
VF-73 Series Centric Butterfly Valves


VF-8 Series Triple-Offset Butterfly Valves


VF-9 Series Double-Offset Butterfly Valve


VF-264 Series AWWA Double Flange Butterfly Valves


VF-265A Series Ship-Building Valves


VF-3 Series Damper


VF-BF Series Double Flange Ball Valves


CV-122 Series Dual Plate Check Valves


Gate Valves/Globe Valves

Certificate

VALUE VALVES

MULTI TURN ELECTRIC ACTUATOR

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PRODUCT
INTRODUCTION

Value Valves (Thailand) Co., Ltd. is a new high-tech enterprise focusing on researching, developing and producing intelligent electric actua-tor. The leading industrial product of the Company is VF series intelligent integrated electric actuator which is the terminal control unit instrument in the automatic control system. By means of local or remote approach, it can open, close and automatically adjust valves. The products mentioned above have been appraised by expert, confirming that such products have characteristics such as stable operation, accurate positioning, reliable quality, convenient installation and debugging, relatively high cost performance and advanced overall performance in international market of similar products. Having been broadly applied in power industry, petrochemical industry, cement, municipal project, steel, metallurgy, desulfurization and denitrification as well as water treatment industries, the products are sold in America, German, India, Indonesia, Thailand, Pakistan, Vietnam, Russia, Ukraine, Taiwan and many other countries and regions.

VFSERIES

VFseries electric actuator is an intelligent product with world-leading quality, advanced tech-nology and powerful function. It adopts advanced SOC technology, large screen LCD technology and digital sensor technology and seals these devices inside the double-seal waterproof shell with a maximum protection grade of IP68. Technologies such as electronic limit and electronic limiting torque guarantee the accuracy of valve; the application of magnetically controlled switch and infrared/Bluetooth remote control technology facilitates the operation without the need of opening the electric cabinet and guarantees safe application in adjustment and control under high risk circumstances; The products are complete in type, with extensive control mode suitability which can provide complete set of actuator product with optimized configuration for customers in terms of different requirements of control system.

RELATED STANDARDS

Standard name	Serial number
Actuator Standard	GB/T 28270-2012 JB/T 8219-1999 BS EN 15714-2
Sealing Standard	IEC 60529-2013/GB4208-2008 GB/T 4942.2-93 IP 68(NEMA,4X/6) IP 65
Explosion-proof Standards	GB 3836.1-2010 GB 3836.2-2010 EN 50014-1997 EN 50018-2000 GB 50058
Electromagnetic Compatibility Standards	GB/T 18286-2000 2004/108/EEC 2006/95/EC
Fieldbus Standard	IEC 61158-2010
System security Standards	IEC 61508-2010 GB/T 20438-2006
Motor Standard	IEC 34 IEC 72 GB 755-2008
Power Standard	EN 50160-2007
Lightning Protection Standard	GB 18802.1-2011 GB 18802.2-2004
Installation and connection size standards	GB12222-2005 GB12223-2005 ISO5210 ISO5211
Environmental testing standard	GB/T2423.4-2008
Electrical wiring standard	GB/T6995.1-2008 GB/T2681-1981

CUSTOMERCOOPERATION SOME PARTNERS

We have already provided VF Series intelligent electric actuators to more than hundreds of companies and won trust and praise of our customers.

中国国电集团公司 CHINA GUODIAN CORPORATION

中国华电集团公司 CHINA HUADIAN CORPORATION

中国电力投资集团公司 CHINA POWER INVESTMENT CORPORATION

華潤電力 CR Power

华能国际电力股份有限公司 HUANENG POWER INTERNATIONAL, INC.

神华国华电力 SHENHUA GUOHUA POWER

中国石化 SINOPEC

中国海洋石油总公司 CHINA NATIONAL OFFSHORE OIL CORP.

中国华能集团公司 CHINA HUANENG GROUP

中国大唐集团公司 China Datang Corporation

北京能源投资(集团)有限公司 Beijing Energy Investment Holding Co.,Ltd

SDIC 国家开发投资公司（国投集团）

神华国能集团有限公司

鲁能集团 LUNENG GROUP

中国石油

中国中化集团公司 SINOCHEM GROUP

INTELLIGENT
ELECTRIC ACTUATOR

FUNCTION CHARACTERISTICS

Convenient parameter remote control setting

Before application, users can complete setting of working parameter, parameter inspection and status inquiry by means of aligning the dedicated infrared setting device with the actuator without opening the cover. In such cases, the setting procedures are simplified on the one hand, and operation safety of equipment is improved on the other hand, particularly for sites where flame proof is extremely necessary.

Abundant on-line display

The product adopts liquid crystal display technology with built-in LCD and displays working states such as torque and valve state, normal valve opening and limit setting of actuator in the form of Chinese character, digit and figure. Besides, it can display important failure information, helping users remove it quickly. Meanwhile, it also provides three high-brightness light-emitting diodes in different colors to indicate valve positions, letting users find out the status of actuator clearly even at night.

Improved autodiagnosis and protection

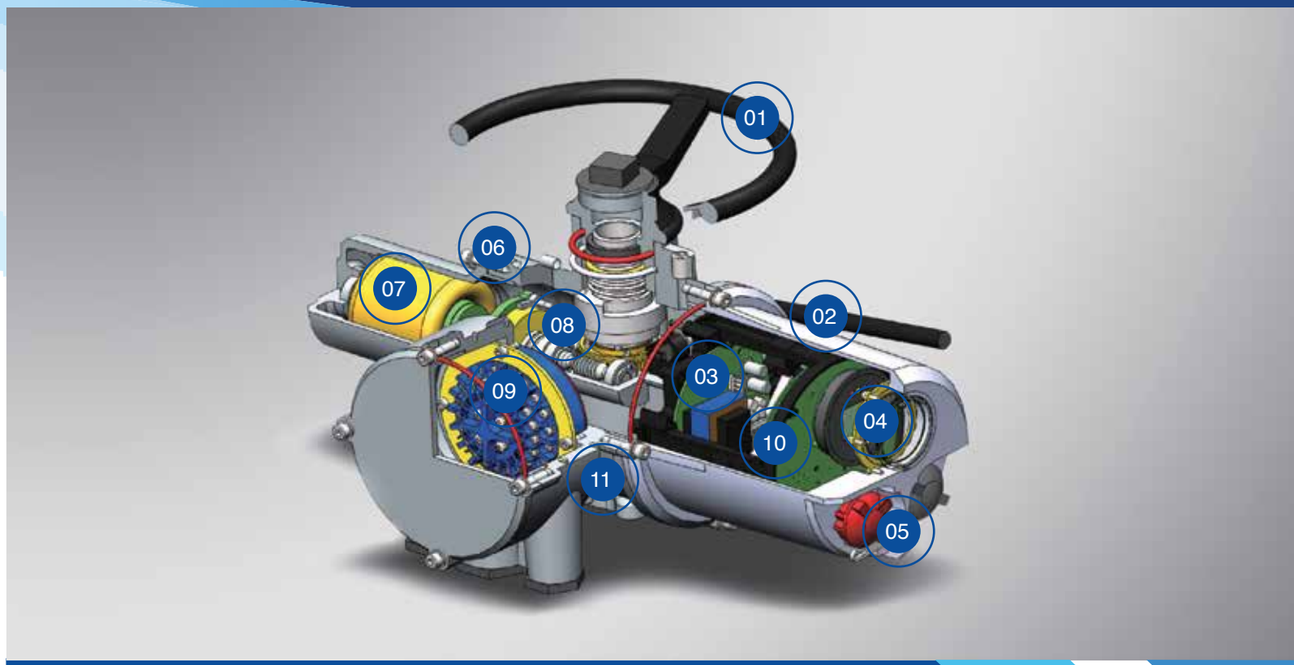
The actuator can diagnose the overload, overheat, overcurrent and power supply status of electric motors and automatically identify phase sequence of three-phase supply, which avoids the reverse malfunction owing to change of wire connection. In addition, the actuator can lock up or operate the preset safety position when under emergency circumstances. The actuator is also allocated with the ability to accurately measure the output torque and protect the valve from getting stuck. If the valve gets stuck, no action will be operated within the preset time period after the starting signal is given out and the power supply of the electric motor will be cut off by the control circuit so as to prevent overheating of electric motor, and alarm will be emitted.

Convenient characters display

Utilizing large-sized dot matrix LCD, users can switch between Chinese and English conveniently. Without the necessity to remember multiple identification characters, users only need to operate in terms of debugging guide and complete the debugging process of actuator easily within several steps.

Strong field adaptability

The entire design adopts double-seal protection. The shell is designed to be completely waterproof, dustproof and “air proof”, with IP68 protection capacity. In the installation and debugging stages, even if the terminal cover of actuator keeps open for a long period, the secondary sealing between terminal disk and internal cavity prevents dust and moisture from entering into the internal cavity of actuator, protects the electric motor and the control circuit from being eroded. Meanwhile, optoelectronic isolation and surge protection technologies are used in the design of internal and external signal interfaces of actuator, which dramatically improve the reliability. The internal control circuit can be divided in terms of functions and the modular construction facilitates maintenance.



INTELLIGENT
ELECTRIC ACTUATOR

01

The solid hand wheel can provide reliable emergency manual operation in the circumstance of power failure.

02

The manual/electric reversion handle can be operated at any time safely. At the same time of pressing down the handle with proper force, turn the hand wheel slowly so as to drive the internal clutch. The clutch can be automatically segregated when the electric motor is power on and is locked up.

03

The product adopts professionally designed output torque measurement system, which is researched and developed from the well-known electric energy measurement technology and can obtain accurate and repeatable torque measured value. It is independent from the change of frequency, voltage and temperature.

04

The LCD on the control panel can provide transient and latest state and valve position in Chinese or in English. Using intuitional menu structure, it can provide calibration and diagnosis information, including torque curve, operation and failure record, electric motor state, local information, hardware data and so on.

05

“halted”/“remote” rotary knob with padlock all adopt isolated magnetic transfer Hall effect device with favorable sealing performance and no cut-through shaft. Meanwhile, such design eliminates troubles which may bring by the fragile reed switch that is easy to break down.

06

The high quality aluminum alloy shell is exquisite and convenient. It is painted with a protective material for the purpose of adapting to the extremely hostile environment, and the coating can be changed to other types as required.

07

The low inertia and high torque electric motor enables the motor to reach peak torque rapidly after starting and experiences in almost no overrun during non-exciting period. Precise temperature switch is embedded in the coil of electric motor, which protect the motor from being affected by environment temperature, maintaining it within maximum temperature capacity. Meanwhile the motor shaft is independent from the worm.

08

The worm transmission chain of the electric motor is simple and exquisite in structure. With constant transmission efficiency and mechanical self-locking function, the motor doesn’t need any brake. The transmission part is infused with long-acting lubricating oil, which facilitates long-term operation without the necessity of maintenance.

09

The double-seal design provides a terminal box which is separated from the control room and completely sealed. Such design can help internal side of actuator separate from the outside, preventing moisture, dust and harmful gas from entering into the actuator and fully protecting the internal components and parts.

10

The lubricable thrust bearing which is designed to improve lifetime and facilitate disassembly can help remove the actuator easily without changing the valve position. The simple and dismountable driving shaft sleeve can be processed in terms of the valve rod so as to connect with the valve.

11

The control unit is composed of control module, supervision module and protection module. Utilizing clip cage-type installation structure, it is allocated with functions of damping and buffering. Besides, the plug-in type connection facilitates rapid and inerrable disassembly.

PRODUCT
SECURITY

Phase sequence protection

By using phase synchronization technology, users needn't consider the phase sequence of three-phase alternating current when installing wire connection of actuator. It can guarantee the correct power supply phase sequence for three-phase electric motor and enable the actuator to operate correctively in terms of commands all the time during operation process.

Motor protection

Default phase or overload of three-phase motor may lead to rapid increase of current, consequently giving rise to the overheating and burning down of electric motor. VF actuator supervises the operating state of three-phase power supply and the electric motor all the time. When default phase, overcurrent and overload happen, it will immediately cut off the power supply and emit alarm information on the LCD interface and in the remote control room.

Valve jam protection

During the process of closing or opening the valve, the actuator executes no torque protection function within a period of 3s to 10s and closes or opens the valve which gets stuck. If the operation mentioned above still fails to close or open the valve, then the actuator will cut off the power supply for the electric motor and emit failure alarm.

Transient reverse protection

When receiving transient reverse signal, the actuator will automatically delay for a while so as to prevent unnecessary abrasion of valve rod, valve seat and gear transmission part owing to impact load, protecting both the valve and the actuator itself. The halted time period can be set up by users on the LCD interface through setting device.

Battery anti-interference protection

The actuator adopts optoelectronic isolation for all the input/output channels and can bear ±2KV rapid transient pulse train interference and 4KV electrostatic discharge impact. The signal end can bear 6KV/3KAsurge impact and the power supply end can support 20KV/1010KA surge impact, which realizes the electric separation of actuator and is allocated with extremely high anti-interference property.

Torque protection

The product uses professionally designed torque measurement system so as to guarantee the overload protection of equipment. Users can set up the protection values for over-torque at closing and opening directions in terms of specific conditions. When the actual torque borne by the actuator reaches or exceeds the established protection value, the actuator will immediately stop the motor and emit failure alarm.

Hydraulic impact/surge protection

To prevent hydrodynamic impact or water hammer effect or surge, it is necessary to extend the operating time of valve. The starting and stopping time of pulse operation which can be independently adjusted can be selected to operate at any part during the valve-closing or valve-opening travel so as to effectively reduce valve operating speed.

PRODUCT
INTELLIGENT

Multi-state display

VF series intelligent actuator can provide friendly information for users through the large screen LCD with high contrast and backlight. The information display is concise and easy to understand, which can help users easily find out the valve position, torque and relevant state of actuator and realize observation and setting clearly even at night. Meanwhile, it is allocated with three LED indicators in the color of green, yellow and red, indicating the valve position and improving the visuality even in hostile environment, and enabling users to be clearly informed of the state of actuator.

Advanced infrared/bluetooth communication

VF series intelligent actuator adopts advanced infrared/Bluetooth communication technology and can realize human-machine interaction through the liquid crystal window. This type of infrared/Bluetooth setting device can complete torque setting, switch limit, control and display function adjustment and setting for actuator, in addition, it provides help menu to make real-time analysis for control signal, valve state, operating state and indication state.

Improved automatic detection and diagnosis

VF series intelligent actuator is designed with intelligent error detection and alarming function, which can make on-line diagnosis for 28 types of failures such as default phase, power failure, over-torque in valve-opening process, over-torque in valve-closing process, overheating of electric motor, overcurrent of electric motor and remote signal loss. When the actuator is power on, it will automatically detect operating circuit so as to guarantee correct operation

Reliable data record

VF series intelligent actuator can communicate with intelligent diagnostor through Bluetooth connection, which is allocated with functions such as detailed parameter acquisition, compilation, batch modification, state feedback and performance intelligent analysis.

Field control

The electric control end cover of the actuator is allocated with two selectors, one is mode knob which is used for selection of local/halted/remote and can be locked at each position with padlock; the other is operating knob which have two positions, indicating “on” and “off” positions of valve; when the mode knob is at “local” position, users can control the actuator to operate toward opening or closing direction by turning the operating knob to “on” or “off” position respectively. Local control can be selected through infrared setting device, which includes dedicated opening ,halted and closing button and can be operated within 1 m distance from the actuator.

Remote control

The central control room can connect with the field actuator through external wire connection and then control the actuator by means of switch value, analog value and field bus communication.DC Switch value control: Six input terminals are allocated, namely opening, closing, halted/holding, emergency protection (ESD), opening interlocking and closing interlocking. Remote control input adopts optoelectronic isolation and lightning protection and surge protection, which can withstand 6KV high voltage. The control is realized through the 24V DC power supply provided by the actuator, with the positive pole serving as switch and negative pole grounded, or 20-60V DC from external supply or control power supply within 60-220V AC. Remote control can be configured to be holding or jogging Analog value control: The analog value proportional controller inside the actuator can help actuator automatically positioning valve in terms of analog current, voltage and potential signal. It can be configured to be locking-up, closing and opening when the analog signal is lost.

Bus control

The field bus communication board inside the actuator connects and communicates with the remote control room in terms of the standard protocol of field bus and implements real-time operation in accordance with the commands issued by the remote control room.

Emergency protection (ESD) control

Emergency protection (ESD) can be configured to be nonuse, high level validity or low level validity, opening or closing of valve, electric motor temperature protection or automatic bypass arrangement. ESD control will surpass any existing local or remote control signal. ESD can also be configured to surpass local halted or interlocking as required, and it is possible to separate ESD control system from operating control.

Interlocking control

It is possible to set two independent signals for controlling of some high safety operation. Under such mode, the actuator can response and act only when two signals, such as opening signal and opening interlocking signal are provided simultaneously. If the actuator receives only one signal, it will hold the position or be halted. Besides, opening and closing of valve can be separately set as interlocking or non-interlocking.

Remote analog valve position feedback

The current inside the valve position transmitter can provide a non-contact, internal power supply, and the valve position is proportional to the 4 ~ 20 mA analog signal, can choose the minimum signal corresponding to the full close or full open position, and automatically adjust the zero and full. Also can choose the external power supply.

Remote contact indication

The actuator is allocated with four lockable passive contacts, namely S1, S2, S3 and S4. Each contact can be independently configured to be any of the following signals through infrared setting device:

- Valve position full opening, full closing or middle position (1-99%opening)
- State valve is opening, is closing, is operating, selecting local halted, selecting local, selecting remote, starting valve opening or valve closing interlinking, starting emergency protection (ECD), low battery.
- Valve alarm over-torque in valve-opening process, over-torque in valve-closing process, stall of electric motor, manual wheel operation of actuator
- Comprehensive alarm loss of actuator internal parameter, overheating of electric motor, overcurrent of electric motor, over-torque in valve opening process, over-torque in valve-closing process, lose of remote analog, stall of electric motor, power failure, error of limit parameter, limit exceeding of valve, position sensor failure, torque transducer failure, ESD signal is effective and each contact can be configured as “normally open” or “ normally close” with a rated value of 5A, 250V AC/30V DC.

(Optional)
If the remote indication contacts mentioned above are not adequate, the additional indication contact module can provide another four transferable contacts, namely S5, S6, S7 and S8. Each contact can be configured independently through infrared setting device (the configuration function is identical with that of the contacts mentioned above)

Supervisory relay

An independent relay SO with passive transferable contact can be used to supervise the effectiveness of electric apparatus of the actuator. The rated value of the contact is 5A, 250V AC/30V DC.

- Power supply single phase or multiphase power down
- Loss of control power supply
- Selection of local control
- Selection of local halted
- Overheating of electric motor
- Torque sensor failure
- Over-torque in valve-opening process
- Over-torque in valve-closing process

Supervisory relay

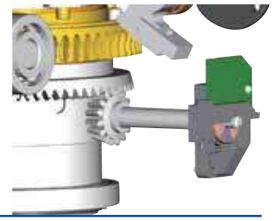
When there is power failure, the backup battery will provide power supply for relevant circuit, which enables the actuator to provide various kinds of information of valve position, and records all the mechanical operation relating to the actuator in the built-in data recorder; the liquid crystal display will continue to display working state, while the LED backlight and valve position indicator will not work. 9V lithium battery with a service life of as long as five years is applicable.

Frequency speed control (optional)

Frequency speed control technology can start the electric motor at a low speed, reduce starting current and decrease influence on the power grid; besides, it enables the electric motor to reach the target with a gradually decreasing speed when getting close to the target position, which dramatically improves the positioning accuracy of valve and is suitable for various frequency occasions.

HALL CODING TECHNOLOGY

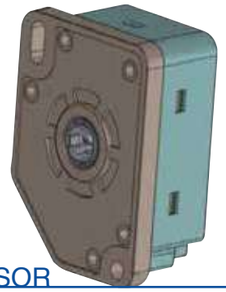
- A pair of bevel gear is driven at the same time when the output shaft rotates, and a six-antipode magnetic ring is allocated at the end of the bevel gear.
- Two Hall elements, which formulate 90° electric angle, are installed around the magnetic ring, inducing the alternation of magnetic ring field and forming inducing pulse signal, which can accurately acquire many parameters such as displacement, rotation direction and speed. The position determination is carried on all the time and each change is inspected and stored.
- Such technology can accurately determine the rotation direction, valve position and change of position
- Working in a stable and reliable way with high measurement accuracy and strong anti-interference capacity, the technology will not be affected by change of external environment temperature
- Taking data samples in a contactless way, it has a long service life without abrasion



POSITION SENSOR

ABSOLUTE CODING TECHNOLOGY

- The absolute coding technology used by VF series electric actuator can operate uninterruptedly and is 100% repeatable, the position information provided by which is accurate without the limitation of power supply
- The single-ring adopts 12-bit counting with an accuracy of 0.08°
- The multi-ring adopts 6-stage gear counting, reaching a maximum counting circles of 4096 (the counting value in 4096 circles rotation of driving sleeve is unique)
- The redundant circuit of the encoder can guarantee that the encoder can work normally even if 50% of the components and parts break down



POSITION SENSOR

Replacing the mechanical torque switch with electric torque detection

- The cut-off torque can be set as 1% of step length independently on two directions (forward direction/ reverse direction)
- The electric torque detection device includes effective power detection circuit, electric motor angular speed detection circuit, control circuit and CPU microprocessor. During operation, the microprocessor can detect the effective power and angular speed continuously, and calculate the actual torque so as to compare with the preset cut-off torque, once the actual torque exceeds such preset value, CPU will immediately cut off the power supply for electric motor and output failure alarm information to realize over-torque protection goal. Consequently the actuator motor won’t be burnt down owing to locked rotor and the valve won’t be damaged owing to the over-torque of actuator
- The contactless torque detection needs no mechanical torque switch, saving the trouble of mechanical abrasion and extending service lif
- When outputting torque, there is no need to open the cover, because the setup work can be completed easily and conveniently with the help of infrared setting device
- With high accuracy, it won’t be affected by factors such as temperature and voltage fluctuation and can completely provide reliable protection for field valve

HUMANIZZED DESIGN

The modern actuator can adapt to the special application demand by means of setting and collecting large quantity of parametersThe supervision and diagnosis functions realize the collection of actuator state signal and operating parameter signal

As for VF, clear and intuitive user interface facilitates data storage and retrieval.Setup of all parameters of the equipment can be completed through hand-hold infrared or Bluetooth setting device.The LCD interface is designed in terms of the visual and operational habits of users and display torque, valve opening, limit setting and failure alarm information in the form of text and graph.

Password protection

Password protection is an important safety feature which can effectively prevent unlicensed user from changing significant equipment information.

1 LCD interface

The LCD interface is designed in terms of the visual and operational habits of users and displays torque, valve opening, limit setting and failure alarm information in the form of text and graph.

2 Indicator

As a visual signal used to display the state information of actuator, the indicator is allocated with strong penetrability in hostile environment and the LED indicator can be clear and recognizable even at night with long distance.

3 Infrared/Bluetooth receiving window

It can be programmed and configured through hand-hold infrared or Bluetooth setting device in terms of customer demand.

4 Selection of control mode

The selective switch “remote”-“halted”-“local” installed on the local operating device can be used to set up remote operation (remote control) or local operation (local control) or halted mode.

5 Local electric operation

The operating switch “on”-“off” installed on the local operating device can be used to open or close actuator locally.

6 Display of valve position

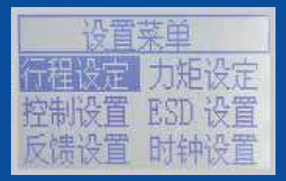
Even when observing from long distance, the valve position is still clearly indicated on the large-sized LCD interface.

7 Display of operating command of switch value

Operating command issued by DCS system can be displayed on the LCD interface. The effective signal will be reversely displayed.

8 Display of adjustment operating command

The adjustment operating command issued by the DCS system can be displayed on the LCD interface and the current signal value is displayed at the bottom of the LCD interface.



9 Display of diagnosis/supervision

During the operation period of equipment, the environment conditions and operating state are continuously supervised. Once the actual value exceeds allowable range, such as the overheating of electric motor, a warning signal will be generated and displayed on the LCD interface.

10 Main menu

The main menu is divided into guide, setup, advance and information, which can change and set up the operating parameters of actuator.

11 Setup menu

The setup menu can view and change travel, torque protection, control method and feedback method conveniently.

12 Non-intrusive setup

Users can complete terminal position and torque setting on the LCD interface without the necessity of removing the end cover of actuator.

13 Information inquiry

It is convenient to check the operating state, history operation, alarm record and software and hardware version of the actuator.

Communication technology

Field bus is a development tendency of modern industrial control technology and cost reduction is the most critical factor affecting the wide application of field bus technology. In addition, serial communication in process automation is regarded as the most innovative idea which is used to control field equipment and actuator. The improvement of industrial benefits, such as remote parameter setup or industrial asset management cannot be realized without field bus technology. Allocated with field bus interface, VF series electric actuator utilizes world-leading technologies.

COMMUNICATION TECHNOLOGY

Modbus PROFIBUS HART COMMUNICATION FOUNDATION FOUNDATION

PROFIBUS

Profibus is a perfect field bus version: Profibus PA is applied in process control area and Profinet is a new generation of automation bus standard for data transmission based on Ethernet and Profibus DP, which is mainly applied in factory, power plant and automation equipment. With simple and durable physical layer (RS-485) and different versions DP-V0 (rapidly circular and determined data exchange) and DP-V1 (non-circular visit of equipment parameter and diagnosis data), Profibus DP is the most ideal solution for automation of modern factory.

- Comply with international standard (www.profibus.com)
- Promote global application
- A large amount of equipment have been installed
- Promote standardization integration within DCS (FDT, EDD)
- Promote extensive equipment selection scope

VF electric actuator allocated with Profibus DP communication module

- Support Profibus DP-V0 and DP-V1
- Support high-speed data exchange (as fast as 1.5 Mbit/s) and realize communication with Category 1 master station regularly through DP-V0 service and with Category 2 master station irregularly through DP-V1 service
- It is possible to use PDM tool to download all the parameters, diagnosis data, state information and torque curve of actuator anddisplay them on various function pictures and use PDM tool to operate the actuator directly
- All the setting data (such as cut-off torque, adjustment accuracy and so on) can be displayed on the pictures and uploaded to the actuator through a shortcut key
- Realize DCS integration through FDT or EDD
- The cable length can reach about 10km (the cable length between two actuators can reach 1200m without repeater)
- At most 126 field equipment can be connected
- Allocated with standard redundant linear topological structure
- Overvoltage protection can reach 6kv and PNO (Profibus Nutzer Organizaton) operation certification has been acquired

Modbus

Modbus is a relatively simple but multi-functional field bus protocol which provides all services required by factory automation (such as simple binary information, analog value, equipment parameter or exchange of diagnosis data)As for factory automation, simple while solid physical layer RS-485 is commonly used.On the basis of this physical layer, Modbus supports various sorts of message formats (such as Modbus RTU or Modbus TCP) and simplifies the vertical integration in the automation system of host

- International standard
- Simple protocol
- Wide application
- Adequate to complete several simple automation tasks to a great extent

VF series products allocated with Modbu communication module

- MODBUS RTU - RS485
- Half-duplex, asynchronous mode, and multi-point communication
- Rapid data exchange with a Baud rate of 1.2k-115.2kbits/s
- STP, serving as transmission media, with a cable length of about 10km (the length between two actuators can reach 1200m without repeater)
- 8-bits data format, 1 stop bit, and no parity check (parity check is optional)
- Connection with as many as 247 sets of equipment
- Modbus (slave station) communication protocol, the address of which can be set up via the menu of actuato
- Redundant module design which can composite bus loop, when disconnection, short circuit or ground fault happens, the equipment can work normally
- Additional parallel communication is optional to guarantee PLC security

Foundation Fielebus

Putting aside the traditional master-slave concept, the Foundation Fielebus (FF) allocates tasks to relevant equipment in the automation system. Therefore the FF is not the traditional field bus.

- Information won't be two-way exchanged between field equipment and the host: generally all the information is open to all system members.
- There isn't any center host used to process field bus equipment data.
- The bus communication scheme is controlled by the "Link Active Scheduler" (LAS), ensuring the communication of field equipment.
- Standardized functional module integration passes through DCS

VF series electronic actuator allocated with FF bus module

- Support FF-H1 protocol
- The physical layer is IEC61158-2,2
- The cable specification is A (such as Belden 3076F)
- Data exchange rate is 31.25Kbit/s, and the typical periodic time is between 40ms and 2s, depending on the number of equipment
- At most 31 sets of actuators can be connected on each circuit without repeater (with a maximum circuit length of 1900m) and at most 4 sets of repeaters can be connected on each circuit
- As many as 240 sets of equipment can be connected
- HSR bus is connected with DCS
- Connecting device is linked with HSE-H1 bus
- Terminal box supports signal amplification and branches

HART

HART (Highway Addressable Remote Transducer) is a communication protocol used between field intelligent instrument and control room equipment developed by ROSEMOUNT IN 1985. At present it has become the industrial standard of global intelligent instrument.Adopting the frequency-shift keying (FSK) signal based on the Bell 202 standard, HART protocol overlays a voice frequency digital signal with a range of 0.5mA on the basis of 4-20mA low frequency analog signal and carries out bi-directional digital communication. It is a transitional product in the transformation process from analog system to digital system, therefore having relatively strong market competitiveness during current transition period and gaining rapid development.

- It refers to the openness interconnection model of International Organization for Standardization, using physical layer, data link layer and application layer of OSI standard.
- Adopt half-duplex communication mode on the basis of master-slave agreement principle
- Major variables and control information are transferred through 4-20mA signal, measurement, process parameter, equipment configuration, calibration and diagnosis information can be visited through HART agreement.
- Universal message structure

VF series electronic actuator allocated with HART bus module

- Data exchange speed is 1.2 Kbit/s
- In the multi-point system, as many as 15 slave equipment an be connected on a pair of cable
- Have powerful command set
- It is possible to use DDL to describe equipment features
- It is possible to configure double master-slave equipment system

CENTRALIZED
MANAGEMENT SYSTEM

Field bus control

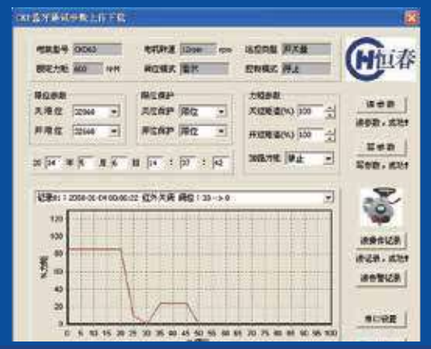
Field bus control is the development tendency in current industrial control area. VF series actuator product can provide the most comprehensive network communication selection for users and HCBUS-1000 master station is able to integrate the actuator in any automation environment perfectly:

- As the debugging equipment of independent actuator network
- As network supervisor, controlling communication with field equipment, including redundant data channel
- As data concentrator, processing data of actuator conveniently and only transferring information required by normal operation to the control room
- As diagnostic tool to support failure recognition and correction
- It is particularly designed for the control of VF series actuator and the communication is carried out in terms of standard Modbus RTU bus
- The redundant property can guarantee the breakage or short circuit won't affect the operation of electric actuator
- The bus controller is composed of master controller and hot backup control, which can communicate with the control room through Modbus RTU agreement and carry out RS232 communication with the upper computer operating supervision software, so as to guarantee normal working under the circumstance of DCS system off-line (or failure)
- The system is a series of multi-channel modules. By means of RS-485 redundant ring topology, each module can control 31 sets of field actuator independently.
  Each module is a bus sector with a communication distance of 1200m (when the distance is longer than 1200m, it is necessary to add signal repeater)
- The Baud rate of each bus sector can be set up independently to be 100, 300, 600, 1200, 2400, 4800, 9600 and 19200, among which 9600 is the factory default
- Each actuator of each bus sector is allocated with a settable address, utilizing twisted-pair network for communication, implementing opening, closing, halted, emergency closing (ECD) and opening to certain position commands and making use of the identical communication network to transfer all the states and alarm diagnosis information of actuator (including the open circuit, ground connection and short circuit failures of loop communication)
- As many as 247 sets of equipment can be connected, state information of actuator can be displayed clearly and briefly and full load operation is allowable.

Bluetooth Communication Control(Optional)

As an alternative for infrared communication, Bluetooth technology is adopted by Yangzhou Hengchun. Computer or PDA which installs VF dicated Bluetooth communication software can realize wireless communication with the actuator:

- The communication is more convenient: When using Bluetooth communication, users needn't put the computer in front of the actuator, instead, they can move the computer at will without worrying about the negative influence on communication effect
- The setup is easier: It is possible to complete torque setting and adjustment and setting of switch limit, control and display function of actuator under any working condition, call out help menu and carry out real-time analysis for the control signal, valve state, operating state and indication state
- The application is simpler: Computer or PDA which uses Bluetooth communication can automatically find out all the actuators within 10m. Each actuator is allocated with specific number and password



INTELLIGENT
ELECTRIC ACTUATOR

PRODUCT SELECTION

SERIES OVERVIEW

VF M series multi-turn electric actuator

Torque range is between 40 and 3,000 N.m
Output speed is between 8 and 144rpm
IP68 standard configuration
On-off Type and Regulating Type
Torque can reach 50,000N.m when gear reducer is configured

VF L series linear electric actuator

Mainly applied in control valve
The thrust scope is between 1kN and 100kN
The maximum travel can reach 250mm (can be customized as required)
Linear speed is between 1.6 and 6.4mm/sec

Other all-weather solutions

- 35-100% electric motor working system
- Execute one action every 2-3 seconds
- Provide quarter-turn, linear travel, multi-turn and rocking movement

Separated control cabinet

When the actuator is required to be installed on the following positions, separated control cabinet configuration is of great importance:

- On place where operation is quite difficult (such as high place) On equipment which vibrates severely
- On place where the temperature is extremely high or low (as high as 120120°C or as low as -70°C
- The maximum distance between the control cabinet and the actuator is 50m

VF Q J Series Quarter-turn Electric Actuator

Torque ranges from 40 and 500,000N.m
IP 68 standard configuration
On-off Type and Regulating Type
Suitable for Butterfly Valve, Ball Valve, Plug Valve, etc.

When the actuator is required to be installed on the following positions, local control cabinet configuration is of great importance:

- On place where operation is difficult or dangerous (such as high place, trestle and on board)
- For consideration of security and fire protection requirement (it is appropriate to carry out simple control in the control cabinet for the field actuator)
- Explosion proof product is available, which is suitable for flammable and combustible environment
- Allocated with a protection grade of IP67 (outdoor installation can be allocated with rain cover

Technical parameter

Overall specification	Torque range	Multi-turn Direct: 40-3000N.m With gear box: Max. 50,000Nm Quarter-turn Direct: 40-1000Nm With gear box: Max. 500,000Nm
	Control type	On/Off, Regulating, FieldBus
	Shell material	VF180/VF250/VF300 Aluminum casting VF180/VF250/VF300 adopts nodular cast iron
Shell protection	Protection grade	Standard configuration: IP68
	Environment temperature	Standard: -30...+70°C Hight temperature: -30....+150°C Low temperature: -50...+70°C
	External anti-corrosion protection	Standard coating: Special anti-corrosion protection used in ocean and chemical engineering corrosion environment can be selected All the fastening bolts on the end cover adopt stainless steel bolt
	Double seal protection	The control section of actuator is completely separated from the connection box so as to protect the electronic components
	Explosion proof grade	Exd II BT4/CT4
Motor	Motor technical	Fully sealed the air-cooled squirrel-cage motor (ac) Insulation class F(H can be customized) Built-in overheating protection shielded ball bearing in front and back,easy to dismount
	Motor working system	S4 Motor by standard IEC34-1(periodic start and electric braking) Short-time duty: used for on/off operation,rated operation time 15min S5-50%: used for adjustment operation-maximum boot times are 1200/hour
Mechanical specification	Gear drive	Self-locking can be realized at all speeds

Technical parameter

Mechanical specification	Hand wheel	The hand wheel doesn't rotate along with the electric operation Automatic separation and reunion of hand wheel can be realized without manual operation Hand wheel operating torque conforms to GB/T 28270 standard
	Output flange	The flange of multi-turn actuator conforms to ISO 5210/GB 12222 standard The flange of quarter-turn actuator conforms to ISO 5211/GB 12222 standard
	Output shaft	Special flange is optional for top size of valve Adopt dismountable sleeve Large torque quarter-turn gear box: processing 1/4 segment directly
	Lubrication	The lubrication of actuator is effective along the whole service life and there is no need for special regular maintenance
Electric specification	Power supply	Multiple Power supply can be selected: Three Phase or Single Phase Maximum 690V 50Hz or 60Hz
	Cable inlet	Standard configuration: Ordinary type: 1 M48*2 and 2 M33*1.5 Explosion proof type: 1 NPT 1.5" and 2 NPT 1" (redundant bus can be increased to 3) If there is any need, please contact the marketing department Sunflower terminal disk Internal and external grounding terminal
	Fusing protection	Self-recovery fuse
	Insulation properties	The insulation resistance between the input terminal and the shell shall not be lower than 20MΩ The insulation resistance between the input terminal and the power supply terminal shall not be lower than 50Ω The insulation resistance between the power supply terminal and the shell shall not be lower than 50MΩ

Technical parameter

Sensor	Location	Measure movement on the main shaft directly (direct mechanical connection) Hall relative coding technology or absolute coding technology Measurement range: 1.5-4096 circles of rotation of drive sleeve
	Torque	Detect torque by measuring the useful power and motor current of three-phase power supply. Set the range:40%-120% of actuator rated torque of Measuring range:10%-100% of the actuator torque
Control	Motor Control	Integrated motor reversing starter(AC contactor or Solid State Relay), automatically identify the power phase.
	Display	LCD display with back-light
	Switch remote control	Control command: Voltage: 10-36VDC/60-250V AC Dry contact (using the 24VDC auxiliary power supply inside the actuator) Isolate with photoelectric coupler Minimum pulse interval: 30ms Rotation reversing time: 1s (factory setting range: 1-10s)
	Signal relay	4 relays: output can be selected among 27 information Contact configuration: normally open or normally close Minimum current: 40mA for 5V Maximum current: 5A for 250 V AC or 5A for 30 V DC (inductive load) Relay board is optional
	Supervisory relay	Normally close, live part, SPDT contact Minimum current: 10mA for 5V Maximum current: 5A for 250V AC or 5A for 30V DC (inductive load)

Technical parameter

Control	Proportional control adjustment	Input (setting) and output (feedback) signals are completely separated Signal setup (optional) Input signal: 4-20mA Output signal: 4-20mA Input signal: 0-10V Output signal: 0-20mA (0-10V with external resistance) Analog input Current: Impedance 250Ω Analog output Current: Maximum acceptable load under 24V DC is 750Ω Basic error: ±1% Return difference:≤1% Dead zone: 0.5%-10.0% adjustable Damping characteristics: No oscillation
	Signal battery	Used to display and update switch position information (through signal relay) during power failure
Setting	Setting	Non-intrusive infrared/bluetooth communication setup All the actuator setup and parameter are stored in a nonvolatile ferroelectric memory with password protection
	Field Switch	Setup can be completed through filed display screen and rotary knob No special tool is required Local and remote rotary knobs can be locked Field rotary knob can select local, remote or halted mode and local electric operation can be realized with the help of field rotary knob under local mode
	EC command	The actuator conforms to the following requirements: 2004/08/EMC electromagnetic compatibility 2006/95/EC low voltage The following coordinative criteria General emission standard for industrial environment EN61000-6-4 General anti-interference standard for industrial environment EN61000-6-2 Rotating electric motor standard EN60034-1 Protection grade provided by sealing shell (IP code)EN60529

Gear bpx

Multi-turn output

Multi-turn output-JBL series straight gear reducer gearbox

- Complete enclosed transmission unit;
- Built-in grease increases service life and guarantees sealing;
- Broad gear ratio can support any input ratio with wide application;Dismountable and easy processing drive sleeve
- The input shaft is installed on the ball bearing so as to improve transmission efficiency
- Protection grade is IP68;
- Working temperature is between -40°C +120°C;

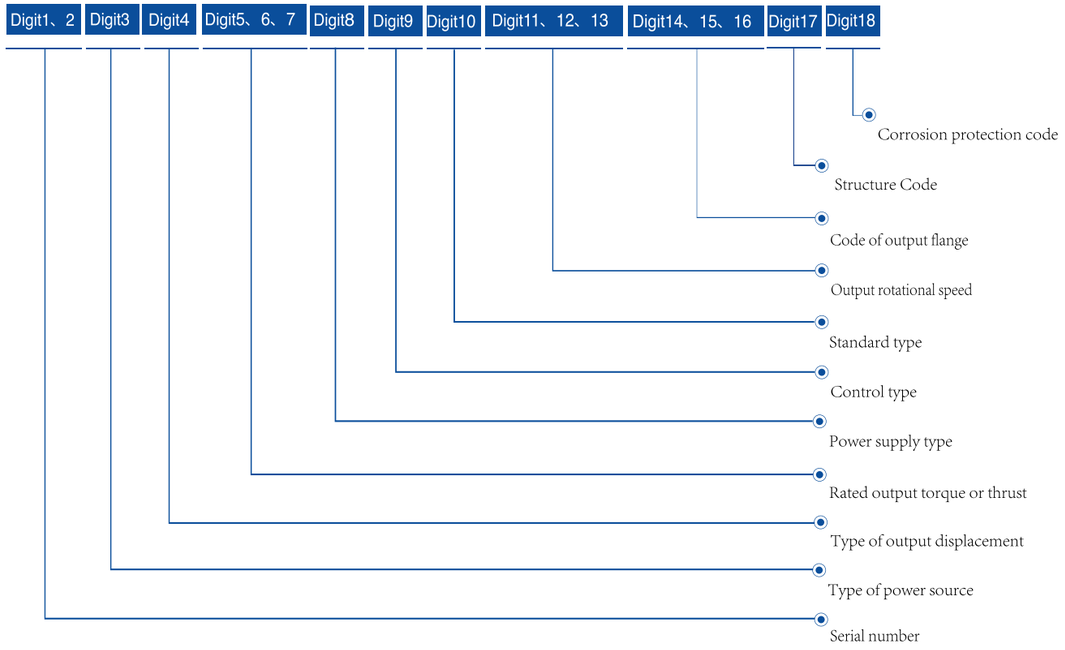
Quarter-turn output

JW series worm gear reducer can provide quarter-turn with lower rotational speed and larger torque, and the torque output can reach 500,000N.m

- Complete sealing transmission unit;
- Built-in grease increases service life and guarantee sealing;
- Broad gear ratio can provide any input ratio with wide application;
- The angle and direction of worm support can be self-locked;
- Dismountable and easy processing drive sleeve facilitates processing of connections matched Mechanical limit of 0-90°
- Protection grade is IP68;
- Working temperature is -40°C+120°C;

DESCRIPTION

The model of VF series intelligent electric actuator is a 11-bits word string composed of numbers and letters without any space.



Digit 1、2: Serial number of actuator includes capital letters VF

Digit 3: Type of power source of actuator includes D-electric; and Q-pneumatic

Digit 4: Type of output displacement of actuator, non-multi-turn; M-linear travel; J-quarter-turn

Digit 5、6、7: Rated output torque and trust of actuator, torque: Nm 1/10 indicates no zero filling
Thrust: 1/KN indicates
(in terms of three-phase supply and 24r/min standard)

Digit 8: Type of power supply of actuator
D-single phase I- three phase

Digit 9: Type of control of actuator
A-customize
B-switch value control, analog value feedback
C-switch value control, switch value feedback
D-analog value control, analog value feedback
M-Modbus protocol
F-FF field bus
P-Profibus field bus
H-HART
N-Profinet

Digit 10: Standard type of actuator: non-standard; B-explosion proof IIB; C-explosion proof IIC; S-frequency; Q- frequency explosion proof;

Digit11、12、13: VF series: output rotational speed of actuator (r/min) -6,12,18,24,36,48,72,96,144,192
VF J series: Code of connecting flange of actuator:F07-F60(ISO5210) or No. 2-7 flange (JB2920)

Digit 14、15、16: VF series: Digit 14, 15 and 16 constitute the code of connecting flange of actuator, F07-F40(ISO5210) or No.2-7 flange (ISO5210)
VF J series: A: flange (direct connection); Z: spherical hinge (connecting arm)

Digit17: Actuators Corrosion protection code:None-- corrosive environment,F-- corrosion environment: actuators used in Corrosive air with High humidity, high salinity and high pollutant concentration (such as: Beach, cooling towers, chemical plants)

Digit18: Actuators Structure Code:None-- Overall structure;T-- Split structure. The circuit boards and other control member is placed in a separate control box; the entire actuator is constructed by Electric head, control box and wiring harness connector, and mainly used in high temperature environment that need for separate control ;

Performance Summary

Three Phase Performace Summary(380V/50Hz)

Model	Output		Power	Rated Current	(ISO5210)/（JB2920) Flange
	Rated Torque	rpm			
VF4	40	24	0.1	1.1	F10/2
VF10	100	24	0.25	2.4	
	80	48	0.5	2.6	
VF16	160	24	0.4	2.6	
	120	48	0.6	4	
VF25	250	24	0.63	2.8	F14/2/3
	200	48	1.0	3.3	
	160	96	1.6	4.5	
VF40	400	24	1.0	4.4	F16/3/4
	300	48	1.5	6.8	
	200	96	2.25	7.6	
VF60	600	24	1.5	5.7	
	450	48	2.25	7.6	
	300	96	3.0	8.4	
VF100	1000	24	2.5	11.5	F25/4/5
	800	48	4.0	14.5	
	600	96	6.0	16	
VF120	1200	24	3.0	12.5	
	900	48	4.5	16	
	700	96	7.0	18	
VF150	1500	24	3.0	15	F30／7
	1000	48	6.0	25	
	1000	72	7.5	25	
	750	96	7.5	25	
	650	144	7.5	25	
VF180	1800	24	4.5	21	
	1350	48	7.5	35	
	1350	72	11	35	
	1000	96	11	35	
	850	144	11	35	
VF250	2500	24	6.0	25	
	1800	48	11	35	
	1500	72	13	40	
	1300	96	13	40	
	1000	144	13	40	
VF300	3000	24	7.5	22	
VF500	5600	12	7.0	18	F30/F35／8
	4200	16	7.0	18	
	3500	12	4.5	16	
VF800	8500	8	7.0	18	F35／9
	5600	12	7.0	18	
VF1000	10000	4	4.5	16	F40／10

VF Series Modulating Multi-turn Electric Actuator Performance Data Sheet(For Frenquency 600-1200 per hour)

Model	Output			Power	Rated Current	Flange
	Adjusted Torque	Maximum torque	rpm			
VF4	20	40	24	0.1	0.5	F10/2
	15	30	48	0.25	1.1	
VF10	50	100	24	0.25	1.1	
	40	80	48	0.6	2.1	
VF16	80	160	24	0.4	2.7	
	60	120	48	0.5	3.3	
VF25	130	250	24	0.65	2.8	F14/2/3
	100	200	48	1.0	4.6	
VF40	200	400	24	1.0	5.5	F16/3/4
	150	300	48	2.1	7.5	
VF60	300	600	24	1.5	5.8	
	230	450	48	2.25	7.6	
	150	300	96	3.0	8.2	

VFJ Series Quarter-turn Electric Actuator Performance Data Sheet(integration)

Model	Output		Power	Rated Current	Flange
	Rated Torque	Travel Time			
VFJ5	50	25	13	0.3	F07/F10
	40	12	20	0.4	
VFJ10	100	25	25	0.6	
	80	12	40	0.8	
VFJ16	160	25	40	0.9	F10/F12
	120	12	40	1.0	
VFJ20	200	25	40	1.0	
	160	12	45	1.1	
VFJ30	300	25	50	1.1	
	240	12	50	1.2	
VFJ40	400	25	60	1.2	F10/F12
	320	12	60	1.3	
VFJ50	500	25	60	1.4	
	400	12	60	1.7	
VFJ60	600	25	90	1.5	
	500	12	90	1.8	
VFJ80	800	29	140	2.0	F12/F14
	600	15	140	2.2	
VFJ100	1000	29	180	2.4	
	800	15	180	2.8	

VF Series Quarter-turn Electric Actuator Performance Data Sheet(Combination)

Actuator Model/Gearbox Model	Rated Torque Scale	90 All travel Switch Time	Output Flange
VF4/JW60A	180 ~ 500	25	F10
VF10/JW80A	500 ~ 1000	25/12.5	F14
VF10/JW100A	1000 ~ 3000	44/22	F14/F16
VF25/JW125A	3000 ~ 6000	44/22/11	F16/F25
VF25/JW140A	6000 ~ 10000	88/44/22	F25/F30
VF60/JW200A	10000 ~ 20000	44/22	F25/F30
VF60/JW250A	20000 ~ 35000	82/41/21	F30/F35
VF100/JW280A	35000 ~ 65000	80/40/20	F35/F40
VF100/JW315A	65000 ~ 135000	160/80/40	F40
VF250/JW450A	135000 ~ 250000	160/80	F48
VF300/JW500A	250000 ~ 500000	205	F60

Performance Summary Three Phase Performance Summary(380V/50Hz)

VF M Series Linear Electric Actuator Performance Data Sheet (For Frenquency 600-1200 per hour)

Actuator Model	Output rpm	24	48
VFM4	Drive screw diameter	24×4	
	Max.Linear Torque	100	
	(ISO 5210) Flange	F10	
	Thrust	4.0	3.0
	Linear Speed	1.6	3.2
	Rated Clost Torque	8.2	6.2
VFM10	Drive screw diameter	26×5	
	Max.Linear Torque	100	
	(ISO 5210) Flange	F10	
	Thrust	10	6.6
	Linear Speed	2.0	4.0
	Rated Clost Torque	22.0	14.0
VFM16	Drive screw diameter	26×5	
	Max.Linear Torque	150	
	Flange	F10	
	Thrust	16.0	10.5
	Linear Speed	2.0	4.0
	Rated Clost Torque	33	22
VFM25	Drive screw diameter	32×6	
	Max.Linear Torque	150	
	Flange	F10	
	Thrust	25	17
	Linear Speed	2.0	4.0
	Rated Clost Torque	52	36
VFM40	Drive screw diameter	36x6	
	Max.Linear Torque	250	
	Flange	F14	
	Thrust	40	27
	Linear Speed	2.4	4.8
	Rated Clost Torque	85	56
VFM60	Drive screw diameter	36×6	
	Max.Linear Torque	250	
	Flange	F14	
	Thrust	60	40
	Linear Speed	2.4	4.8
	Rated Clost Torque	125	86
VFM100	Drive screw diameter	38x8	
	Max.Linear Torque	250	
	Flange	F16	
	Thrust	100	70
	Linear Speed	3.2	6.4
	Rated Clost Torque	230	160

Performance Summary Single Phase Performance Summary(220V/50Hz)

VF Series Multi-turn Electric Actuator Performance Data Sheet

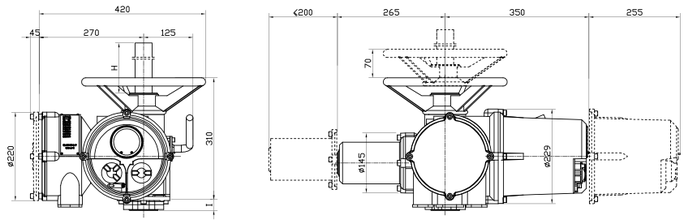
Actuator Model	Output		Power(KW)	Rated Current(A)	Flange (ISO5210)/（JB2920)
	Rated Torque（Nm)	rpm(r/min)			
VF10	40	24	0.2	3.8	F10/2
VF25	150	24	0.75	6.8	F14/2/3
	100	48	1.0	7.5	
VF40	200	24	1.0	7.8	F16/3/4
	130	48	1.3	8.0	
VF60	250	24	1.25	8.3	
	150	48	1.5	8.5	

VF Series Intergerated quarter-turn electric actuator performance data sheet

Actuator Model	Output		Power(W)	Rated Current(A)	Flange (GB12223)/(ISO5211)
	Rated Torque (Nm)	Travel Time（S)			
VFJ5	50	25	20	1.0	F07/F10
VFJ10	100	25	30	1.1	
VFJ30	200	25	60	1.4	F10/F12
VFJ60	300	29	90	2.7	
VFJ80	600	29	140	2.0	F12/F14
VFJ100	800	29	180	2.4	

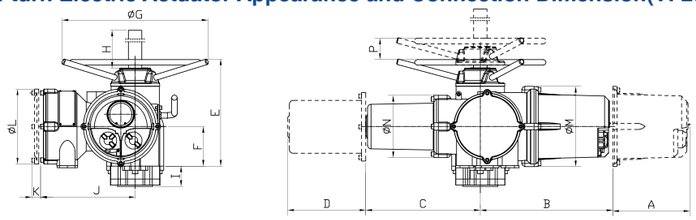
Electric Actuator Appearance and Connection Dimension

VF Series Multi-turn Electric Actuator Appearance and Connection Dimension(CVF~VF16)



Model	Standard	Flange	I	H Customized According to Stem
VF4/VF16	GB/T 12222 ISO 5210	F10	Torque Mode 40 55 Thrust Mode 55	120.250.500
	JB2920	2	70	120.250.500

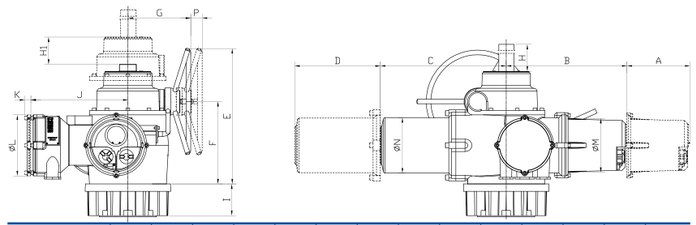
VF Series Multi-turn Electric Actuator Appearance and Connection Dimension(VF25~VF90)



Mode	A	B	C	D	E	F	P	J	K	ΦL	ΦM	ΦN	ΦG
VF25	255	385	340	240	315	120	60	280	45	214	229	178	440
VF40-VF60	255	400	360	260	365	125	60	300	45	214	229	196	800
VF100	255	430	445	300	450	150	85	350	45	214	229	196	730

Model	Standard	Flange	I	H (Customized According to Stem)
VF25	GB/T 12222 ISO 5210	F14	Torque Mode 60	120.250.500
			Thrust Mode 80	
	JB2920	2	75	
		3	95	
VF40-VF60	GB/T 12222 ISO 5210	F16	Torque Mode 60	120.250.500
			Thrust Mode 80	
	JB2920	3	70	
		4	110	
VF100-VF120	GB/T 12222 ISO 5210	F25	Torque Mode 60	120.250.500
			Thrust Mode 80	
	JB2920	ZK-4-100	130	
		ZK-5-100	130	

VF Series Multi-turn Electric Actuator Appearance and Connection Dimension(VF100-VF300)

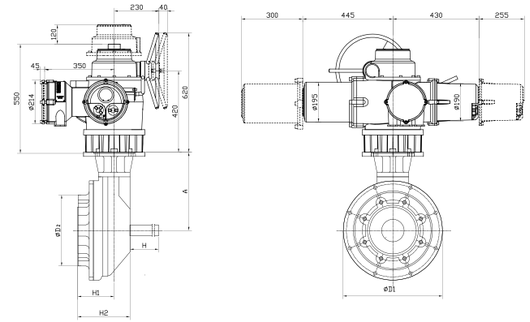


Model	A	B	C	D	E	F	P	J	K	G	H1	ΦL	ΦM	ΦN
VF100-VF120	255	430	445	300	500	300	40	350	45	230	120	214	190	195
VF150-VF300	255	520	550	320	600	380	60	350	45	435	100	214	190	220

Model	Standard	Flange	I	H (Customized According to Stem)
VF150 VF180 VF250 VF300	GB/T 12222 ISO 5210	F25	Torque Mode 0 Thrust Mode 105	120、250、500、1000
		F30	Torque Mode 0 Thrust Mode 105	120、250、500、1000
	JB2920	7号	Torque Mode 0 Thrust Mode 105	120、250、500、1000

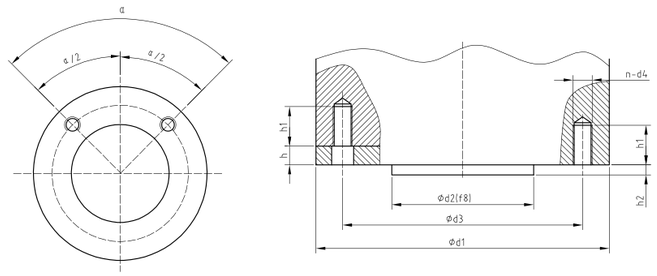
Electric Actuator Appearance and Connection Dimension

VF Series Multi-turn Electric Actuator Appearance and Connection Dimension (VF500-VF1000)



Model \ No.	A	D1	D2	H1	H2	H(Customized According to Stem)
VF500	423	495	298	209	280	120.250.500
VF800	422	572	298	244	358	120.250.500
VF1000	423	590	406	264	355	120.250.500

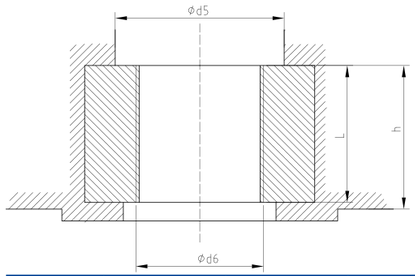
VF Series Multi-turn Electric Actuator Appearance and Connection Dimension (GB12222/ISO5210)



Flange	α/2
F10-F16	45°
F25-F40	22.5°

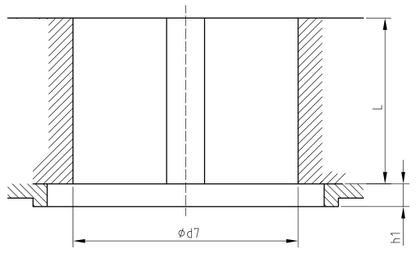
Flange	d1	d2	d3	d4	n	h2	h1	h
F10	125	70	102	M10	4	3	20	11.5
F14	175	100	140	M16	4	4	25	17
F16	210	130	165	M20	4	5	30	16
F25	300	200	254	M16	8	4	30	——
F30	350	230	298	M20	8	4	30	
F35	415	260	356	M30	8	5	45	
F40	475	300	406	M36	8	8	54	

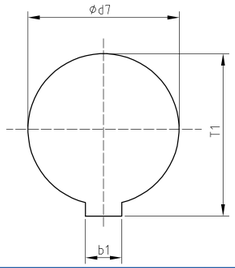
Transfer Torque and Thrust Drive Shaft sleeve Dimension



Flange	F10	F14	F16	F25	F30
d5	40	42	65	75	110
d6(max)	32	34	60	68	80
L	61	79	90	116	157
h	62	80	93	117	158

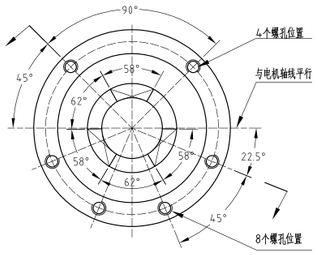
Electric Actuator Appearance and Connection Dimension

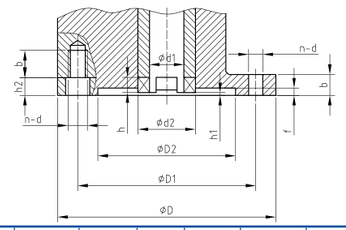




Flange	F10	F14	F16	F25	F30
d7(max)	26	30	42	65	65
b1	8	8	12	18	18
T1($^{+0.2}_{0}$)	29.3	33.3	45.3	4.4	4.4
h1	6	4.5	5.5	5.5	5.5
L	40	68	76	116	116

VF Series Multi-turn Electric Actuator Appearance and Connection Dimension (JB2920)

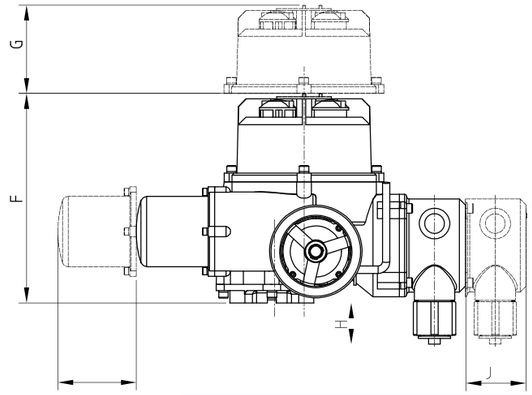


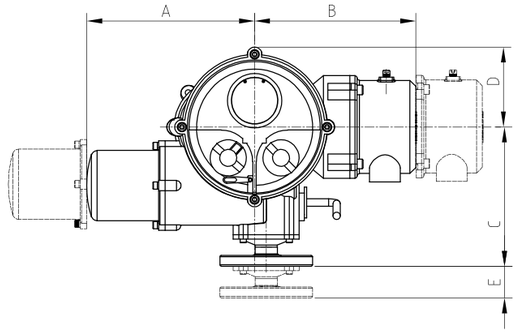


Flange	D	D1	D2	d1	d2	n-d	h	h1	f	b	h2
2	145	120	90	30	45	4-M10	8	2	5	15	10
3	185	160	125	42	58	4-M12	10	2	5	20	15
4	225	195	150	50	72	4-Φ18	12	2	5	20	
5	275	235	180	62	82	4-Φ22	14	2	6	22	
7	350	285	220	72	95	4-M24	16	3	8	30	
8	380	340	280	80	118	8-M20	20	3	6	35	
9	430	380	300	85	128	8-M24	25	3	8	40	
10	510	450	360	105	158	8-M30	30	3	8	45	

Electric Actuator Appearance and Connection Dimension

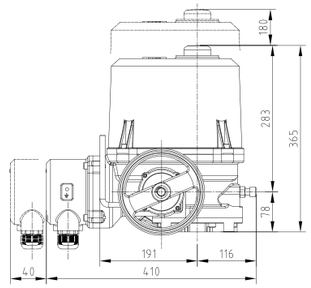
VF J Series Integrated Quarter-turn Electric Actuator Appearance and Connection Dimension Figure(VFJ10~VFDJ60)

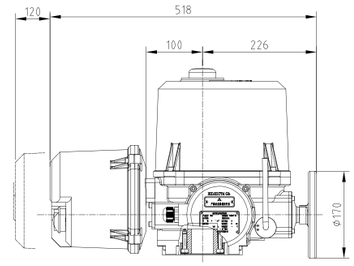




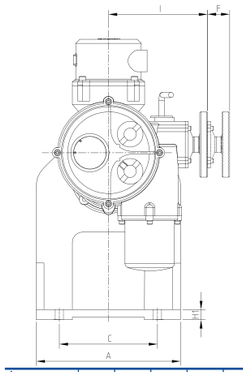
Model \ No.	A	B	C	D	E	F	G	H	I	J
VFJ5-VF16	130	270	220	91	40	286	120	30	75	40
VFJ25-VFJ40	230	240	211	110	60	300	125	70	130	40
VFJ60	187	320	283	137	100	328	130	120	115	40

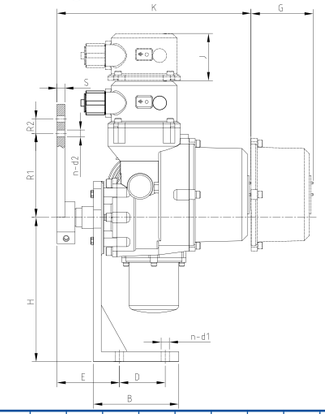
VF J Series Integrated Quarter-turn Electric Actuator Appearance and Connection Dimension Figure(VFJ80~VFJ100)





VF Series Integrated Angle Seat Connecting Arm Electric Actuator Appearance and Connection Dimension Figure(VJ10~VFJ60)

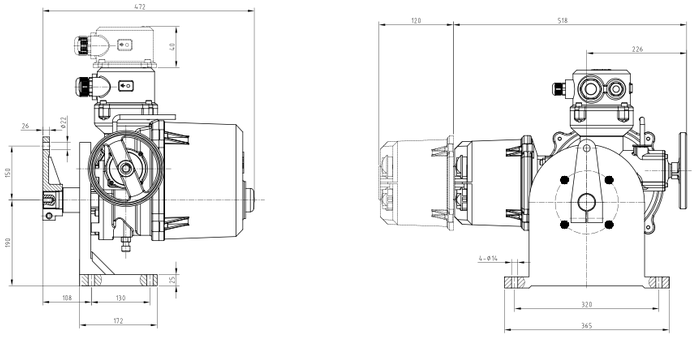




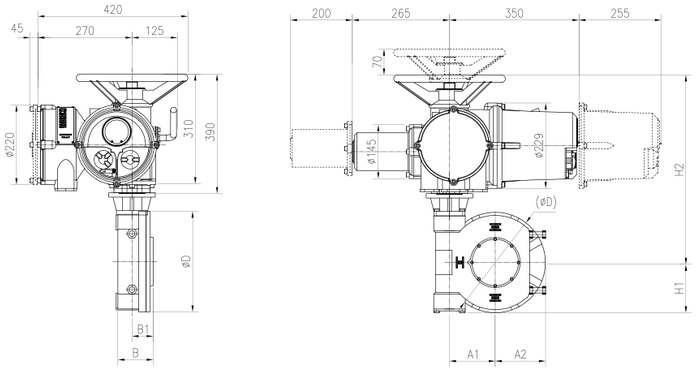
Model \ No.	A	B	C	D	E	F	G	H	H1	I	J	K	S	n-d1	n-d2	R1	R2
VFJ5- VFJ16	230	150	160	80	98	40	120	230	15	220	40	359	15	4-Φ15	2-Φ20	150	50
VFJ25-VFJ40	280	165	200	80	100	60	120	280	20	211	40	400	15	4-Φ15	2-Φ20	150	50
VFJ60	280	165	200	80	117	100	130	280	20	283	40	410	15	4-Φ15	2-Φ20	150	50

Electric Actuator Appearance and Connection Dimension

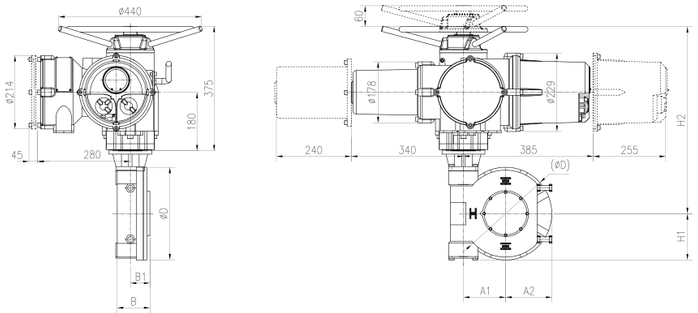
VFJ Series Integrated Angle Seat Connecting Arm Electric Actuator Appearance and Connection Dimension (VFJ80~VFJ100)



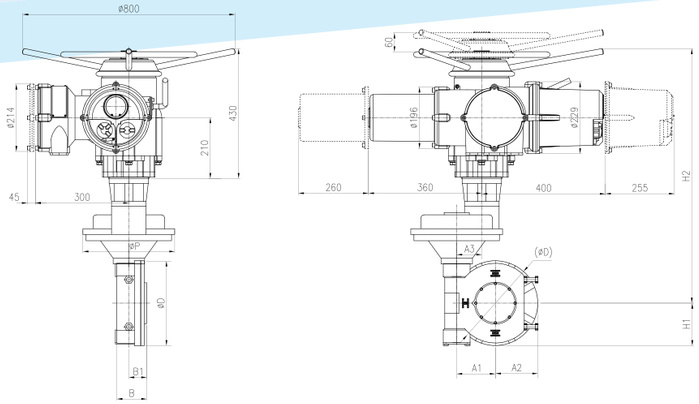
VF J series of modular rotary electric actuators - Dimensions



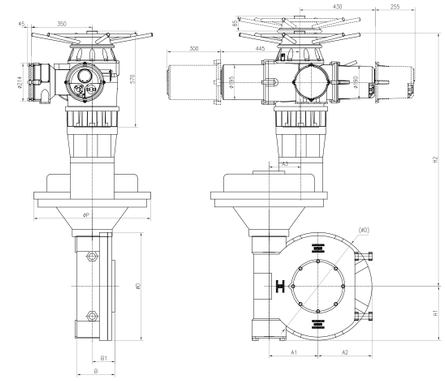
Actuator Model/ Gearbox Model	A1	A2	B	B1	ΦD	H1	H2
VF4/JW60A	75	85	95	52	170	97	540
VF10/JW80A	102.5	109	92	54	218	106	550
VF10/JW100A	135	142.5	125	75	285	135	580



Actuator Model/ Gearbox Model	A1	A2	B	B1	ΦD	H1	H2
VF25/JW125A	178	187.5	120	70	375	145	572
VF25/JW140A	210	225	145	86	450	195	672

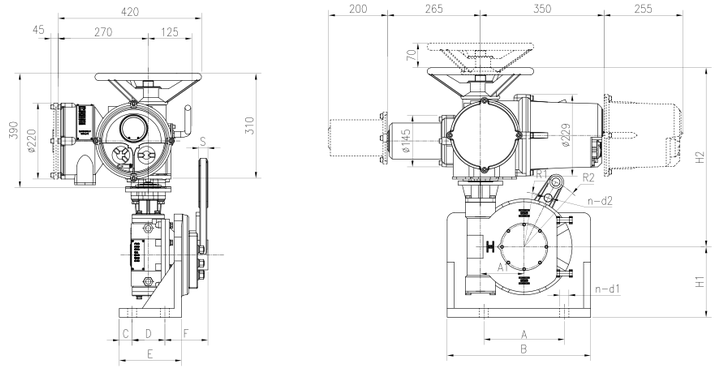


Actuator Model/ Gearbox Model	A1	A2	B	B1	ΦD	H1	H2	A3	ΦP
VF60/JW200A	246	260	188	113	520	230	875	130	312
VF60/JW250A	270	295	200	120	590	265	935	130	312

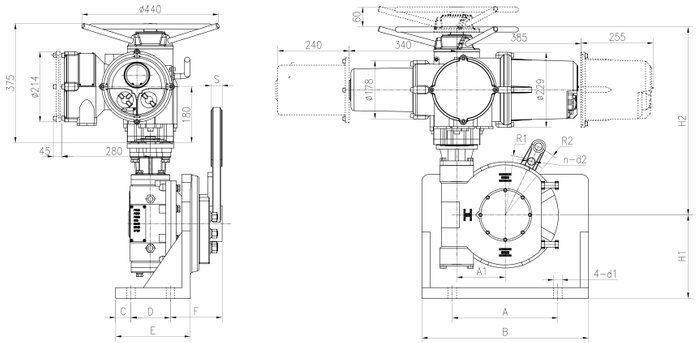


Actuator Model/ Gearbox Model	A1	A2	B	B1	ΦD	H1	H2	A3	ΦP
VF100/JW280A	342	367.5	264	154	735	305	1108	220	463
VF100/JW315A	436.5	460	269	156	920	369	1211	220	463

VF J Series Combination Quarter-turn Electric Actuator Angle Seat Oscillating Arm Appearance and Dimension

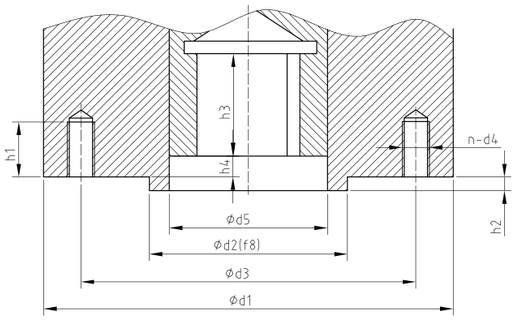


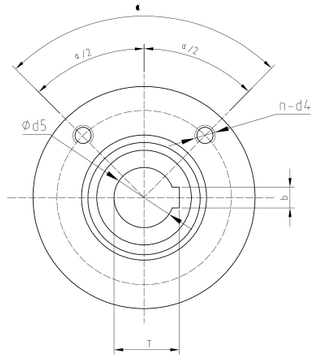
NO. / Model	A	B	C	D	E	F	H1	R1	R2	S	4-d1	n-d2	H2	A1
JW60Z	220	310	10	130	180	105	128	120	200	15	4-Φ12	2-Φ20	540	75
JW80Z	320	380	15	130	185	116	190	150	250	26	4-Φ14	2-Φ22	550	102.5
JW100Z	390	450	15	180	240	130	215	170	250	26	4-Φ14	2-Φ22	580	135

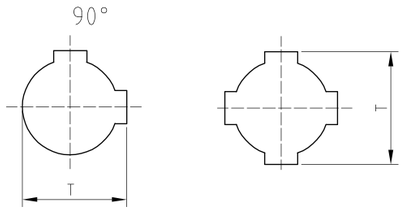


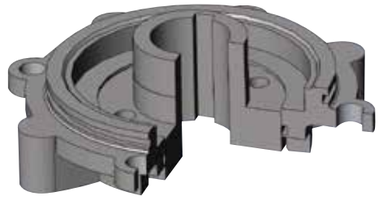
NO. / Model	A	B	C	D	E	F	H1	R1	R2	S	4-d1	n-d2	H2	A1
JW125Z	430	520	20	200	270	147	280	170	200	30	4-Φ14	2-Φ26	572	178
JW140Z	510	600	25	270	350	155	330	200	250	30	4-Φ22	2-Φ26	672	210

NO. / Model	A	B	C	D	E	F	H1	R1	R2	S	4-d1	n-d2	H2	A1	A3	ΦP
JW160Z	600	700	25	270	350	155	340	250	300	30	4-Φ22	2-Φ26	875	130	130	312









Flange	α/2
F07-F16	45°
F25-F60	22.5°

VF J Series Quarter-turn Electric Actuator Connection Type and Dimension(GB12223/ISO5211)

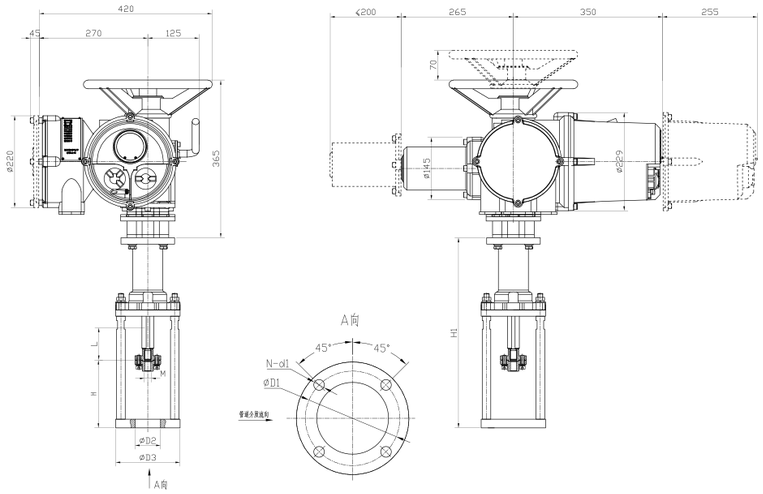
Flange	d1	d2	d3	n	d4	h2	h1
F07	125	55	70	4	M8	3	20
F10	125	70	102	4	M10	3	20
F12	150	85	125	4	M12	3	20
F14	175	100	140	4	M16	4	25
F16	210	130	165	4	M20	5	30
F25	300	200	254	8	M16	4	30
F30	350	230	298	8	M20	5	30
F35	415	260	356	8	M30	5	45
F40	475	300	406	8	M36	8	54
F48	560	370	483	8	M36	8	54
F60	686	470	603	8	M36	8	54

Actuator Model	d5(max)	h3	h4	b	T
VFJ10	22	54	3	6	24.8
VFJ30	32	46	4	10	35.3
VFJ60	36	72	4	10	39.3
VFJ100	42	59	2	12	45.3

JW Series Gearbox Standard Port Dimension

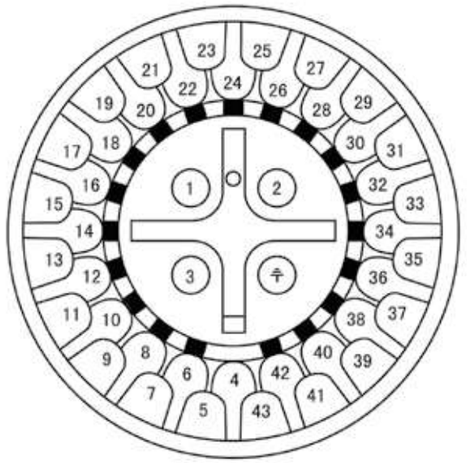
No. / Model	Flange (GB12223)	d5(H8)	b(D10)	T($^{+0.2}_{0}$)	h3+h4min	No. Of Bonds
JW60A	F10	Φ28	8	31.3	55	90°Two-key
JW80A	F14	Φ42	12	45.3	65	90°Two-key
JW100A	F16	Φ50	14	53.8	80	90°Two-key
JW125A	F25	Φ60	18	68.8	100	Four-key
JW140A	F25	Φ72	20	81.8	130	Four-key
JW160A	F25	Φ100	28	112.8	150	Four-key
JW200A	F25	Φ100	28	112.8	150	Four-key
JW250A	F30	Φ120	32	134.8	160	Four-key
JW280A	F35	Φ160	40	178.8	200	Four-key
JW315A	F40	Φ180	45	200.8	200	Four-key
JW400A	F40	Φ180	45	200.8	200	Four-key
JW450A	F40	Φ180	45	200.8	200	Four-key
JW500A	F48	Φ220	50	242.8	250	Four-key
JW600A	F60	Φ280	63	304.8	300	Four-key

VF M Series Linear Electric Actuator Appearance and Dimension



No. / Model	D1	D2	D3	N-d1	H	M	H1	Max. Torque	Control Valve Caliber: Recommended Caliber
ZXC-01	Φ80	Φ60	Φ150	4-Φ10	105	M8	390	60	DN15-50
ZXC-02	Φ105	Φ80	Φ150	4-Φ12	95	M12X125	400	60	DN65-100
ZXC-03	Φ118	Φ95	Φ150	4-Φ14	135	M16X15	420	80	DN125-200
ZXC-04	Φ130	Φ100	Φ170	4-Φ18	155	M20X15	465	100	DN250-400

VF Series Termenal DIsk Wiring Diagram



Ground

① 3 phase power A
② single phase (L)
③ 3 phase power B
④ single phase(N)
⑤ 3 phase power C
⑥ power source 24V DC (+)
⑦ power source 24V DC (–)
⑧ Feedback Relay S2-1
⑨ Feedback RelayS2-2
⑩ Feedback Relay S3-1
⑪ Feedback Relay S3-2
⑫ Feedback RelayS4-1
⑬ Feedback Relay S4-2
⑭ Monitoring Relay S0-1 (N.C)
⑮ Monitoring Relay S0-2 (com)
⑯ Monitoring Relay S0-3 (N.O)
⑰ Remote Control ve 20V AC/DC
⑱ Remote Control ve 220V AC
⑲ Remote Close Control
⑳ Remote Stop Control
㉑ Remote Open Control
㉒ Remote ESD Control
㉓ Remote Close Interlock
㉔ Remote Open Interlock
㉕ Remote Control ve 20V AC/DC
㉖ Remote Control ve 220V AC
㉗ Mal/Auto Input ve 220V AC
㉘ Mal/Auto Input ve 20V AC/DC
㉙ Mal/Auto Input Control (+)
㉚ Torque Transmitter (–)
㉛ Torque Transmitter Voltage (+)
Feedback RelayS5-2
㉜ Torque Transmitter Current (+)
Feedback RelayS6-1
㉝ Position Transmitter (–)
㉞ Position Transmitter Voltage(+)
Feedback RelayS6-2
㉟ Position Transmitter Current(+)
㊱ 24VDC Input (–)
㊲ 24VDC Input (+)
㊳ Analogue Signal (0~10V)input(-)
㊴ Analogue Signal (0~10V)input(+)
㊵ Profibus Main Interface B
Feedback RelayS7-1
Analogue Signal(0~5V)input(+)
Profibus Main Interface A
Feedback RelayS7-2
㊶ Analogue Signal(4~20mA)input(-)
Profibus Slave Interface B
Feedback RelayS8-1
㊷ AnalogueSignal(4~20mA)input(+)
Profibus Slave Interface A
Feedback RelayS8-2
㊸ Cable Shield

① Three Phase Power Supply A
Single Phase (L)
② Three Phase Power Supply B
Single Phase (N)
③ Three Phase Power Supply C
Ground
④ Remote Control Ve 220V AC
⑤ Remote Control Ve 20V AC/DC
⑥ Monitor Delay S0(Com)
⑦ Analogue Signal(4~20mA)(-)
Profibus Main Interface B
⑧ Analogue Signal(4~20mA)(+)
Profibus Main Interface A
⑨ Position Transmission Current (-)
Profibus Slave Interface B
⑩ Position Transmission Current (+)
Profibus Slave Interface A
⑪ Power Supply Output 24VDC(+)
⑫ Power Supply Output 24VDC(-)
⑬ Feedback Relay S4-2
⑭ Feedback Relay S4-1
⑮ Feedback Relay S3-2
⑯ Feedback Relay S3-1
⑰ Feedback Relay S2-2
⑱ Feedback RelayS2-1
⑲ Feedback Relay S1-2
⑳ Feedback Relay S1-1
㉑ Monitor Delay S0(NC)
㉒ Monitor Delay S0(NO)
㉓ Remote Open Interlock
㉔ Remote Close Interlock
㉕ Remote ESD Control
㉖ Remote Open Control
㉗ Remote Stop Control
㉘ Remote Close Control