www.afavalve.com

Wear-resistant C-Ball Valve

Application in key equipment of chemical industry

Inventor of wear-resistant C-ball valve: Xie Zhengze

Mobile: 18669733333

CONTENTS

Part 1

公司介绍

About AFA

三期项目即将竣工

About AFA

We are a technology-based valve company integrating R&D, manufacturing, sales and service. Since its establishment in 2005, the company has focused on the R&D and manufacturing of metal seated wear-resistant ball valves. Among them, the wear-resistant C-ball valve is the company's independently developed leading product suitable for severe working conditions. It has obtained many national invention patents and is in a leading position in the industry. As the company continues to increase its investment in scientific and technological innovation, the company was recognized as a gazelle enterprise in Shandong Province in 2024. The project "Localization Application of Metal Seated Wear-resistant C-Ball Valve for CHPPO Unit" jointly developed by AFA, Sinopec Zhenhai Refining and Chemical Co., Ltd. and Sinopec Shanghai Engineering Co., Ltd. was selected as a major scientific and technological achievement of Shandong Province. The company has achieved fruitful results in scientific and technological innovation and application transformation through long-term and continuous efforts.

Product series: wear-resistant C-ball valve, top-mounted wear-resistant C-ball valve, multi-eccentric wear-resistant C-ball valve, high-performance regulating wear-resistant C&V ball valve, top-mounted jacketed insulation C-ball valve, top-mounted ultra-low temperature C-ball valve, triple eccentric ball valve, metal seated ball valve, special material ball valve, oxygen ball valve,three-way ball valve .

About AFA

The products are widely used in coal chemical industry, petrochemical industry, pulverized coal gasification, water-coal slurry gasification, POSM, CHPPO, HPPO, MTO, MDI, PTA, PE, PP, UPC,FCC, LNG, acetic acid, light hydrocarbon separation, hydrogen peroxide, melamine, maleic anhydride and other devices, as well as fine chemical industry, offshore platform, polysilicon, slurry transportation and other device industries. It has been widely used in more than 100 domestic chemical companies including ShanDong Energy Group Co.Ltd.、Wanhua Chemical Group Co.,Ltd. 、Wison Group、Baofeng Energy、Shandong Hualu Hengsheng Group Co.,Ltd、Henan Xinlianxin Chemicals Group Co.,Ltd、Shanghai Huayi (Group) Co.,Ltd、Sinopec、CNOOC、CHN Energy Investment Group (CHN Energy)、Hengli Group、Zhejiang Petroleum and Chemical Co., Ltd.、Shaanxi Yangchang Petroleum (Group) Co., Ltd.、Shenghong Petroleum、Yulong Petroleum、Zhejiang Baling Hengyi Caprolactam Co., Ltd.、Lu'an Chemical Group Co., Ltd. 、Jinneng Holding Coal Industry Group.

The company attaches great importance to high-quality control of its products and has successively obtained certificates such as TS(A1), API608, API6D, ISO9001, ISO14001, ISO45001, SIL3, CE, TA-LUFT, ISO15848-1, API641, API607, API6FA (API607 wear-resistant C-ball valve), etc.

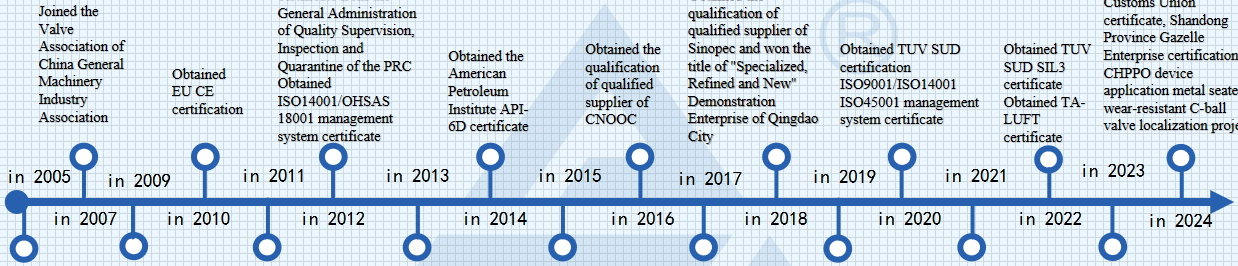
About AFA

Since its establishment, the company has been deeply engaged in the field of wear-resistant ball valves and has a leading position in the industry in many aspects. In recent years, with the continuous expansion of the company's scale, the organizational structure has been improved, and four new business divisions have been established: Spraying Division, Ball Division, Maintenance Division (Qingdao Wei Valve Technology Co., Ltd.), and Casting Division (Special Valve Alloy (Shandong) Co., Ltd.).

The company currently has 6 senior engineers, 16 for engineers and other technical personnel, more than 60 technical workers and a total of more than 100 employees. In recent years, the company has completed the expansion and construction of the new plant, completed the renewal of major production equipment and inspection instruments, and the overall appearance of the factory has been completely renewed. The company currently has 25 machining centers, 28 CNC machine tools, 1 CMM (Coordinate Measuring Machine) and multiple inspection physical and chemical instruments. it has thermal spraying (hot melt technology) with mature technology and supersonic cold spraying production processes and equipment. All processes from blank casting, ball and valve body processing, hot and cold spray hardening treatment to product factory inspection are completed independently within the company, effectively controlling product quality.

With the new technology and digital factory put into operation, the operation of the management system has been continuously strengthened and improved, and the production capacity and management level have ushered in new and greater development. The company has always adhered to the development strategy of "people-oriented, technological innovation, honest management, and brand-based", serving the society with high-quality products, and is willing to work hand in hand with friends from all walks of life to create brilliance together!

Our History


in 2005
Company registration and establishment (Shandong AFA Flow Control Co., Ltd)
in 2007
Joined the Valve Association of China General Machinery Industry Association
in 2009
Obtained TUV SUD ISO9001:2008 quality management system certificate
in 2010
Obtained EU CE certification
in 2011
Obtained graphic trademark and English registered trademark and was rated as a key enterprise in Jiaonan City
in 2012
Obtained TS A1 certificate from the General Administration of Quality Supervision, Inspection and Quarantine of the PRC
Obtained ISO14001/OHSAS 18001 management system certificate
in 2013
Obtained API 607 / API 6FA fire test certificate
Won the Ministry of Science and Technology's Small and Medium Enterprise Technology Innovation Fund
in 2014
Obtained the American Petroleum Institute API-6D certificate
in 2015
Won the high-tech enterprise certificate
Won the Qingdao Enterprise Technology Center
Upgraded to a non-regional enterprise
in 2016
Obtained the qualification of qualified supplier of CNOOC
in 2017
Obtained ISO 15848-1 micro-leakage certificate
Passed SIL3 product functional safety certificate
Obtained American Petroleum Institute API-608 certificate
in 2018
Obtained the qualification of qualified supplier of Sinopec and won the title of "Specialized, Refined and New" Demonstration Enterprise of Qingdao City
in 2019
Obtained API641 micro-leakage certificate
in 2020
Obtained TUV SUD certification ISO9001/ISO14001 ISO45001 management system certificate
in 2021
Obtained TUV607 fire protection certificate and TUVCE certificate
in 2022
Obtained TUV SUD SIL3 certificate
Obtained TA-LUFT certificate
in 2023
Qingdao wear-resistant C-ball valve research expert workstation and Petroleum University jointly launched a scientific research project and jointly developed the CHPPO project with Sinopec
in 2024
Obtained API6FA fireproof certificate, TS type test certificate, Customs Union certificate, Shandong Province Gazelle Enterprise certification, CHPPO device application metal seated wear-resistant C-ball valve localization project

Strength Assurance

Registered Capital: 105.8 million yuan (CNY)

统一社会信用代码
91370211773532068Y

营业执照

（副 本） 1-1

扫描二维码登录国家企业信用信息公示系统了解更多登记、备案、许可、监管信息。

名　　称	阿伐流体控制有限公司	注册资本	壹亿零伍拾捌万元整
类　　型	有限责任公司(自然人投资或控股)	成立日期	2005 年 06 月 16 日
法定代表人	谢正泽	营业期限	2005 年 06 月 16 日 至2055 年06 月15 日
经营范围	阀门、仪器仪表、控制设备的生产、销售、科研、开发和技术服务（其中生产开发项目限办分支机构经营）；货物、技术的进出口（法律法规禁止的项目除外，法律法规限制的取得审批后方可经营）。（依法须经批准的项目，经相关部门批准后方可开展经营活动）。	住　　所	青岛市黄岛区铁山工业园

登记机关 青岛市黄岛区行政审批服务局

2019 年 07 月 17 日

国家企业信用信息公示系统网址：http://www.gsxt.gov.cn

市场主体应当于每年1月1日至6月30日通过国家企业信用信息公示系统报送公示年度报告

国家市场监督管理总局监制

AFA Certificate


CERTIFICATE

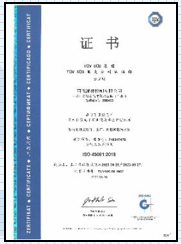
API 6FA Certificate of C-ball valve


Appendix 1

API 6FA Certificate of C-ball valve


证 书

ISO9001 Certificate


证 书

ISO45001 Certificate


证 书

ISO14001 Certificate


CERTIFICATE

TA-LUFT Certificate


CERTIFICATE

API 641 Certificate


CERTIFICATE

SIL-3 Certificate


CERTIFICATE

CE Certificate


CERTIFICATE OF CONFORMITY

ISO15848-1 Certificate


Certificate

API 607 Certificate


Certificate

API 6FA Certificate

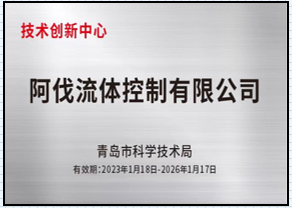
AFA Certificate

API 6D Certificate

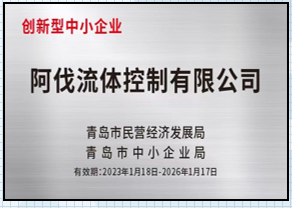
API 608 Certificate

High-tech Enterprise

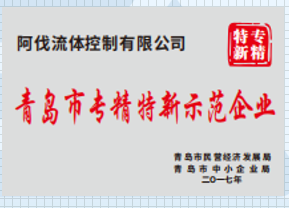
Qualified Supplier Certificate of HQCEC



Technology Innovation Center



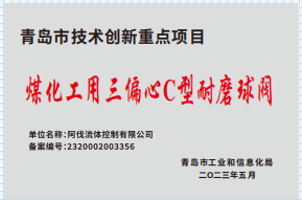
Innovative SMEs



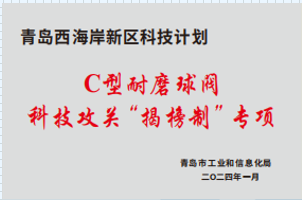
Specialized, Refined, Featured and Original SMEs

Qingdao wear-resistant C-ball valve research expert workstation

AFA Certificate



Key projects of technological innovation



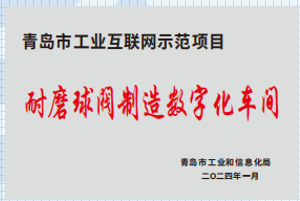
“open competition mechanism” special project

Teaching and Research Practice Base

CHPPO device application metal seated wear-resistant C-ball valve localization project

Patent-intensive products

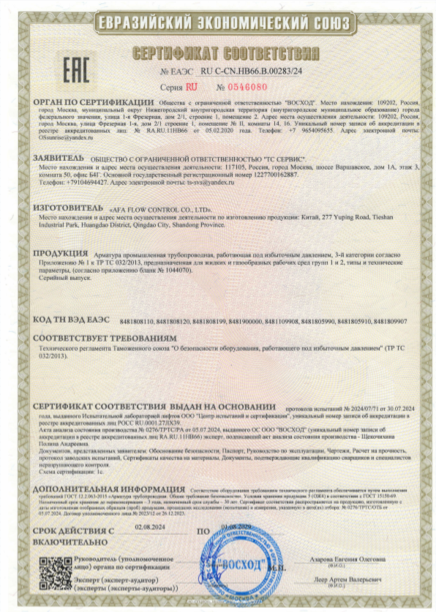
Technology Innovation Fund Project Certificate



Industrial Internet Demonstration Project

Gazelle Enterprise in Shandong Province

Customs Union Certificate of Conformity



ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

ЕАС

СЕРТИФИКАТ СООТВЕТСТВИЯ

№ ЕАЭС RU C-CN.НВ66.В.00283/24

Серия RU № 0546080

ОРГАН ПО СЕРТИФИКАЦИИ Общества с ограниченной ответственностью "ВОСХОД". Место нахождения: 109202, Россия, город Москва, муниципальный округ Нижегородский внутригородская территория (внутригородское муниципальное образование) города федерального значения, улица 1-я Фрезерная, дом 2/1, строение 1, помещение 2. Адрес места осуществления деятельности: 109202, Россия, город Москва, улица Фрезерная 1-я, дом 2/1 строение 1, помещение № II, комнаты 14, 16. Уникальный номер записи об аккредитации в реестре аккредитованных лиц: № RA.RU.11НВ66 от 05.02.2020 года. Телефон: +7 9654095655. Адрес электронной почты: OSsunrise@yandex.ru

ЗАЯВИТЕЛЬ ОБЩЕСТВО С ОГРАНИЧЕННОЙ ОТВЕТСТВЕННОСТЬЮ "ТС СЕРВИС".
Место нахождения и адрес места осуществления деятельности: 117105, Россия, город Москва, шоссе Варшавское, дом 1А, этаж 3, комната 50, офис Б4Г. Основной государственный регистрационный номер 1227700162887.
Телефон: +79104694427. Адрес электронной почты: ts-svs@yandex.ru

ИЗГОТОВИТЕЛЬ «AFA FLOW CONTROL CO., LTD».
Место нахождения и адрес места осуществления деятельности по изготовлению продукции: Китай, 277 Yuping Road, Tieshan Industrial Park, Huangdao District, Qingdao City, Shandong Province.

ПРОДУКЦИЯ Арматура промышленная трубопроводная, работающая под избыточным давлением, 3-й категории согласно Приложению № 1 к ТР ТС 032/2013, предназначенная для жидких и газообразных рабочих сред групп 1 и 2, типы и технические параметры, (согласно приложению бланк № 1044070).
Серийный выпуск.

КОД ТН ВЭД ЕАЭС 8481808110, 8481808120, 8481808199, 8481900000, 8481109908, 8481805990, 8481805910, 8481809907

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ
Технического регламента Таможенного союза "О безопасности оборудования, работающего под избыточным давлением" (ТР ТС 032/2013).

СЕРТИФИКАТ СООТВЕТСТВИЯ ВЫДАН НА ОСНОВАНИИ протокола испытаний № 2024/07/71 от 30.07.2024 года, выданного Испытательной лабораторией лифтов ООО "Центр испытаний и сертификации", уникальный номер записи об аккредитации в реестре аккредитованных лиц РОСС RU.0001.27ЛХ39.
Акта анализа состояния производства № 0276/ТРТС/РА от 05.07.2024, выданного ОС ООО "ВОСХОД" (уникальный номер записи об аккредитации в реестре аккредитованных лиц RA.RU.11НВ66) эксперт, подписавший акт анализа состояния производства - Щекочихина Полина Андреевна.
Документов, представленных заявителем: Обоснование безопасности, Паспорт, Руководство по эксплуатации, Чертежи, Расчет на прочность, протокол заводских испытаний, Сертификаты качества на материалы, Документы, подтверждающие квалификацию сварщиков и специалистов неразрушающего контроля.
Схема сертификации: 1с.

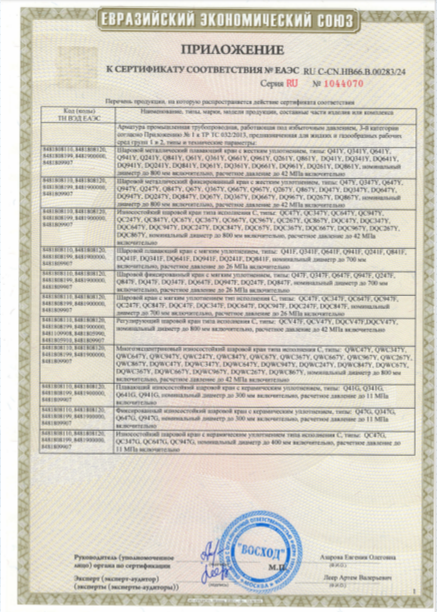
ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ Соответствие оборудования требованиям технического регламента обеспечивается путем выполнения требований ГОСТ 12.2.063-2015 «Арматура трубопроводная. Общие требования безопасности». Условия хранения продукции 5 (ОЖ4) в соответствии с ГОСТ 15150-69. Назначенный срок хранения до переконсервации – 3 года, назначенный срок службы – 30 лет. Сертификат соответствия распространяется на продукцию, изготовленную с даты изготовления отобранных образцов (проб) продукции, прошедших исследования (испытания) и измерения, указанную в акте(ах) отбора: № 0276/ТРТС/ОТБ от 05.07.2024. Договор уполномоченного лица № 2023/12 от 26.12.2023.

СРОК ДЕЙСТВИЯ С 02.08.2024 **ПО** 01.08.2029 **ВКЛЮЧИТЕЛЬНО**

Руководитель (уполномоченное лицо) органа по сертификации — Азарова Евгения Олеговна (Ф.И.О.)

М.П.

Эксперт (эксперт-аудитор) (эксперты (эксперты-аудиторы)) — Леер Артем Валерьевич (Ф.И.О.)



ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ЕАЭС RU C-CN.НВ66.В.00283/24

Серия RU № 1044070

Перечень продукции, на которую распространяется действие сертификата соответствия

Код (коды) ТН ВЭД ЕАЭС	Наименование, типы, марки, модели продукции, составные части изделия или комплекса
	Арматура промышленная трубопроводная, работающая под избыточным давлением, 3-й категории согласно Приложению № 1 к ТР ТС 032/2013, предназначенная для жидких и газообразных рабочих сред групп 1 и 2, типы и технические параметры:
8481808110, 8481808120, 8481808199, 8481900000, 8481809907	Шаровой металлический плавающий кран с жестким уплотнением, типы: Q41Y, Q341Y, Q641Y, Q941Y, Q241Y, Q841Y, Q61Y, Q361Y, Q661Y, Q961Y, Q261Y, Q861Y, DQ41Y, DQ341Y, DQ641Y, DQ941Y, DQ241Y, DQ841Y, DQ61Y, DQ361Y, DQ661Y, DQ961Y, DQ261Y, DQ861Y, номинальный диаметр до 800 мм включительно, расчетное давление до 42 МПа включительно
8481808110, 8481808120, 8481808199, 8481900000, 8481809907	Шаровой металлический фиксированный кран с жестким уплотнением, типы: Q47Y, Q347Y, Q647Y, Q947Y, Q247Y, Q847Y, Q67Y, Q367Y, Q667Y, Q967Y, Q267Y, Q867Y, DQ47Y, DQ347Y, DQ647Y, DQ947Y, DQ247Y, DQ847Y, DQ67Y, DQ367Y, DQ667Y, DQ967Y, DQ267Y, DQ867Y, номинальный диаметр до 800 мм включительно, расчетное давление до 42 МПа включительно
8481808110, 8481808120, 8481808199, 8481900000, 8481809907	Износостойкий шаровой кран типа исполнения С, типы: QC47Y, QC347Y, QC647Y, QC947Y, QC247Y, QC847Y, QC67Y, QC367Y, QC667Y, QC967Y, QC267Y, QC867Y, DQC47Y, DQC347Y, DQC647Y, DQC947Y, DQC247Y, DQC847Y, DQC67Y, DQC367Y, DQC667Y, DQC967Y, DQC267Y, DQC867Y, номинальный диаметр до 800 мм включительно, расчетное давление до 42 МПа включительно
8481808110, 8481808120, 8481808199, 8481900000, 8481809907	Шаровой плавающий кран с мягким уплотнением, типы: Q41F, Q341F, Q641F, Q941F, Q241F, Q841F, DQ41F, DQ341F, DQ641F, DQ941F, DQ241F, DQ841F, номинальный диаметр до 700 мм включительно, расчетное давление до 26 МПа включительно
8481808110, 8481808120, 8481808199, 8481900000, 8481809907	Шаровой фиксированный кран с мягким уплотнением, типы: Q47F, Q347F, Q647F, Q947F, Q247F, Q847F, DQ47F, DQ347F, DQ647F, DQ947F, DQ247F, DQ847F, номинальный диаметр до 700 мм включительно, расчетное давление до 26 МПа включительно
8481808110, 8481808120, 8481808199, 8481900000, 8481809907	Шаровой кран с мягким уплотнением тип исполнения С, типы: QC47F, QC347F, QC647F, QC947F, QC247F, QC847F, DQC47F, DQC347F, DQC647F, DQC947F, DQC247F, DQC847F, номинальный диаметр до 700 мм включительно, расчетное давление до 26 МПа включительно
8481808110, 8481808120, 8481808199, 8481900000, 8481109908, 8481805990, 8481805910, 8481809907	Регулирующий шаровой кран типа исполнения С, типы: QCV47F, QCV47Y, DQCV47F,DQCV47Y, номинальный диаметр до 800 мм включительно, расчетное давление до 42 МПа включительно
8481808110, 8481808120, 8481808199, 8481900000, 8481809907	Многоэксцентриковый износостойкий шаровой кран типа исполнения С, типы: QWC47Y, QWC347Y, QWC647Y, QWC947Y, QWC247Y, QWC847Y, QWC67Y, QWC367Y, QWC667Y, QWC967Y, QWC267Y, QWC867Y, DQWC47Y, DQWC347Y, DQWC647Y, DQWC947Y, DQWC247Y, DQWC847Y, DQWC67Y, DQWC367Y, DQWC667Y, DQWC967Y, DQWC267Y, DQWC867Y, номинальный диаметр до 800 мм включительно, расчетное давление до 42 МПа включительно
8481808110, 8481808120, 8481808199, 8481900000, 8481809907	Плавающий износостойкий шаровой кран с керамическим уплотнением, типы: Q41G, Q341G, Q641G, Q941G, номинальный диаметр до 300 мм включительно, расчетное давление до 11 МПа включительно
8481808110, 8481808120, 8481808199, 8481900000, 8481809907	Фиксированный износостойкий шаровой кран с керамическим уплотнением, типы: Q47G, Q347G, Q647G, Q947G, номинальный диаметр до 300 мм включительно, расчетное давление до 11 МПа включительно
8481808110, 8481808120, 8481808199, 8481900000, 8481809907	Износостойкий шаровой кран с керамическим уплотнением типа исполнения С, типы: QC47G, QC347G, QC647G, QC947G, номинальный диаметр до 400 мм включительно, расчетное давление до 11 МПа включительно

Руководитель (уполномоченное лицо) органа по сертификации — Азарова Евгения Олеговна (Ф.И.О.)

М.П.

Эксперт (эксперт-аудитор) (эксперты (эксперты-аудиторы)) — Леер Артем Валерьевич (Ф.И.О.)

1

CU-TR/EAC CERTIFICATE

Special Equipment Type Test Certificate

中华人民共和国
特种设备生产许可证
Production License of Special Equipment
People's Republic of China

编号：TS2737886-2028

单位名称：阿伐流体控制有限公司

住　　所：青岛市黄岛区铁山工业园

制造地址：青岛市黄岛区铁山工业园玉屏路 277 号

经审查，获准从事以下特种设备生产活动：

许可项目	许可子项目	许可参数	备注
压力管道元件制造	压力管道阀门（A1）		具体产品范围见型式试验证书
压力管道元件制造	压力管道阀门（A2）		具体产品范围见型式试验证书
压力管道元件制造	压力管道阀门（B）		具体产品范围见型式试验证书

发证机关：山东省市场监督管理局

有效期至：2028 年 12 月 04 日　　发证日期：2024 年 12 月 05 日

Special equipment production license

浙江省泵阀产品质量检验中心
Quality Inspection Center of Pump and Valve Products of Zhejiang Province
国家阀门质量检验检测中心（浙江）
National Quality Inspection Center of Valves (Zhejiang)

特种设备型式试验证书
Special Equipment Type Test Certificate

（压力管道元件）
Pressure Piping Components

证书编号
Certificate No.：TSX73201004820240019

制造单位名称：Manufacturer　阿伐流体控制有限公司

制造单位住所：Reg. Address　山东省青岛市黄岛区铁山工业园

制造地址：Mfg. Address　山东省青岛市黄岛区铁山工业园

设备类别：Equipment Type　压力管道阀门

设备品种：Equipment Variety　金属阀门

产品名称：Name of Product　球阀

产品型号：Specification　TQC947Y-CL900 NPS14、TBQC947Y-CL1500 NPS10

型式试验报告编号：Type Test Report No.　TS202312011、TS202312012

经型式试验，确认产品安全性能符合 TSG D7002-2023 的要求，本证覆盖以下产品：

产品名称	公称压力	公称尺寸	适用温度
球阀	PN≤16.0 MPa (CL900)	50 mm≤DN≤700 mm	−46℃～538℃
	PN≤32.0 MPa	50 mm≤DN<300 mm	

浙江省泵阀产品质量检验中心
国家阀门质量检验检测中心（浙江）

有效期至：2028 年 03 月 03 日　　发证日期：2024 年 03 月 04 日

PVQI-TST-2023/B/0

Special Equipment Type Test Certificate

报告编号：Report No.　TS202312012

特种设备型式试验报告
Special Equipment Type-test Report

设备种类：Equipment Category　压力管道元件

设备类别：Equipment Type　压力管道阀门

设备品种：Equipment variety　金属阀门

产品名称：Name of Product　球阀

型号规格：Specification　TBQC947Y-CL1500 NPS10

制造单位名称：Manufacturer　阿伐流体控制有限公司

浙江省泵阀产品质量检验中心
Quality Inspection Center of Pump and Valve Products of Zhejiang Province
国家阀门质量检验检测中心（浙江）
National Quality Inspection Center of Valves (Zhejiang)

Special Equipment Type-Test Report

报告编号：Report No.　TS202312011

特种设备型式试验报告
Special Equipment Type-test Report

设备种类：Equipment Category　压力管道元件

设备类别：Equipment Type　压力管道阀门

设备品种：Equipment variety　金属阀门

产品名称：Name of Product　球阀

型号规格：Specification　TQC947Y-CL900 NPS14

制造单位名称：Manufacturer　阿伐流体控制有限公司

浙江省泵阀产品质量检验中心
Quality Inspection Center of Pump and Valve Products of Zhejiang Province
国家阀门质量检验检测中心（浙江）
National Quality Inspection Center of Valves (Zhejiang)

Special Equipment Type-Test Report

Special Equipment Type Test Certificate

特种设备型式试验证书

（压力管道元件）

证书编号：TSX71004420210120

制 造 单 位 ： 阿伐流体控制有限公司

单 位 地 址 ： 山东省青岛市黄岛区铁山工业区

设 备 类 别 ： 压力管道阀门

产品名称（品种）： 球阀（金属阀门）

产 品 型 号 ： QC347Y-900LB NPS24；QC367Y-1500LB NPS20

型式试验报告编号： TSX71004420210120-1；TSX71004420210120-2

经型式试验，确认符合 TSG D7002－2006《压力管道元件型式试验规则》的要求。本证覆盖以下型号产品：

公称压力≤35MPa，公称尺寸≤600mm，使用温度：-29℃～540℃；

公称压力≤16MPa，公称尺寸≤1200mm，使用温度：-46℃～600℃

的球阀。

河南省锅炉压力容器安全检测研究院

2021 年 7 月 12 日

Special Equipment Type Test Certificate

浙江省泵阀产品质量检验中心

Quality Inspecting Center of Pump and Valve Products of Zhejiang Province

国家阀门质量监督检验中心（浙江）

National Quality Supervision and Inspection Center of Valve Products(Zhejiang)

特种设备型式试验证书

Special Equipment Type Test Certificate

（压力管道元件）

Pressure Piping Components

证书编号 Certificate No.: TSX71004820160425

制造单位：Manufacturer	阿伐流体控制有限公司
单位地址：Address	山东省青岛市黄岛区铁山工业园
设备类型：Equipment type	压力管道阀门
产品名称：Product	球阀（金属阀门）
产品型号：Model	QC347Y-CL300 NPS8（PN50 DN200） QC347Y-CL900 NPS8（PN150 DN200） Q347Y-CL600 NPS12（PN100 DN300）
型式试验报告编号：Type test report No.	TS201608057 TS201608058 TS201608059

经型式试验，确认符合 TSG D7002-2006《压力管道元件型式试验规则》的要求。本证覆盖以下型号规格的产品：

The products meet TSG D7002-2006《Pressure Piping Components Type Test Regulation》by passing the type test. This certificate is covering these products as following:

公称压力≤PN64 时，公称尺寸≤DN400，适用温度-29℃～538℃；

公称压力≤PN160 时，公称尺寸≤DN400，适用温度-29℃～425℃；

公称压力≤PN100 时，公称尺寸≤DN600，适用温度-29℃～425℃。

浙江省泵阀产品质量检验中心

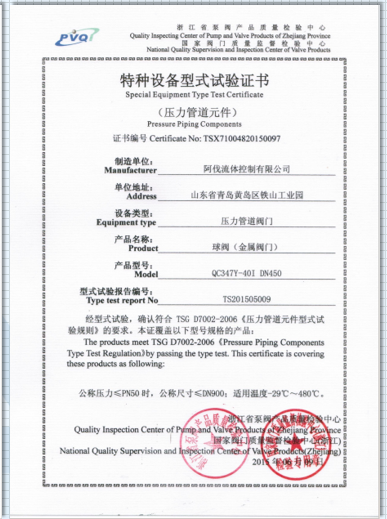
Quality Inspection Center of Pump and Valve Products of Zhejiang Province

国家阀门质量监督检验中心（浙江）

National Quality Supervision and Inspection Center of Valve Products(Zhejiang)

2016 年 09 月 08 日

Special Equipment Type Test Certificate



浙江省泵阀产品质量检验中心

Quality Inspection Center of Pump and Valve Products of Zhejiang Province

国家阀门质量监督检验中心（浙江）

National Quality Supervision and Inspection Center of Valve Products(Zhejiang)

特种设备型式试验证书

Special Equipment Type Test Certificate

（压力管道元件）

Pressure Piping Components

证书编号 Certificate No: TSX71004820150097

制造单位：Manufacturer	阿伐流体控制有限公司
单位地址：Address	山东省青岛黄岛区铁山工业园
设备类型：Equipment type	压力管道阀门
产品名称：Product	球阀（金属阀门）
产品型号：Model	QC347Y-401 DN450
型式试验报告编号：Type test report No	TS201505009

经型式试验，确认符合 TSG D7002-2006《压力管道元件型式试验规则》的要求。本证覆盖以下型号规格的产品：

The products meet TSG D7002-2006《Pressure Piping Components Type Test Regulation》by passing the type test. This certificate is covering these products as following:

公称压力≤PN50 时，公称尺寸≤DN900；适用温度-29℃～480℃。

浙江省泵阀产品质量检验中心

Quality Inspection Center of Pump and Valve Products of Zhejiang Province

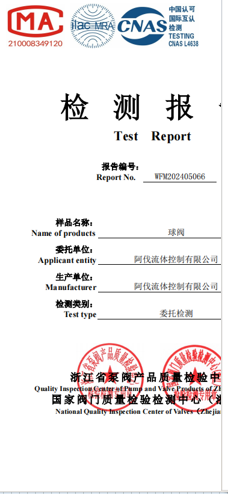
国家阀门质量监督检验中心（浙江）

National Quality Supervision and Inspection Center of Valve Products(Zhejiang)

2015 年 06 月 09 日

Specification for Fire Test

API 6FA 12”-600LB


浙江省泵阀产品质量检验中
Quality Inspecting Center of Pump and Valve Products of Zhejiang Province
国家阀门质量检验检测中心（浙江）
National Quality Inspection Center of Valves (Zhejiang)

检 测 报 告

Test Report

报告编号：WFM2021405066
Report No.

样品名称：球阀
Name of products

委托单位：阿伐流体控制有限公司
Applicant entity

生产单位：阿伐流体控制有限公司
Manufacturer

检测类别：委托检测
Test type


浙江省泵阀产品质量检验中
Quality Inspecting Center of Pump and Valve Products of Zhejiang Province
国家阀门质量检验检测中心（浙
National Quality Inspection Center of Valves (Zhejiang)

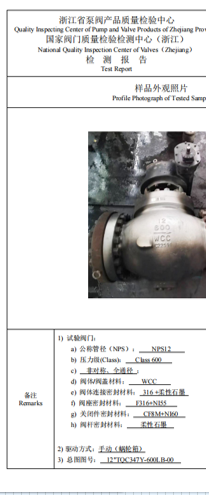
检 测 报 告

Test Report

报告编号Report No: WFM2021405066		
样品名称 SampleName	球阀	型号规格 Model
委托单位 Applicant Entity	阿伐流体控制有限公司	地址 Address
受检单位 Inspected Entity	/	地址 Address
生产单位 Manufacturer	阿伐流体控制有限公司	地址 Address
检测类别 Test Type	委托检测	商标 Trademark
生产日期 Product Date	/	样品状况 Sample Condi
阀体材料 Body Material	WCC	炉号/熔打批 Heat No. or Forge I
样品数量 Quantity of Sample	1 台	样品编号 Sample No
送样单位 Sending Entity	阿伐流体控制有限公司	到样日期 Delivery Da
检测地点 Inspection Location	检测中心	检测日期 InspectionDa
检测依据 Inspection Basis	API STANDARD 6FA-2020 (	
检测项目 Inspection Items	耐火试验、低压试验、操作试验。	
检测结论 Inspection Conclusions	经检查，该样品所检项目的检测结果 耐火试验标准》的要求。	
备注 Remarks	/	

批准 Approver：

审核 Reviewer：

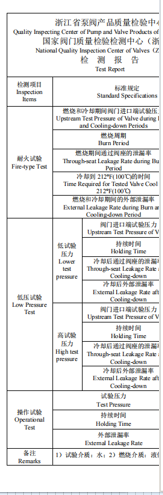

浙江省泵阀产品质量检验中心
Quality Inspecting Center of Pump and Valve Products of Zhejiang Pro
国家阀门质量检验检测中心（浙江）
National Quality Inspection Center of Valves (Zhejiang)
检 测 报 告
Test Report

样品外观照片
Profile Photograph of Tested Samp

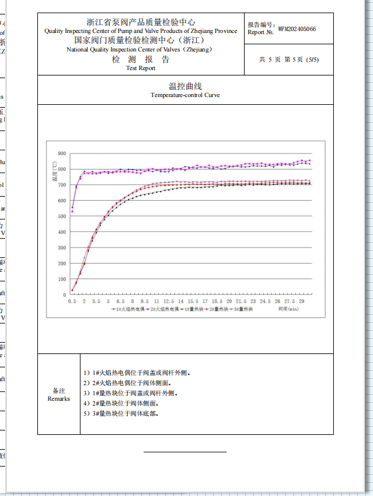
备注 Remarks

1）试验阀门：
a）公称管径（NPS）：NPS12
b）压力级(Class)：Class 600
c）_____型对接、_____连接；
d）阀体/阀盖材料：WCC
e）阀体连接密封材料：316 +柔性石墨
f）阀座密封材料：F316+Ni355
g）关闭件密封材料：CF8M+Ni60
h）阀杆密封材料：柔性石墨

2）驱动方式：手动（蜗轮箱）
3）总图图号：127TOC3473-600LB-00


浙江省泵阀产品质量检验中心
Quality Inspecting Center of Pump and Valve Products of Zhejiang Province
国家阀门质量检验检测中心（浙
National Quality Inspection Center of Valves (Zhejiang)
检 测 报 告
Test Report

检测项目 Inspection Items		标准规定 Standard Specifications
耐火试验 Fire-type Test	燃烧和冷却期间阀门进口端试验压 Upstream Test Pressure of Valve during Burning and Cooling-down Periods	
	燃烧期间 Burn Period	
	燃烧期间通过阀座的泄漏率 Through-seat Leakage Rate during Burning Period	
	冷却到 212°F(100°C)的时间 Time Required for Tested Valve Cooling to 212°F(100°C)	
	燃烧后冷却期间的外部泄漏率 External Leakage Rate during Burning and Cooling-down Period	
低压试验 Low Pressure Test	低试验压力 Lower test pressure	阀门进口端试验压力 Upstream Test Pressure of Valve
		持续时间 Holding Time
		冷却后通过阀座的泄漏率 Through-seat Leakage Rate after Cooling-down
		冷却后外部泄漏率 External Leakage Rate after Cooling-down
	高试验压力 High test pressure	阀门进口端试验压力 Upstream Test Pressure of Valve
		持续时间 Holding Time
		冷却后通过阀座的泄漏率 Through-seat Leakage Rate after Cooling-down
		冷却后外部泄漏率 External Leakage Rate after Cooling-down
操作试验 Operational Test	试验压力 Test Pressure	
	持续时间 Holding Time	
	外部泄漏率 External Leakage Rate	
备注 Remarks	1）试验介质：水；2）燃烧介质：液	


浙江省泵阀产品质量检验中心
Quality Inspecting Center of Pump and Valve Products of Zhejiang Province
国家阀门质量检验检测中心（浙江）
National Quality Inspection Center of Valves (Zhejiang)
检 测 报 告
Test Report

报告编号：WFM2021405066
Report No.

共 5 页 第 5 页 (5/5)

温控曲线
Temperature-control Curve

备注 Remarks
1）1#火焰热电偶位于阀盖或阀杆外侧。 2）2#火焰热电偶位于阀体侧面。 3）3#温块位于阀盖或阀杆外侧。 4）2#温热块位于阀体侧面。 5）3#温热块位于阀体底部。

Patent Certificate

7 invention patent certificates issued by China National Intellectual Property Administration

Patent Certificate

68 utility model patent certificates issued by China National Intellectual Property Administration

75 authorized patents

Double eccentric C-ball valve

"open competition mechanism" special project

China University of Petroleum

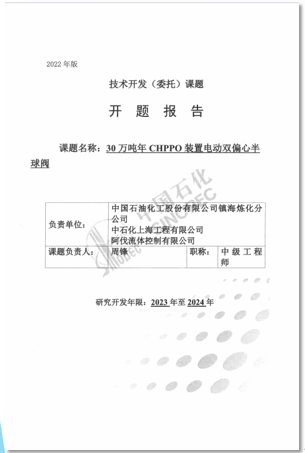
青岛西海岸新区科技项目

立项证书

承担单位：阿伐流体控制有限公司
项目名称：双偏心C型耐磨球阀（强制密封球阀）
专项类别：科技攻关“揭榜制”专项
项目编号：2022-4
批准文号：青西新科发〔2023〕3号

青岛西海岸新区工业和信息化局
（科技局、大数据局）
2024年3月20日

Special electric on/off ball valve for 300,000 tons/year CHPPO unit



2022 年版

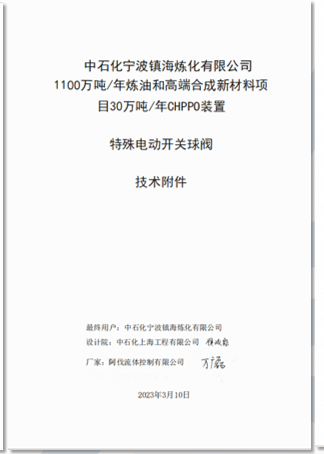
技术开发（委托）课题

开 题 报 告

课题名称：30 万吨年 CHPPO 装置电动双偏心半球阀

负责单位：	中国石油化工股份有限公司镇海炼化分公司 中石化上海工程有限公司 阿伐流体控制有限公司		
课题负责人：	周锋	职称：	中级工程师

研究开发年限：2023 年至 2024 年



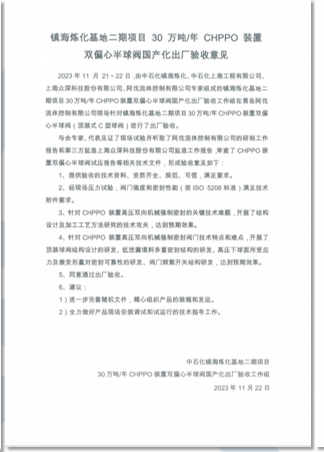
中石化宁波镇海炼化有限公司
1100万吨/年炼油和高端合成新材料项目30万吨/年CHPPO装置

特殊电动开关球阀

技术附件

最终用户：中石化宁波镇海炼化有限公司
设计院：中石化上海工程有限公司
厂家：阿伐流体控制有限公司

2023年3月10日



镇海炼化基地二期项目 30 万吨/年 CHPPO 装置
双偏心半球阀国产化出厂验收意见

2023 年 11 月 21－22 日，由中石化镇海炼化、中石化上海工程有限公司、上海众深科技股份有限公司、阿伐流体控制有限公司专家组成的镇海炼化基地二期项目 30 万吨/年 CHPPO 装置双偏心半球阀国产化出厂验收工作组在青岛阿伐流体控制有限公司现场针对镇海炼化基地二期项目 30 万吨/年 CHPPO 装置双偏心半球阀（顶装式 C 型球阀）进行了出厂验收。

与会专家，代表见证了现场试验并听取了阿伐流体控制有限公司的研制工作报告和第三方监理上海众深科技股份有限公司监造工作报告，审查了 CHPPO 装置双偏心半球阀试压报告等相关技术文件，形成验收意见如下：

1、提供验收的技术资料、资质齐全、报批、可查，满足要求。

2、经现场压力试验，阀门强度和密封性能（按 ISO 5208 标准）满足技术附件要求。

3、针对 CHPPO 装置高压双向机械强制密封的关键技术难题，开展了结构设计及加工工艺方法研究的技术攻关，达到预期效果。

4、针对 CHPPO 装置高压双向机械强制密封阀门技术特点和难点，开展了顶装球阀结构设计的研发，低摩擦填料多重密封结构的研发，高压下球面所受应力及接受距离对密封可靠性的研发，阀门膜氟开关结构研发，达到预期效果。

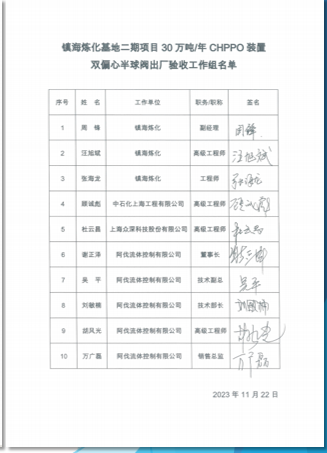
5、同意通过出厂验收。

6、建议：

1）进一步完善随机文件，精心组织产品的装箱和发运。

2）全力做好产品现场安装调试和试运行的技术指导工作。

中石化镇海炼化基地二期项目
30 万吨/年 CHPPO 装置双偏心半球阀国产化出厂验收工作组
2023 年 11 月 22 日



镇海炼化基地二期项目 30 万吨/年 CHPPO 装置
双偏心半球阀出厂验收工作组名单

序号	姓 名	工作单位	职务/职称	签名
1	周 锋	镇海炼化	副经理	
2	汪旭斌	镇海炼化	高级工程师	
3	张海龙	镇海炼化	工程师	
4	顾诚彪	中石化上海工程有限公司	高级工程师	
5	杜云昌	上海众深科技股份有限公司	高级工程师	
6	谢正洋	阿伐流体控制有限公司	董事长	
7	吴 平	阿伐流体控制有限公司	技术副总	
8	刘敏锐	阿伐流体控制有限公司	技术部长	
9	胡风光	阿伐流体控制有限公司	高级工程师	
10	万广磊	阿伐流体控制有限公司	销售总监	

2023 年 11 月 22 日

Sinopec Zhenhai Refining & Chemical Company
Sinopec Shanghai Engineering Co., Ltd.
AFA FLOW CONTROL CO., LTD

Joint Development

Intelligent Manufacturing

Quality wins the market








Integrity builds the brand

44
加工件数

率
0
负载数据
17

自动

23
加工件数

率
0
负载数据
-

自动

5
加工件数

23.36%
当日开机率

91
当日产量

22/23
在线数量

12/23
运行数量

开动率

订单号:无订单

运行时间
0
进给
0.0

L11

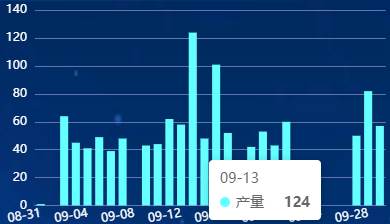
订单号:无订单

运行时间
0
进给
10

L12

近30日开机率

近30日产量



订单信息

工单号	产品名称	工序	计划数量	已完成量
A240710-9	4"Q347Y-900LB-RF(2)	10下支撑轴（下轴）：钻孔攻丝	8.00	8.0

Processing Equipment

No.	Device number	Equipment Name	Specifications and Models (Brand)	Equipment Manufacturers
1	AFA-加工中心001	龙门加工中心	GMC1120工作台2000mm×1100mm	山东威达重工股份有限公司
2	AFA-加工中心002	卧式加工中心	HMC800工作台1000mm×1000mm	山东威达重工股份有限公司
3	AFA-加工中心003	立式加工中心	BV-1060	台湾佳速机械工业有限公司
4	AFA-加工中心004	立式加工中心	VMC1100	山东威达重工股份有限公司
5	AFA-加工中心005	卧式加工中心	HMC630D	山东威达重工股份有限公司
6	AFA-加工中心006	立式加工中心	VDC4050	山东威达重工股份有限公司
7	AFA-加工中心007	立式加工中心	VMC1100	山东威达重工股份有限公司
8	AFA-加工中心008	立式加工中心	VMC1300	山东威达重工股份有限公司
9	AFA-加工中心009	卧式加工中心	HMC630D	山东威达重工股份有限公司
10	AFA-加工中心010	龙门加工中心	GMC1520E	山东威达重工股份有限公司
11	AFA-加工中心011	立式加工中心	VDC4050	山东威达重工股份有限公司
12	AFA-加工中心012	卧式加工中心	HMC1000D	山东威达重工股份有限公司
13	AFA-加工中心013	立式加工中心	VMC1300	山东威达重工股份有限公司
14	AFA-加工中心014	卧式加工中心	HMC630D	山东威达重工股份有限公司

Processing Equipment

No.	Device number	Equipment Name	Specifications and Models (Brand)	Equipment Manufacturers
1	AFA-数控车床001	数控车床	CK6183KΦ830×1500	浙江汤溪齿轮机床有限公司
2	AFA-数控车床002	数控车床	CK6183KΦ830×1500	浙江汤溪齿轮机床有限公司
3	AFA-数控车床003	数控车床	KW50Φ500×1000	杭州开兰精密机床有限公司
4	AFA-数控车床004	数控车床	CK6183KΦ830×1500	浙江汤溪齿轮机床有限公司
5	AFA-数控车床005	数控车床	CK61125	浙江汤溪齿轮机床有限公司
6	AFA-数控车床006	数控车床	CK6180Φ800×1500	浙江精圆数控设备有限公司
7	AFA-数控车床007	数控车床	CK6180Φ800×1500	浙江精圆数控设备有限公司
8	AFA-数控车床008	数控车床	CK6160Φ600×1000	浙江精圆数控设备有限公司
9	AFA-数控车床009	数控车床	CK6160Φ600×1000	浙江精圆数控设备有限公司
10	AFA-数控车床010	数控车床	TCK680LΦ680	浙江汤溪齿轮机床有限公司
11	AFA-数控车床011	数控车床	TCK680L Φ680	浙江汤溪齿轮机床有限公司
12	AFA-数控车床012	数控车床	CK6160 Φ600×1000	浙江精圆数控设备有限公司
13	AFA-数控车床013	数控车床	CK6160Φ600×1000	浙江精圆数控设备有限公司
14	AFA-数控车床014	数控车床	CK6160Φ600×1000	浙江精圆数控设备有限公司
15	AFA-数控车床015	数控车床	CK6166Φ660×1000	浙江精圆数控设备有限公司

Boutique Display

Shandong Hualu Hengsheng Group Co.

Zhejiang Petrochemical

CNOOC

Pucheng Energy Chemical Co.,Ltd.

Shenghong Petroleum

Shaanxi Yanchang Petroleum
Yan' an Energy&Chemical Co.,Ltd.

Hubei Sanning Petroleum

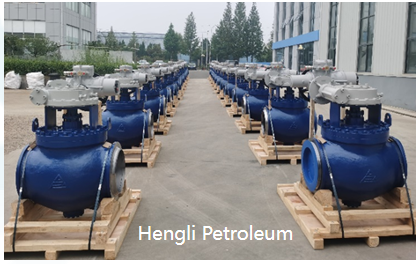
Boutique Display


Expert Identification


CNOOC refinery Co., Ltd., Huizhou refinery branch


Polysilicon project in GCL Technology Holdings Limited

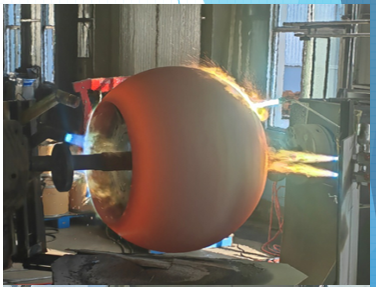

Sinopec Zhenhai Refining & Chemical Company


Hengli Petroleum

Advanced Hardening Spray Technology

Thermal spray technology (Hot melt process)

The ball and seat are specially hardened. They mainly adopts nickel-based alloy thermal spraying technology, and the hardness can reach HRC55-65. Nickel-based alloy has good wear resistance, impact resistance, corrosion resistance and other properties. It can be applied to most harsh working conditions.



Advanced Hardening Spray Technology

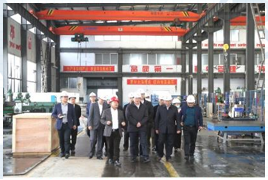
Supersonic spraying (Cold spray process)

Using aerospace spraying technology, a high-pressure gas source is used to drive solid particles to a very high speed to hit the suabstrate, thereby depositing a high-strength, dense coating. The coating has ultra-high hardness, wear resistance and corrosion resistance. Tungsten carbide, chromium carbide, cobalt-based alloys, etc. can be sprayed according to customer's requirements and process conditions.

Leaders' Visit and Expression of Care for Work

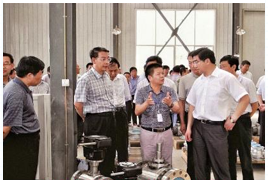
Zhou An, Mayor of Qingdao West Coast New Area, came and visited.

Tong Haiyan, Director of the People's Congress of Qingdao West Coast New Area, came and visited.



Sun Yonghong, member of the Standing Committee of Qingdao Municipality and Secretary of the Huangdao District Committee, went to AFA to direct Our Work

Sun Shaowen, General Manager of Wanhua Chemical Ningbo Co., Ltd., visited AFA to inspect the work



Wan Jianzhong, secretary of the Jiaonan Municipal Party Committee, and Jiang Jun, mayor of Jiaonan, visited AFA Company

Zhu Zhongming, member of the Party Leadership Group and Vice Minister of the Ministry of Finance, visited AFA for research

Chen Derong, the Chairman of Baowu Steel and former Vice Governor of Zhejiang Province had a cordial meeting with Xie Zhengze, President of AFA

Ge Yiping, the Wenzhou Municipal People's Congress Chairman had a cordial meeting with Xie Zhengze, President of AFA

Part 2

C 型耐磨球阀

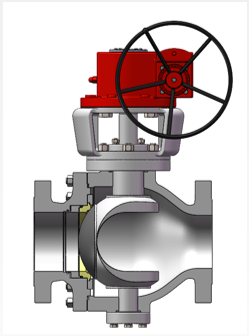
Wear Resistant C-Ball Valve

Wear-resistant C-Ball Valve

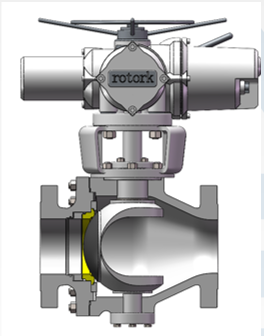
Trustworthy Manufacturer

The wear-resistant C-ball valve is a solution specifically for harsh working conditions. It combines the advantages of multiple harsh working condition valves and eliminates the weaknesses and defects of these designs. The product fills the gap in domestic products and reaches the international leading level, replacing most imported wear-resistant ball valves. From the successful development of the first generation of C-ball valves in 2005 to the upgrade to the fourth generation in 2020, the application case analysis proves that the comprehensive service life is more than five times that of metal seated ball valves, solving the problems of difficult valve opening and closing, easy scaling and internal leakage in harsh working conditions of chemical enterprises, extending the operation cycle of the device, significantly improving economic benefits, and winning the trust of customers.

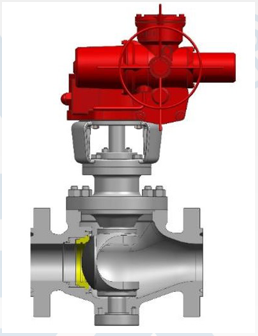
Structure diagram



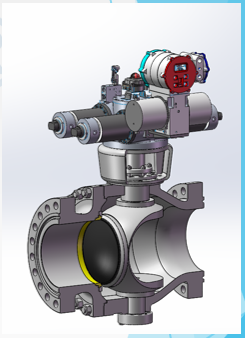
First Generation
(Double-Eccentric)



Second Generation
(Inproved)



Third Generation
(Top-Mounted)



Forth Generation
(Multi-Eccentric)

Localization of Major Projects / First Piece (Set) / Patent Model / Replace the Imported with the Domestic / Demonstration of Technologically Advanced

Forerunner of Replacing the Imported with the Domestic

C-Ball Valve

A.E.V

Origin：Italy

Truflo Rona

Origin：Belgium

plug valve

XOMOX

Origin：the USA

AZ ARMATUREN

Origin：Germany

Orbit Ball Valve

ORBIT®

Origin：the USA

CONTROL Cseal valve manufacturer

Origin:Netherlands

Triple Eccentric Ball Valve

VALVITALIA GROUP

Origin：Italy

Chasing the Dream of Becoming Top-class of the World

Revitalizing National Brands

Wear-resistant C-Ball Valve

Applicable Media: including but not limited to chilling water, black water, gray water, slag water, coal slurry, synthesis gas, adsorbent, slag slurry, ash slurry mixture, light hydrocarbons, silicon powder, propylene, polypropylene, propane, catalyst, liquefied gas, etc.

- Nominal Diameter： 1”-60” DN25-DN1500
- Nominal Pressure： 150LB-2500LB

  1.6MPa-42MPa

Working conditions:
Viscous/granular/powder/slurry/crystallization/scaling/wear/polymerization/coexistence of solid, liquid and gas and other harsh working conditions.

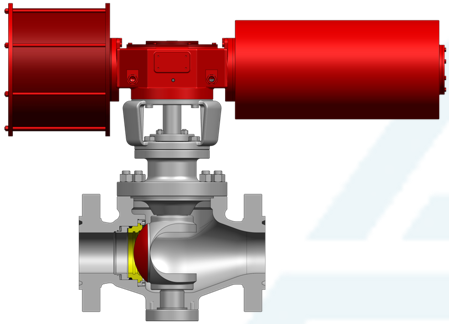
Replacing the Imported with the Domestic： Metal seated ball valve, Orbit ball valve, plug valve, opened ball valve, high pressure triple eccentric butterfly valve, triple eccentric ball valve and imported C-ball valve.

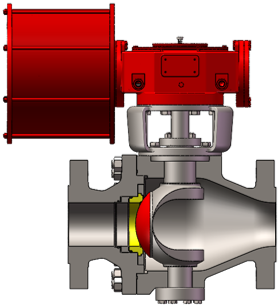
Features of Core Technology

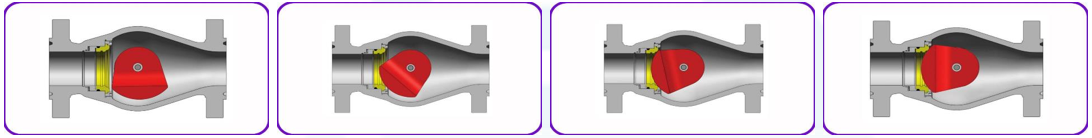
- **Multi-eccentric Design:** Forced Sealing, Tight Shut-off
- **Trunnion-mounted Structure:** Stable Switching and Reliable Performance
- **Self-cleaning Function:** Fluid Flushing, Automatic Cleaning
- **Anti-lock Araking Ball :** Unique Design, Patented Technology
- **Disengagement micro torque:** No-load Rotation, Easy to Operate
- **Surface Hardened of the whole ball:** Impact-resistant and Wear-resistant, Protecting the Ball
- **No Dead Cavity in flow :** Not Easy to Accumulate Slag and Reduce Scaling

Patented product Counterfeiting will be prosecuted

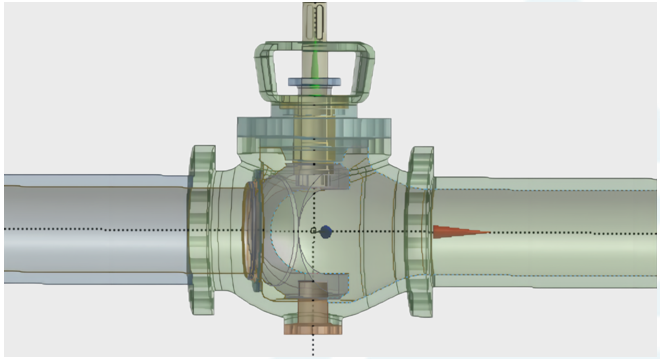
Advantages and features of double eccentric wear-free structure

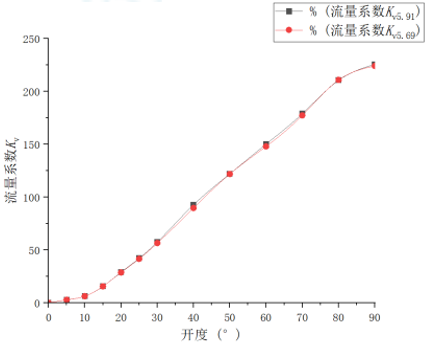


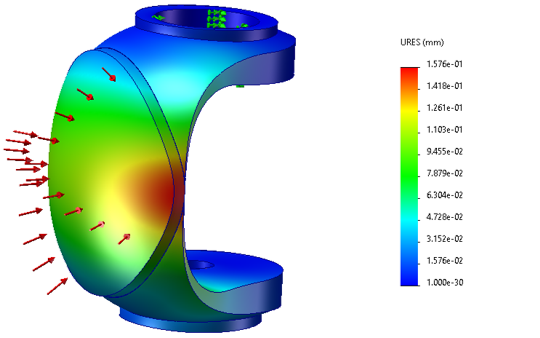


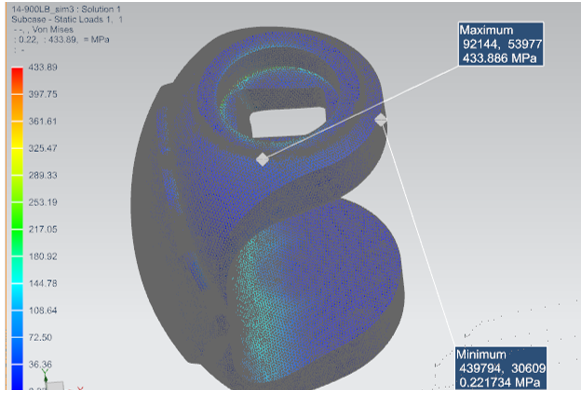


Fluid Condition Simulation



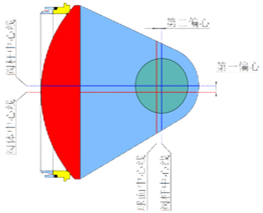






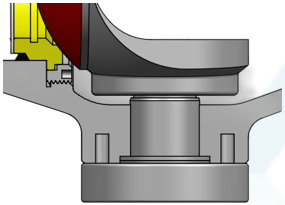
Finite element analysis of core components

Advantages and features:



Double eccentric design, forced sealing;

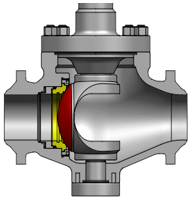
No friction during switching, low torque and extended service life.



Fixed lower support shaft

The shaft does not move and there is no blockage by ultra-fine materials

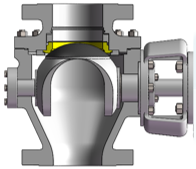
Advantages and features:



Horizontal installation, no medium residue.

No dead cavity, full bore, not easy to accumulate slag, not easy to scale, through fluid flushing, to achieve self-cleaning function.

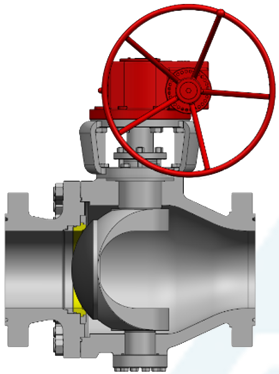
1/4 turn angle stroke design, fast opening and closing

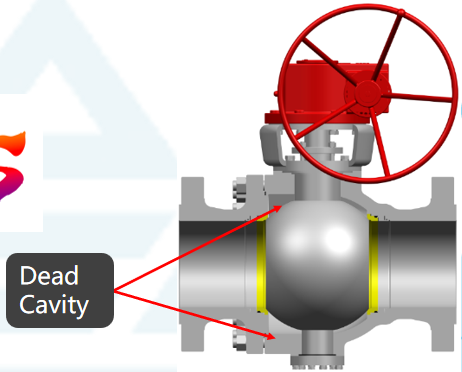


Vertical installation, funnel design

The flow channel is polished to a mirror surface to prevent viscous media from sticking

Wear-resisatant C-Ball Valve VS Metal Seated Ball Valves





Wear-resistant C-Ball Valve

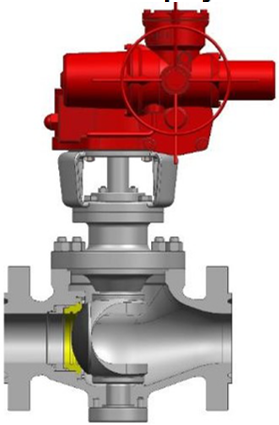
Metal Seated Ball Valves

Wear-resistant C-Ball Valve VS Metal Seated Ball Valves

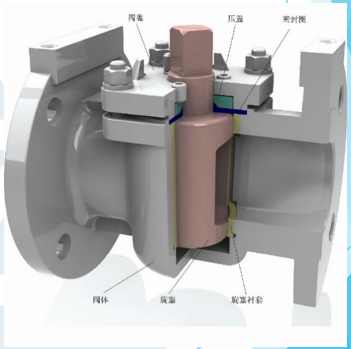
Features Comparison	Wear-resistant C-Ball Valve	Metal Seated Ball Valves
Friction-free Stroke	The stroke is frictionless, the disengagement is micro-torque, the switch is easy, the wear is less and the service life is long.	During the switching process, the ball is in contact with the valve seat throughout the entire process, resulting in large torque, difficult switching and short service life.
Anti-lock Araking ball	Unique design, abti-lock araking in high temperature and high pressure condition	High temperature and high pressure prone to lock
No Dead Cavity in the Flow Channel	No Dead Cavity， No hazards of medium accumulation.	There is Dead Cavity in the valve body , which is easy to accumulate medium
Valve cavity anti-scouring	When the valve is half-open, it is not easy to be flushed.	When the valve is half-open, a vortex is easily formed behind the ball, which can flush the ball mouth and valve body.
Flow adjustable	With linear and approximate equal percentage adjustment, excellent performance	No adjustment function
Forced Sealing	The tighter it is closed, the more it is sealed. Meet the forced sealing requirements.	No forced sealing function
Self-cleaning Function	Self-cleaning effect achieved through medium flushing	The valve cavity is complex and the cleaning effect is poor

Top-mounted Wear-resistant C-Ball Valve VS Plug Valve

Top-mounted wear-resistant C-ball valve can replace plug valve in the following application fields: polysilicon, acetic acid, melamine, EVA, etc.



VS



Top-mounted Wear-resistant C-Ball Valve

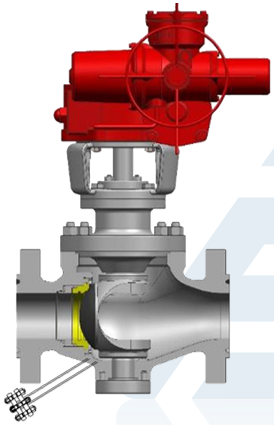
Plug Valve

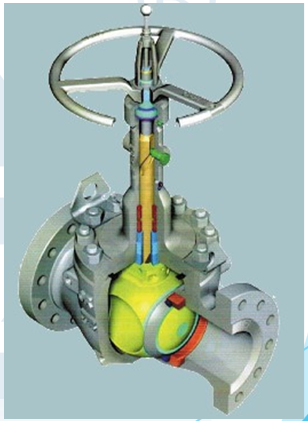
Wear-resistant C-Ball Valve VS Plug Valve

Features Comparison	Wear-resistant C-Ball Valve	Plug Valve
Flow	The flow is full bore and the medium has a lower pressure loss when passing through, and the fluid can pass through unimpeded.	The flow channel is reduced in diameter, the fluid resistance is large and the pressure loss is high.
Adjust	With adjustment function.	No adjustment function.
Service life	Eccentric design, long service life.	The bushing structure is easy to deform, age and fall off, has a short service life, and has high maintenance costs.
Switching	Eccentric ball surface seal, small sealing surface, good sealing performance, micro-torque in switching and ball anti-lock.	The sealing surface is fully covered by the bushing, the switching torque is large, easy to wear and it is easy to deform and get stuck at high temperatures.
Application	Meet the application fields of high pressure, large diameter and high temperature.	It is not easy to produce high pressure, large diameter, and high temperature resistant, so its application is limited.
Cost-effectiveness	Low price, short delivery time, excellent service and long warranty period.	High price, long delivery time, average service and short warranty period.

Top-mounted Wear-resistant C-Ball Valve VS Orbit Ball Valve

Application fields of top-mounted wear-resistant C-ball valve: CHPPO, MTO, PTA, POSM, LNG, PDH, UPC, acrylonitrile, molecular sieve, skid-mounted, dry gas, hydrogenation and light hydrocarbon separation.





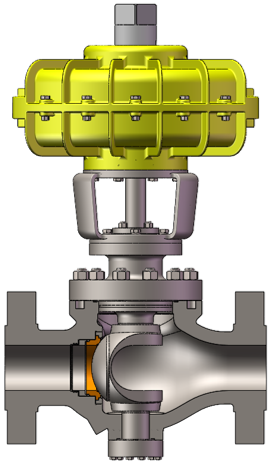
Top-mounted Wear-resistant C-Ball Valve **Orbit Ball Valve**

Top-mounted Wear-resistant C-Ball Valve VS Orbit Ball Valve

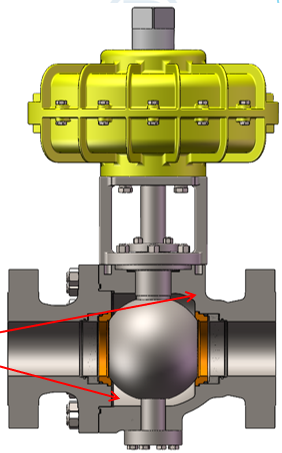
Features Comparison	Top-mounted Wear-resistant C-Ball Valve	Orbit Ball Valve
Good valve stem rigidity	The ball valve is designed with upper and lower support shafts, the valve stem is short and thick and has sufficient rigidity, which is more suitable for high-pressure working conditions.	The valve stem is long and thin, with double S grooves which reduces strength and has poor rigidity.
fast switching	Standard 90-degree rotating structure enables quick opening and closing.	The special straight-stroke structure cannot achieve rapid opening and closing.
Scraper design	The unique scraper-type self-cleaning design ensures that no particles adhere to the sealing surface.	The Orbit ball moves horizontally to contact the valve seat, and there is no scraper cleaning design to remove particles attached to the sealing surface.
Easy to replace packing	The packing can be replaced online, the operation is convenient and the packing seal is reliable.	The packing cannot be replaced online and is prone to leakage.
Wear-resistant sealing surface	The sealing surface of the ball and the valve seat is made of sprayed cemented carbide with a hardness of over HRC60, which is resistant to erosion and wear.	The sealing surface of the ball is annularly surfacing STL, which has low hardness and is easily eroded and worn.
Self-cleaning	A self-cleaning effect is achieved through medium flushing.	The valve cavity is complex and the cleaning effect is poor.
Multi-directional installation	Horizontal installation, vertical installation, inclined installation.	Only horizontal installation is possible.

TMHF Wear-resistant C-Ball Valve VS HF wear-resistant ball valve

The application fields of top-mounted high-frequency wear-resistant C-ball valve are: PE. PP. PSA. polymers, and powders.。



VS



Top-mounted high frequency Wear-resistant C-Ball Valve

High frequency wear-resistant ball valve

Top-mounted high frequency Wear-resistant C-Ball Valve VS High frequency wear-resistant ball valve

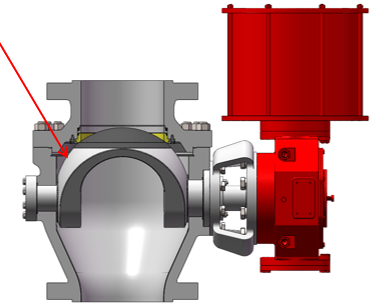
Features Comparison	Top-mounted high frequency Wear-resistant C-Ball Valve	High frequency wear-resistant ball valve
Friction-free Stroke	The stroke is frictionless, the disengagement is micro-torque, the switch is easy, the wear is less and the service life is long.	During the switching process, the ball is in contact with the valve seat throughout the entire process, resulting in large torque, difficult switching and short service life.
No Dead Cavity in the Flow Channel	No Dead Cavity， No hazards of medium accumulation.	There is Dead Cavity in the valve body , which is easy to accumulate medium
Anti-lock Araking ball	Unique design, abti-lock araking in high temperature and high pressure condition	High temperature and high pressure prone to lock
Easy repair online	The top-mounted type can be repaired online and is easy to disassemble and assemble.	Unable to repair online.
Forced Sealing	The tighter it is closed, the more it is sealed. Meet the forced sealing requirements.	No forced sealing function
Static seat design	Static valve seat, more reliable sealing.	Please try not to use dynamic valve seats.

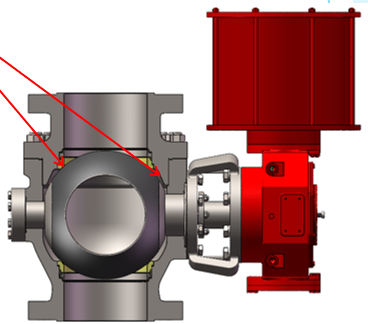
lock hopper C-ball valve VS lock hopper ball valve

The application fields of lock hopper C-ball valve are: slag lock, bucket lock system

Vertical installation, no slag or scaling ever

Dead Cavity





lock hopper C-ball valve

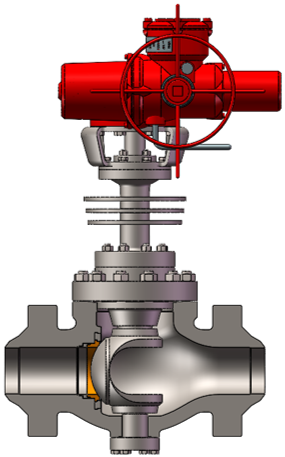
lock hopper ball valve

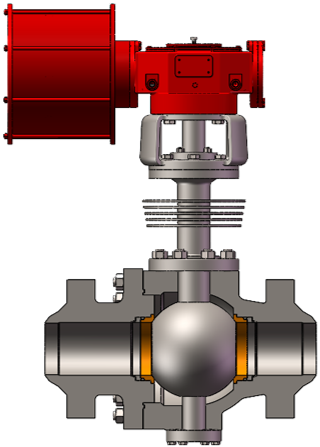
lock hopper C–ball valve VS lock hopper ball valve

Features Comparison	lock hopper C-ball valve	lock hopper ball valve
Anti-lock Araking ball	Unique design, abti-lock araking in high temperature and high pressure condition	High temperature and high pressure prone to lock
No Dead Cavity in the Flow Channel	No Dead Cavity， No hazards of medium accumulation.	There is Dead Cavity in the valve body , which is easy to accumulate medium
Friction-free Stroke	The stroke is frictionless, the disengagement is micro-torque, the switch is easy, the wear is less and the service life is long.	During the switching process, the ball is in contact with the valve seat throughout the entire process, resulting in large torque, difficult switching and short service life.
Forced Sealing	The tighter it is closed, the more it is sealed. Meet the forced sealing requirements.	No forced sealing function
Self-cleaning	A self-cleaning effect is achieved through medium flushing.	The valve cavity is complex and the cleaning effect is poor.

TMHTHP C-ball valve VS HTHP ball valve

Top-mounted high temperature and high pressure C-ball valve can be used for: temperature 815℃, pressure 900LB~2500LB





Top-mounted high temperature and high pressure C-ball valve

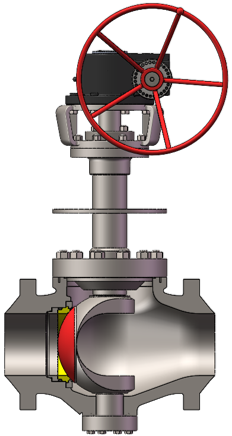
High temperature and high pressure ball valve

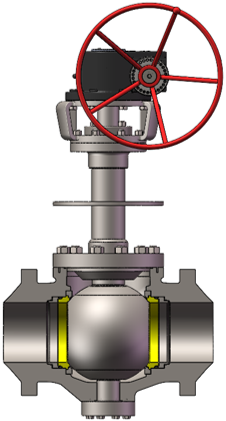
Top-mounted high temperature and high pressure C-ball valve VS High temperature and high pressure ball valve

Features Comparison	Top-mounted high temperature and high pressure C-ball valve	High temperature and high pressure ball valve
One-piece design	The integral valve body eliminates pipeline stress and creep, is not affected by high temperature, prevents leakage of the middle flange seal, single valve seat, bidirectional sealing, and strong pressure resistance.	Two-piece type, cannot eliminate pipeline stress and creep, is easily affected by high temperature, middle flange seal easily leaks, double valve seats, bidirectional sealing, and poor pressure resistance.
Friction-free Stroke	The stroke is frictionless, the disengagement is micro-torque, the switch is easy, the wear is less and the service life is long.	During the switching process, the ball is in contact with the valve seat throughout the entire process, resulting in large torque, difficult switching and short service life.
Forced Sealing	The tighter it is closed, the more it is sealed. Meet the forced sealing requirements.	No forced sealing function
No Dead Cavity in the Flow Channel	No Dead Cavity， No hazards of medium accumulation.	There is Dead Cavity in the valve body , which is easy to accumulate medium
Flow adjustable	With linear and approximate equal percentage adjustment, excellent performance	No adjustment function
Anti-lock Araking in high temperature	Unique design, abti-lock araking in high temperature condition	High temperature prone to lock
Anti-lock Araking in high pressure	Unique design, abti-lock araking in high pressure condition	High pressure prone to lock

TMLT C-ball valve VS Top-mounted Low temperature ball valve

Top mounted Low temperature C-ball valve can be used for: Temperature: -70℃~-101℃~-196℃~-253℃, used for LNG, liquid nitrogen, liquid hydrogen, ethylene, molecular sieve, light hydrocarbon separation, etc.





Top-mounted Low temperature C-ball valve

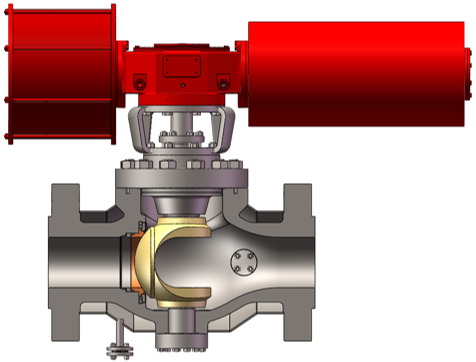
Top-mounted Low temperature ball valve

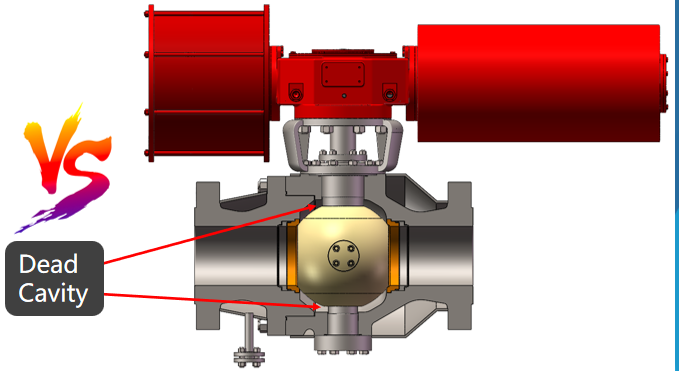
Top-mounted Low temperature C-ball valve VS Top-mounted Low temperature ball valve

Features Comparison	Top-mounted Low temperature C-ball valve	Top-mounted Low temperature ball valve
One-piece design	The integral valve body eliminates pipeline stress and creep, is not affected by low temperature, prevents leakage of the middle flange seal, single valve seat, bidirectional sealing, and strong pressure resistance.	Two-piece type, cannot eliminate pipeline stress and creep, is easily affected by low temperature, middle flange seal easily leaks, double valve seats, bidirectional sealing, and poor pressure resistance.
Forced Sealing	The tighter it is closed, the more it is sealed. Meet the forced sealing requirements.	No forced sealing function
Friction-free Stroke	The stroke is frictionless, the disengagement is micro-torque, the switch is easy, the wear is less and the service life is long.	During the switching process, the ball is in contact with the valve seat throughout the entire process, resulting in large torque, difficult switching and short service life.
No Dead Cavity in the Flow Channel	No Dead Cavity， No hazards of medium accumulation.	There is Dead Cavity in the valve body , which is easy to accumulate medium
Flow adjustable	With linear and approximate equal percentage adjustment, excellent performance	No adjustment function
Anti-lock Araking ball	Unique design, abti-lock araking in low temperature condition	Low temperature prone to lock

JITM C-ball valve VS Jacket insulation ball valve

The application fields of Jacket insulation top-mounted C-ball valve include: polymer, sulfur recovery, MDI, PTA, etc.





Jacket insulation top-mounted C-ball valve VS Jacket insulation ball valve

Features Comparison	Jacket insulation top-mounted C-ball valve	Jacket insulation ball valve
Friction-free Stroke	The stroke is frictionless, the disengagement is micro-torque, the switch is easy, the wear is less and the service life is long.	During the switching process, the ball is in contact with the valve seat throughout the entire process, resulting in large torque, difficult switching and short service life.
Anti-lock Araking in high temperature	Unique design, abti-lock araking in high temperature condition	High temperature prone to lock
Anti-lock Araking in high pressure	Unique design, abti-lock araking in high pressure condition	High pressure prone to lock
Forced Sealing	The tighter it is closed, the more it is sealed. Meet the forced sealing requirements.	No forced sealing function
No Dead Cavity in the Flow Channel	No Dead Cavity, No hazards of medium accumulation.	There is Dead Cavity in the valve body , which is easy to accumulate medium
Online repair	Online disassembly, easy maintenance.	Unable to disassemble and repair online.
Structural features	Structural features: one-piece full package (half package) No leakage risk in the middle	There is a risk of leakage in the middle of the two-piece full package (half package)

HP C-ball valve VS Imported HP wear-resistant ball valve

The application areas of high-pressure wear-resistant C-ball valves include: ammonia synthesis, synthesis gas main pipe, synthesis gas venting, desulfurization tank inlet and outlet, synthesis gas compressor inlet and outlet cut-off, etc.

Henan Jindadi Chemical Co., Ltd.

Ningxia Baofeng Energy

Henan Jindadi Chemical Co., Ltd.

High pressure wear-resistant C-ball valve VS Imported high pressure wear-resistant ball valve

Features Comparison	High pressure wear-resistant C-ball valve	High pressure metal seated ball valve
Friction-free Stroke	The stroke is frictionless, the disengagement is micro-torque, the switch is easy, the wear is less and the service life is long.	During the switching process, the ball is in contact with the valve seat throughout the entire process, resulting in large torque, difficult switching and short service life.
Anti-lock Araking ball	Unique design, abti-lock araking in high temperature and high pressure condition	High temperature and high pressure prone to lock
No Dead Cavity in the Flow Channel	No Dead Cavity, No hazards of medium accumulation.	There is Dead Cavity in the valve body , which is easy to accumulate medium
Valve cavity anti-scouring	When the valve is half-open, it is not easy to be flushed.	When the valve is half-open, a vortex is easily formed behind the ball, which can flush the ball mouth and valve body.
Forced Sealing	The tighter it is closed, the more it is sealed. Meet the forced sealing requirements.	No forced sealing function
Self-cleaning	A self-cleaning effect is achieved through medium flushing.	The valve cavity is complex and the cleaning effect is poor.

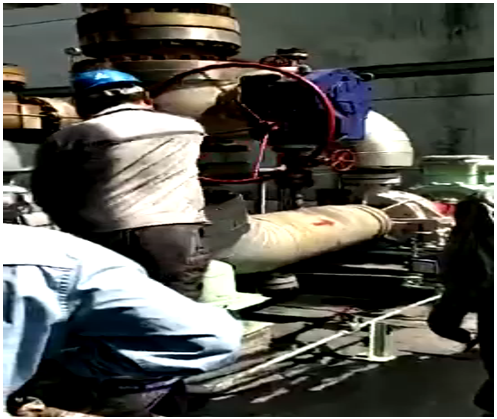
Switching difficulty comparison

wear-resistant C-ball valve

Wanhua Chemical Group Co.,Ltd. (Ningbo)

VS

wear-resistant C-ball valve



Sinopec Nanhua Company

Switching Difficulty Comparison

wear-resistant C-ball valve

Shandong Hualu Hengsheng Group Co.

VS

Metal seated ball valve

Wanhua Chemical Group Co.,Ltd. (Ningbo)

Comparison of product usage

Investigate the usage of different types of valves by customers

Inner Mongolia Jiutai

Inner Mongolia Xinneng

Part 3

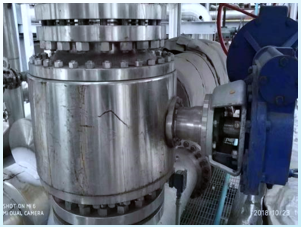
装置应用案例

Application Device Cases

Application Device Case

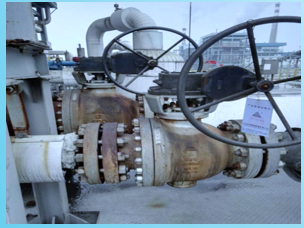
Ningxia Baofeng Energy Synthetic Device
Electric valve for water, coal and gas inlet conversion area
May.2020

Ningxia Baofeng Energy Synthetic Device
Manual valve for Desulfurization Tank Inlet and Outlet
May.2020



Jinxin Chemical
Syngas Shut-off Valve
Aug.2016

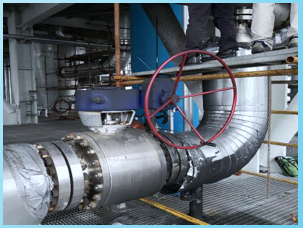
Ningxia Baofeng Energy Synthetic Device
Synthetic Boundary Main Manual Valve
May.2020



Wanhua Chemical Group Co.,Ltd. (Ningbo)
Syngas Shut-off Valve
Sept.2011

Wanhua Chemical Group Co.,Ltd. (Ningbo)
Syngas Regulating C+V Valve
to Replace Masoneilan Sleeve Valve
Aug.2014

GDDG
Syngas Compressor Inlet and Outlet Isolation Valves
in 2021



CNOOC Huizhou Coal-to-Hydrogen Production Unit
Syngas Shut-off Valve (F316+INCONEL625)
July.2018

Application Device Case

Wanhua Chemical Group Co.,Ltd. (Ningbo)
Syngas Vent Isolation Valve
Sept.2015

Shandong Hualu-Hengsheng Group Co.,Ltd.
Electro-hydraulic Linkage Chilling Water Pump
Shut-off Ball Valve
Sept.2017

Sinopec Nanjing Branch Company
8.7MPa Chilling Water Pump
Shut-off Valve
Dec.2016

Shaanxi Yanchang Petroleum Yan'an
Energy&Chemical Co.,Ltd.
Electro-hydraulic Linkage Chilling Water Pump
Shut-off Valve
Sept.2018

Shandong Hualu-Hengsheng Group Co.,Ltd.
Chilling Water Pump Shut-off Valve
June.2015

Wanhua Chemical Group Co.,Ltd.
Chilling Water Pump Shut-off Valve
Sept.2015

Shandong Jincheng Petroleum Group
Chilling Water Pump Shut-off Valve
in 2019

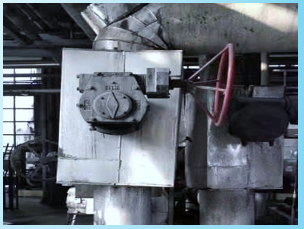
Inner Mongolia Rongxin Chemical Co., Ltd.
Chilling Water Pump Shut-off Valve
in 2019

Application Device Case

Sinopec Great Wall Energy Chemical (Ningxia) Co., Ltd.
Chilling Water Pump Shut-off Valve
May.2018

CNSG Anhui Hong Sifang Co., Ltd.
Coal Slurry Circulation Pipeline Reflux Regulating Valve
5.4MPa Hooking up interlock
in 2020

Shaanxi Changqing Energy&Chemical Co.,Ltd.
Biphasic Steel Slag Water SHut-off Ball Valve
Sept.2013



Cangzhou Zhengyuan Fertilizer Co., Ltd.
Grey Water Pump Shut-off Valve
in 2018

Guangxi Huayi Energy Chemical Co., Ltd.
Chilling Water Pump Shut-off Valve
in 2021

Wanhua Chemical Group Co.,Ltd. Coal Slurry Circulation Pipeline Reflux Regulating Valve
5.4MPa Hooking up interlock
Sept.2014

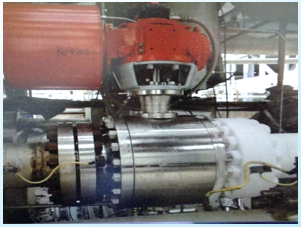
Shandong Hualu-Hengsheng Group Co.,Ltd.
Coal Slurry Circulation Pipeline Reflux Regulating Valve
5.4MPa Hooking up interlock
Sept.2017

Huineng Group
Coal Slurry Circulation Pipeline Reflux Regulating Valve
5.4MPa Hooking up interlock
in 2021

Application Device Case

Shandong Hualu-Hengsheng Group Co.,Ltd.
Coal Slurry Diversion (Distribution) Valve
Sept.2017

CNOOC Huizhou Coal-to-Hydrogen Production Unit
Sulfur recovery jacket insulation valve
Waste heat boiler sulfur process gas
July.2018



Hulunbeier Jinxin Chemical Co., Ltd.
Molecular Sieve C-type Ball Valve
Replace ORBIT orbital ball valve
Aug.2016

Yanzhou Coal Yulin Energy Chemical Co., Ltd.
Chilling Water Pump Shut-off Valve
June.2013

Inner Mongolia Jiutai Energy Co., Ltd.
MTO replaces imported Orbit Ball Valve
in 2019

Wanhua Chemical Group Co.,Ltd.
Propane Dehydrogenation Shut-off Valve
replaces imported Orbit Ball Valve
Dec.2015

CNPC North China Petrochemical Bureau
Flue gas desulfurization with catalyst particles
Sept.2017

Sinopec Qilu Petrochemical Bureau
Chilling Water Pump Shut-off Valve
Feb.2013

Application Device Case

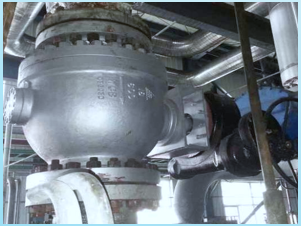
Ningxia Baofeng Energy
Chilling Water Pump Shut-off Valve
Nov.2016

Nanjing Chengzhi Clean Energy Co., Ltd.,
Chilling Water Pump Shut-off Valve
May.2012

Shaanxi Jincheng Coal Industry Group Tianxi Coal-to-Oil Bureau
Flash Tank Outlet Shut-off Valve
May.2020

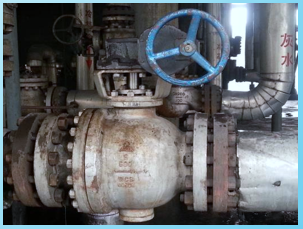
Henan Jinkai Chemical Investment Holding Group Co., Ltd.
Chilling Water Pump Shut-off Valve
Aug.2019

Shaanxi Shenmu Chemical Industry Co., Ltd.
Chilling Water Pump Shut-off Valve
Oct.2013



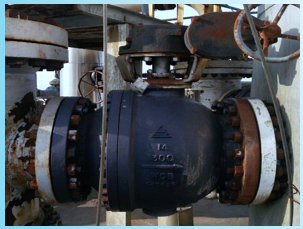
Inner Mongolia Xinneng Energy Co., Ltd.
Electric Chilling Water Pump Shut-off Valve
May.2013

Yankuang Guohong Chemical Co., Ltd.
Black Water Grey Water Shut-off Valve
Aug.2015



Yankuang Lunan Chemical Co., Ltd.
Black Water Filter Shut-Off Valve
Aug.2012

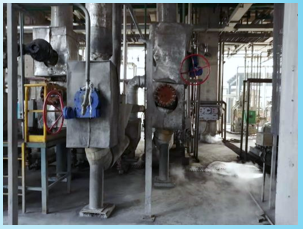
Application Device Case



Shihlien Chemical Industrial Jiangsu Co.,Ltd
Black Water Treatment Shut-off Valve
Dec.2014

Sinopec Jinan Bureau
Delayed Coking Tower Top Vent Isolation Valve
Replaces VELAN Bellows Ball Valve
Sept.2014

China Shenhua Coal-to-Liquid Chemical Co., Ltd.
Ordos Coal-to-Liquid Bureau
High Temperature Oil-coal Slurry Shut-off Valve
Replace German HARTMANN Ball Valve
March.2015



Shanaxi Jinmei Huayu Coal Chemical Co., Ltd.
Chilling Water Pump Inlet and Outlet Valve
May.2025

Jiangsu SOPO Cooperation (Group) Co., Ltd.
Chilling Water Pump Shut-off Valve
June.2013

Xinjiang Xinlianxin Energy Chemical Co., Ltd.
Chilling Water Pump Shut-off Valve
Sept.2014

Yankuang Xinjiang Energy Chemical Co., Ltd.
Gasification Black Water Switching Double Valve
June.2014

Ordos Jinchengtai Chemical Co., Ltd.
Chilling Water Pump Shut-off Valve
Feb.2013

Application Device Case

Shenhua Baotou Coal Chemical Industry Co., Ltd.
Electric Chilling Water Pump Shut-off Valve
Sept.2014

Inner Mongolia Yitai Coal Co., Ltd.
Chilling Water Pump Shut-off Valve
Sept.2018

Henan Jindadi Chemical Co., Ltd.
Electro-hydraulic Linkage Chilling Water Pump
Shut-off Valve
Feb.2019

Shandong Hualu Hengsheng Group Co. (Jinzhou)
Electro-hydraulic Linkage Chilling Water Pump
Shut-off Valve
Dec.2022

Wanhua Chemical Group Co.,Ltd. (Ningbo)
MDI
Viscous Material Shut-off Valve
Sept.2013

Shandong Jinmei Riyue Chemical Co., Ltd.
Black and Grey Water Shut-off Valve
Sept.2018

Shaanxi Yanchang Petroleum Yan'an
Energy&Chemical Co.,Ltd.
High Pressure Black and Gray Water Shut-off
Valve
Aug.2018

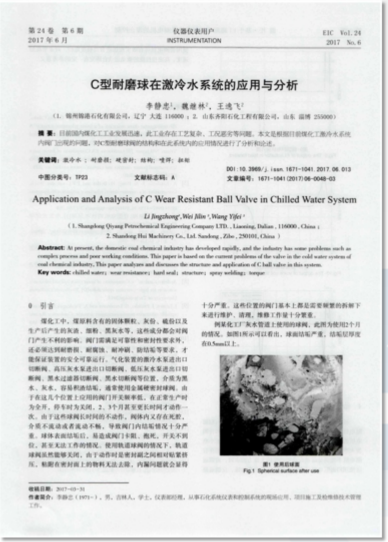
Zhejiang Baling Hengyi Caprolactam Co., Ltd.
Electro-hydraulic Linkage Chilling Water Pump
Shut-off Valve
Dec.2021

Part 4

业主使用说明

Owner's Certificate of Use

Media Coverage


第 24 卷 第 6 期 仪器仪表用户 EIC Vol. 24
2017 年 6 月 INSTRUMENTATION 2017 No. 6

C型耐磨球在激冷水系统的应用与分析

李静忠[1]，魏继林[2]，王逸飞[2]

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摘 要： 目前国内煤化工工业发展迅速，此工业存在工艺复杂、工况恶劣等问题。本文是根据目前煤化工激冷水系统内阀门出现的问题，对C型耐磨球阀的结构和在此系统内的应用情况进行了分析和论述。

关键词： 激冷水；耐磨损；硬密封；结构；喷焊；扭矩

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Application and Analysis of C Wear Resistant Ball Valve in Chilled Water System

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Abstract: At present, the domestic coal chemical industry has developed rapidly, and the industry has some problems such as complex process and poor working conditions. This paper is based on the current problems of the valve in the cold water system of coal chemical industry. This paper analyzes and discusses the structure and application of C ball valve in this system.

Key words: chilled water; wear resistance; hard seal; structure; spray welding; torque

0 引言

十分严重。这些位置的阀门基本上都是需要频繁的拆卸下来进行维护、清理，维修工作量十分繁重。

图1 使用后球面

Fig.1 Spherical surface after use


1973 年创刊（月刊）
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氮肥与合成气
DANFEI YU HECHENGQI
Nitrogenous Fertilizer & Syngas

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目 次

C 形球阀在合成气管线上的应用

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（万华化学集团股份有限公司，山东烟台 265500）

关键词： 气化炉；合成气；C 形球阀

1 合成气工艺流程

2 合成气手阀存在的问题

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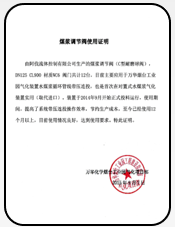
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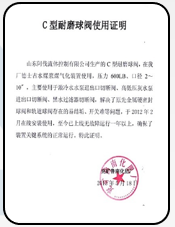
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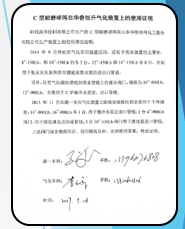
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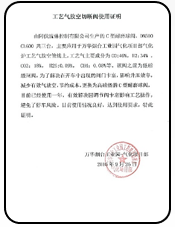
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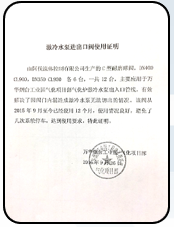
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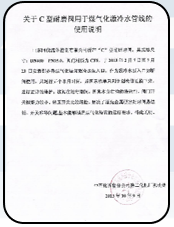
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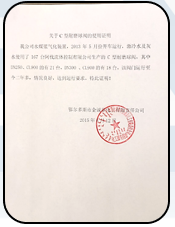
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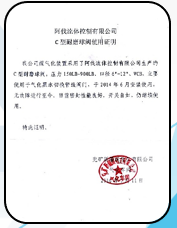
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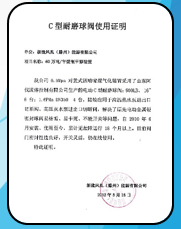
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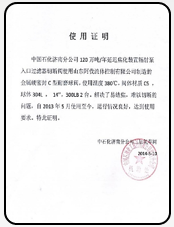

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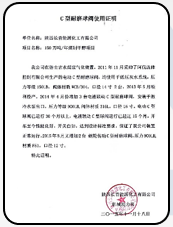
Sinopec Jinan Bureau



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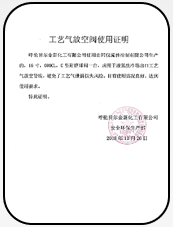
Shaanxi Changqing

使用证明

Shaanxi Shenmu Chemical



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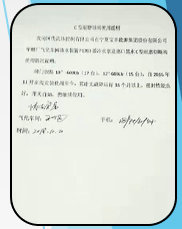

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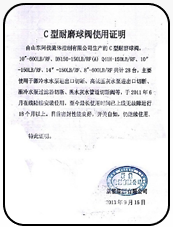

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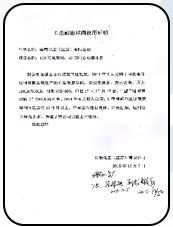

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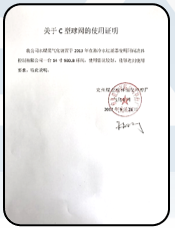

关于C型球阀的使用证明

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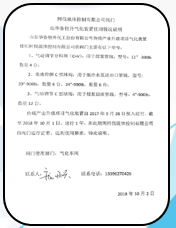
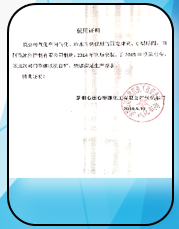


使用证明

Shandong Hualu Hengsheng



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- Inner Mongolia Huineng
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- Shandong Energy Group Co., Ltd. Xinjiang
- Shandong Energy Group Co., Ltd. Yulin
- Shandong Energy Group Co., Ltd. Weilai
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- Yitai CTO Co., Ltd.
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- Hongrun Petrochemical (Weifang) Co., Ltd.
- Xinjiang Xinlianxin

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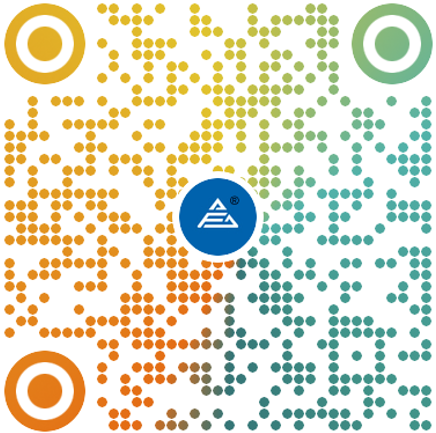

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