阀体、阀盖的一体化设计，减少阀门泄漏点。
- ② 主轴防吹出设计，安全性高。
- ③ 直通型流道设计，拥有更大的流通能力。
- ④ 渐开线花键设计，主轴对中性好，定心精度更高，受力稳定均匀，传递扭矩更大
- ⑤ D系列偏心旋转调节阀相对于C系列零件数量更少、结构更紧凑，阀门泄漏点更少，成本低。
- ⑥ 球芯弹性揉臂设计，密封更加紧密。
- ⑦ 抗冲刷能力大，特殊硬化处理。
- ⑧ 一体式单座结构，无中腔超压风险。
- ⑨ 体、芯偏心设计，启闭时形成一个凸轮曲线，有效防止颗粒状介质对阀座的破坏。
- ⑩ 填料采用动态加载结构，补偿填料磨损，延长填料寿命，可以持续提供可靠的密封性。
- ⑪ C系列偏心旋转调节阀相对于D系列流阻更小、流通能力更大，球体与主轴耐冲刷性更好。

艾坦姆拥有两种系列的偏心旋转调节阀：C系列和D系列。

- ① Integrated design of valve housing and valve cover to reduce valve leakage points.
- ② Blow-out prevention design of main shaft has high safety.
- ③ Straight-through flow channel design, with greater circulation capacity.
- ④ involute spline design, good centering of the main shaft, higher centering accuracy, stable and uniform stress and greater torque transmission
- ⑤ Compared with C series, D series eccentric rotary regulating valves have fewer parts, more compact structure, fewer valve leakage points and lower cost.
- ⑥ The elastic kneading arm design of the ball core makes the seal tighter.
- ⑦ Strong anti-scouring ability and special hardening treatment.
- ⑧ Integrated single-seat structure, without the risk of overpressure in the middle cavity.
- ⑨ The eccentric design of the body and core forms a cam curve on opening and closing, which effectively prevents the granular medium from damaging the valve seat.
- ⑩ Attending packing adopts dynamic loading structure to compensate packing wear, prolong packing life and continuously provide reliable sealing performance.
- ⑪ Compared with D series, C series eccentric rotary regulating valves have smaller flow resistance, larger flow capacity and better erosion resistance of ball and Main shaft.



C系列偏心旋转调节阀结构图  
C series eccentric rotary adjustment valve structure diagram



D系列偏心旋转调节阀结构图  
D series eccentric rotary adjustment valve structure diagram

## EC-C/D系列偏心旋转调节阀特点 EC-C/D EC-C/D Series Eccentric Rotary Control Valve Characteristics

### 硬化处理工艺

#### Hardening Process

偏心旋转调节阀的球芯与阀座采用金属对金属的密封方式，为了确保阀门在各种温度和压力下的可靠密封，根据工况的不同，艾坦姆有多种硬化处理方式可供选择。硬化工艺包括HVOF、HVOF、高速激光熔覆、喷焊、PVD、CVD、表面改性等先进处理方式，硬化材料包括氧化物、碳化物、氮化物、硼化物及硅化物金属陶瓷或镍基、钴基、铁基自熔合金等。通过调整硬化工艺参数、硬化材料成分配比及粉末形态，经过大量耐磨损对比试验，研发出了适合不同工况且艾坦姆独有的硬化方案，保证密封面具有很好的耐摩擦、耐冲击等性能，可靠保证密封面在高温高频高压等苛刻工况下具有稳定持久的密封性能。

Metal-to-metal sealing method is adopted for the Ball core and valve seat of the eccentric rotary regulating valve. For valve sealing reliability ensuring under various temperatures and pressures, Utmost has a variety of hardening treatment methods according to different working conditions. Hardening processes include advanced treatment methods such as HVOF, HVOF, high-speed laser cladding, spray welding, PVD, CVD, surface modification, etc. Hardening materials include oxide, carbide, nitride, boride and silicide cermets, nickel-based, cobalt-based and iron-based self-fluxing alloys, etc. By adjusting the hardening process parameters and the composition ratio of hardening materials and the powder morphology, Utmost has developed its own hardening scheme suitable for different working conditions. With good friction resistance, impact resistance and other properties for the sealing surface, stable and durable sealing performance under harsh working conditions such as high temperature, high frequency and high pressure was ensured.



硬化处理后的球芯  
Hardened Core



硬化处理后的阀座  
Hardened Seat

## EC-C/D系列偏心旋转调节阀

EC-C/D Series Eccentric Rotary Regulating Valve

### EC-C/D系列偏心旋转调节阀技术数据

EC-C/D Series Eccentric Rotary Control Valve Technical Data

#### 基本规格

#### Basic Specifications

结构形式 Structural Style	EC-C系列
公称通径 Nominal Diameter	NPS1 (DN25) — NPS16 (DN400)
公称压力 Nominal Pressure	Class150 (PN20) — Class600 (PN110)
适用温度 Applicable Temperature	-46℃ — 425℃
阀体材质 Valve Housing Material	WCB、CF8、CF8M
阀内件材质 Valve Trim Material	CF8、CF3、CF8M、CF3M
阀体结构 Valve Structure	一体式铸造/锻造 One-piece Casting/Forging
适用介质 Suitable Media	各种介质，特别适用于含固体颗粒的液态介质 Various Media, Especially For Liquid Media Containing Solid Particles
密封等级 Sealing Rating	ANSI/FCI 70 — 2 IV/V级
流量特性 Flow Characteristics	近似线性 The Approximate Linear
可调比 Rangeability	1:150
执行机构 Actuator	气动拨叉式、气动膜片式、气动齿轮齿条式 Pneumatic Fork Type, Pneumatic Diaphragm Type, Pneumatic Rack And Pinion Type
参照标准 Reference Standards	ASME B16.10、ASME B16.34、ASME B16.5、API 598、ANSI/FCI 70-2

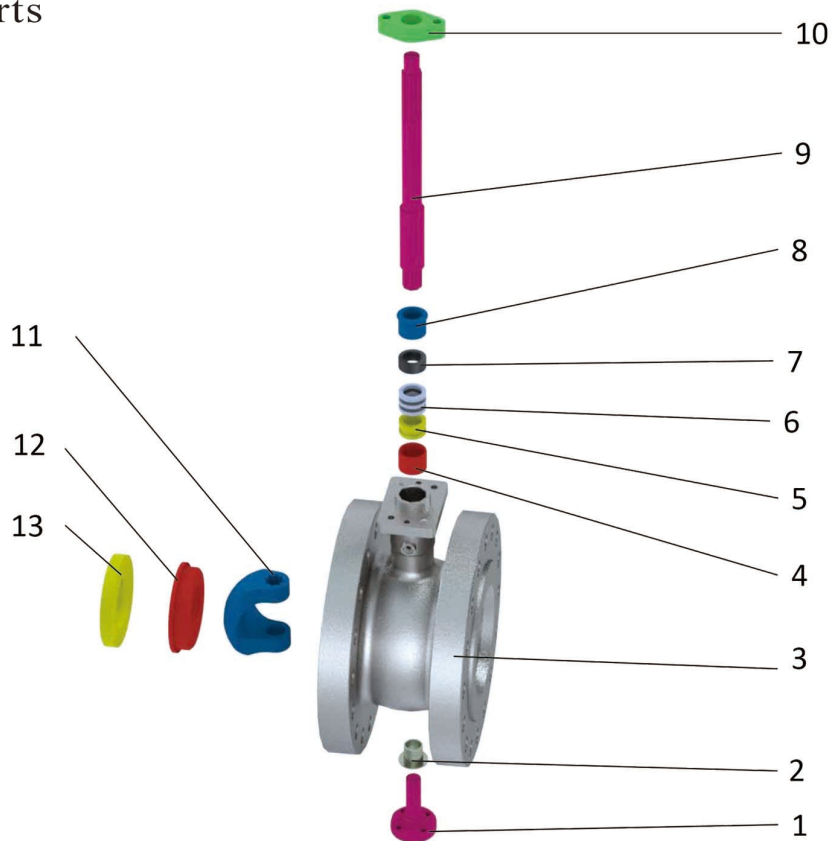
结构形式 Structural Style	EC-D系列
公称通径 Nominal Diameter	NPS1 (DN25) — NPS12 (DN300)
公称压力 Nominal Pressure	Class150 (PN20) — Class600 (PN110)
适用温度 Applicable Temperature	-46℃ — 425℃
阀体材质 Body Material	WCB、CF8、CF8M
阀内件材质 Valve Internals Material	CF8、CF3、CF8M、CF3M
阀体结构 Valve Structure	一体式铸造/锻造 One-piece Casting/Forging
适用介质 Suitable Media	各种介质，特别适用于含固体颗粒的液态介质 Various Media, Especially For Liquid Media Containing Solid Particles
密封等级 Sealing Rating	ANSI/FCI 70 — 2 IV/V级等
流量特性 Flow Characteristics	近似线性The Approximate Linear
可调比 Rangeability	1:100
执行机构 ACtuator	气动拨叉式、气动膜片式、气动齿轮齿条式 Pneumatic Fork type, Pneumatic Diaphragm Type, Pneumatic Rack And Pinion Type
参照标准 Reference Standards	ASME B16.10、ASME B16.34、ASME B16.5、API 598、ANSI/FCI 70-2

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EC-C/D系列偏心旋转调节阀技术数据  
EC-C/D Series Eccentric Rotary Control Valve Technical Data

主要零部件

Main Parts



1 支承轴 Support Shaft	2 支承轴轴套 Support Shaft Bushings	3 阀体 Valve Housing	4 主轴轴套 Shaft Sleeve	5 防吹出环 Anti-Blow-Out Ring
6 轴套隔环 Shaft Sleeve Spacer	7 填料 Packing	8 填料压套 Packing Press Sleeve	9 主轴 Main Shaft	10 填料压板 Packing Pressure Plate
11 瓣球 Flap Ball	12 阀座 Seat	13 阀座压环 Seat Pressure Ring		



EC-C/D系列偏心旋转调节阀  
EC-C/D Series Eccentric Rotary Regulating Valve

EC-C/D系列偏心旋转调节阀技术数据  
EC-C/D Series Eccentric Rotary Control Valve Technical Data

材质

Material

零件名称 Parts Name	阀体 Valve Housing	内件 Trim	阀杆 Stem	密封件 Sealing Parts	紧固件 Fastener
材质 Material	A216 WCB	A182 F22	A630 17-4PH	聚四氟乙烯	A193 B7/A194 2H
	A216 WCC	A182 F91	A276 XM-19	PTFE	A193 B8M/A194 8
	A217 WC6	A182 F304L	Inconel 718	石墨	
	A217 WC9	A182 F304	Inconel X-750	Graphite	
	A351 CF3	A182 F316L			
	A351 CF8	A182 F316			
	A351 CF3M	Inconel 625			
	A351 CF8M	A105			
A494 CW-6MC					

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For special material requirements, please contact our sales department.



The logo for Utmost, featuring the word "Utmost" in a blue, sans-serif font with a red swoosh above the "t".

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增强产品价值,为您的工厂提供全面支持!

More than just excellent products!

Utmost also supply technical solution and integrated after service  
system to increase products value and fully support your factory!

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