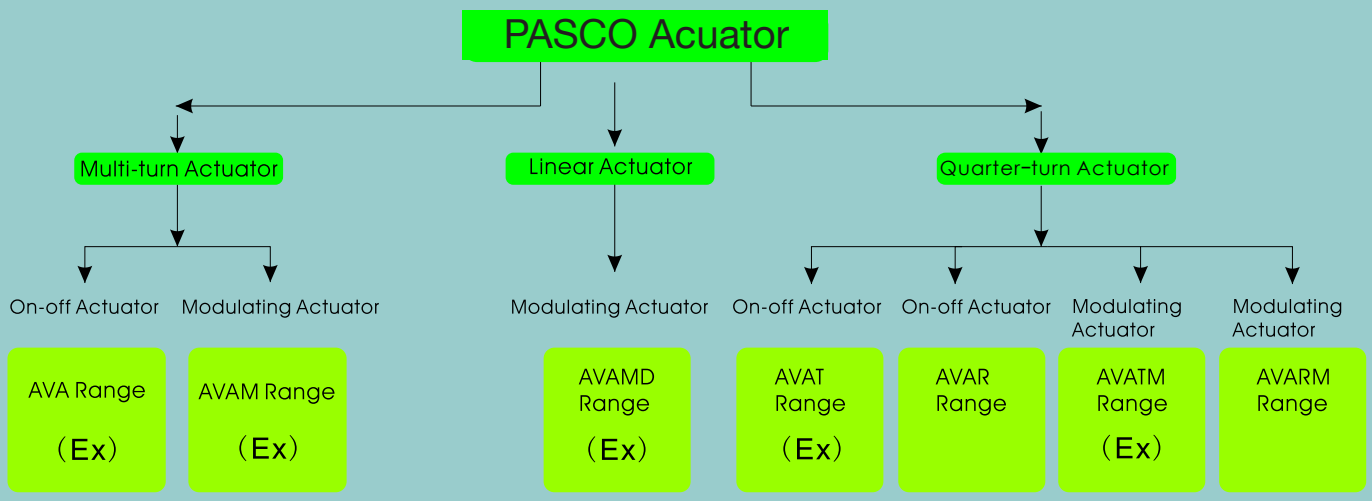
PASCO
AVA/AVAT
AVAR

Intelligent Electric Actuator



Multi-turn Actuator
(AVA /AVAM)

Quarter-turn Actuator
(AVAT / AVATM)

Quarter-turn Actuator
(AVAR /AVARM)

Double-Sealed structure

The **PASCO** AVA/AVAT range actuators have double-sealed watertight metallic enclosure to IP68 standards (15 meters 90 hours). Explosion-proof BT4 and CT4 are optional. The terminal compartment and the internal electrical control parts are entirely separate. The internal electrical control parts can be waterproof and dustproof even when the terminal compartment cover is removed for site wiring.

Reliable electronic system

PASCO actuators' electronic systems use an advanced 32-bit embedded SOC chip, which not only provides with a strong computing ability, but also integrates multifunctional circuit. It packages all the necessary electronic circuits and parts of electronic components without complex electric wiring, have a high reliability for electronic control.

Infrared setting

AVA\AVAT series actuators adopt advanced infrared remote control technology (IrDA), infrared setting tool can set and diagnose actuator through sealed indication window without removing the electric cover. The communication distance between setting tool and window is within 0.75 meter. Infrared setting tool is instinsicailly safe design and can be used in hazardous environment.

Non-intrusive design

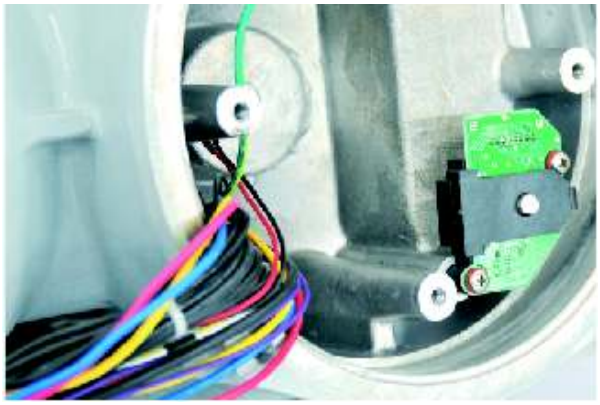
The **PASCO** AVA/AVAT range actuators take the non-intrusive design. The site setting operation can be accomplished by using an infrared setting tool without removing the electric cover. Consequently, the internal electrical control parts can be protected from the site pollution. The design for local operation discards the traditional moving shafts penetrating the control enclosure and takes the hall magnetic sensor technology to control the actuator.

Accurate torque measurement(Patent)

PASCO adopts its patented torque measurement system to ensure the overload protection of actuators and indicate the torque variation by LCD. The precise torque value is decided by the electronic signal converted from the reaction force of motor shaft's thrust transferred by torque sensor, thus solves the problem of calculating the torque according to the changes of power frequency, voltage and temperature.

PASCO

AVA/AVAT Series
Intelligent Electric Valve Actuator
Functions and features



Precise valve position measurement

AVA/AVAT range actuator takes advanced hall-effect incremental absolute encoder to measure the valve position. The adoption of non-contact encoder design can avoid the disadvantages of traditional potentiometer, which is easy to wear and has short life. It increases the reliability and lifetime of the actuator. The setting range of the encoder is 2.5~150,000,000 circles. For AVA multi-turn actuator, the output angle resolution of the central axis is 7.5 degree. For AVAT part-turn actuator, the output angle resolution of the central axis is 0.05 degree.

AVA/AVAT range actuator can take the 24-bit optical absolute encoder as option. This kind of encoder uses optical encoder disk to record valve position accurately without battery when the power is off. For AVA multi-turn actuator, the output angle resolution of the central axis is 0.2 with maximum 1024 circles. For AVAT part-turn actuator, the output angle resolution of the central axis is 0.02 .

Duty cycle

Duty cycle covers S2 to S4.

Noise

Independent tests have shown that the noise did not exceed 61dB (A) within 1M distance.

High-definition LCD

PASCO actuators incorporate a unique high-definition liquid crystal display. Large display window with backlight enables users to see valve position, torque and functional status at a long distance.

Life test

Standard AVA/AVAT life test is based on 10,000 times open /close/open cycles (500,000 output turns) with maximum seating torque at stroke end and an average of 1/3 maximum seating torque during stroke. Actuator is stalled 25 times against a solid object to prove its durability.

Designed service life

At the rated torque of on-off actuator, the shortest lifetime is 30,000 times open/close/open cycles with the assumption of maximum seating torque at stroke end and an average of 1/3 maximum seating torque during stroke.

Operating temperature

Actuators are suitable for operating under -30℃ to 70℃ ambient temperature. Please note that the appointed operating temperature range for the hazardous area Certificate should go by certificate. For temperatures outside this range, please contact **PASCO**

AVA/AVAT SERIES

Intelligent Electric Actuator

Automatic phase correction and adjustment

With phase sequence discrimination function for power supply, **PASCO** actuator will rotate correctly, regardless how the three phase sequence is. It avoids the damaging of valve and actuator result from wrong wiring.

Over Torque Protection

When load torque exceeds actuator setting torque, the actuator will stop and alarm, the indication contact will action.

Anti-condensation heater (Option)

The actuators will be fitted with an anti-condensation heater preventing condensation of water vapour.

Intermittent timer (Option)

It's used to increase operation time of actuator, and reduce/prevent impact of water or fluids in pipeline .

Auto inspection

It's used to check actuator always in good condition for emergency operation, users can set actuator auto operate for certain distance in certain interval time(in days), to make sure actuator is availably to operate after a long time no operation.

Changeable Indication lamp (Option)

The default indication lamp is red/green/yellow to open/close/mid-position, users can change the lamp of actuator in program by infra-red setting tool, to satisfy different use habit.

Safe and reliable protection

AVA/AVAT range actuator has powerful self-protection function. When there is any improper or wrong operation from user, the actuator will proceed self-protection and self-correcting**.**

Vibration

Standard AVA/AVAT range actuator is suitable for the environment where the vibration does not exceed the following standard.

Equipment induction: The cumulated vibration in 10-1000MHz frequency range is less than 1 grms.

Impact: Maximum acceleration is 5g.

Seism: If it is to operate during and after the event, frequency range is 150Hz and acceleration is 2g. If it is only required to maintain structural integrity, it is 5g.

Isolation control should be used or the actuator should be mounted far away from valve and drived by an extension shaft with vibration absorbing couplings in the place where it is excessive equipment induced vibration.

Intelligent Alarm

The alarm will displayed at lower right corner of actuator with English words, like phase lost alarm(PhaseLst), Motor over temperature alarm(TempErr), CPU over temperature(CPUTemp), pressure sensor error(SensorErr) and so on, these words will help users understand the alarm of actuator easily, meanwhile, when there is two or more alarms, these alarms will display alternately, until all of them is solved.

Detailed instruction please refer to P17 of operation manual.

AVA/AVAT Intelligent Electric Valve Actuator
Good security, perfect protection

Instantaneous reversal protection

When actuators are rotating in one direction, such as opening, if the closing signal is commanded, the internal control circuit will stop for a while before executing closing. This technology decreases the over-current damage to the motor, prolongs the contactor's service life and prevents the mechanical driving devices, such as valve stem, gearboxes damaged by shock.

Phase Lost Protection

To prevent overheating of three-phase motor when losing phase, the phase lost protection circuit will monitor the three-phase power continuously. If one or more phases are lost, the actuator will block the control from control circuit to motor and alarm.

Intelligent protection during valve jams

When actuators are rotating in one direction, such as opening, if the torque in this direction is larger than the set torque, the jam protection will be implemented. Jam protection has two modes. One is the general stop mode, that is when it jams, actuator stops working and displays alarm signals. At the meantime, the indication contacts movement may also be triggered. The other one is the intelligent jam protection, that is when it jams, the actuator will close the valve for a set distance, and then continue to implement the open valve order. If it still jams, the mentioned process will repeat until achieving set times. If the valve overtorques all the same, the actuator will stop working and displays alarm signals. At the meantime, the indication contacts movement may also be be triggered. Intelligent jam protection can open and close the sticky valves efficiently.

Motor overheating protection

PASCO actuator motors are designed with F class insulation, which can work in extreme environments. The thermal switches embedded in the motor windings of actuators will disconnect the relevant contacts, stop actuators and display alarm signals once the winding temperature is over presetting (132℃). Motor overheating protection can be shielded via setting program.

Better record

PASCO actuator has integrated with intelligent function which can record various commands and operation of actuator, through RECORD menu, user can observe actuator production date, production code, recent commands, recent error, max open&close torque, contactor operation times and so on, it will help user understand actuator status easily, detailed information please refer to P41~P42 of operation manual.

AVA / AVAT SERIES
Intelligent Electric Actuator

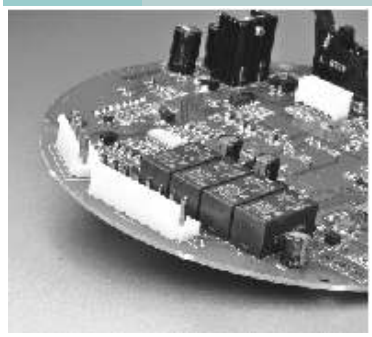
Indication and monitoring

PASCO Actuator possesses 4 (which can be extended to 8) sets of indication contacts with dry contact output. (Nominal capacity is 5 A 250VAC or 5 A 30VDC). Every set of indication contacts can be set as normal open and normal close according to user's requirement. The user can select 29 kinds of the trigger conditions including full open, full close and protection alarm etc**.** All the functions of indication contacts can be set easily via setting tools.

Apart from the four sets of indication contacts, the actuator also has a pair of monitoring contacts which can indicate the effectiveness of actuator electrical devices. (Nominal capacity is 8 A 250VAC or 8 A 30VDC). The monitoring contacts can be triggered at any of the following conditions: Local/stop, motor over temperature, lost phase, stall, locked rotor, CPU over temperature, over torque, 24V control voltage error, torque sensor error and position error.

Trigger conditions of indication contacts can be selected by software, the list is as following:

Number	Trigger conditions	Number	Trigger conditions
1	Close Limit	16	Open Interlock
2	Open Limit	17	Close Interlock
3	Middle Position	18	Interlock
4	Torque Trip Close	19	ESD signal
5	Torque Trip Open	20	Phase Lost
6	Torque Trip	21	Local State
7	Torque Trip Mid	22	Remote Statel
8	Opening	23	24V Error
9	Closing	24	Inspecting
10	Running	25	Motor Running
11	Stall	26	Motor Temp Error
12	Low Battery	27	Sensor Error
13	Hand Wheel	28	CPU Temp Error
14	Running Blink	29	Integrated Error
15	Stop State		

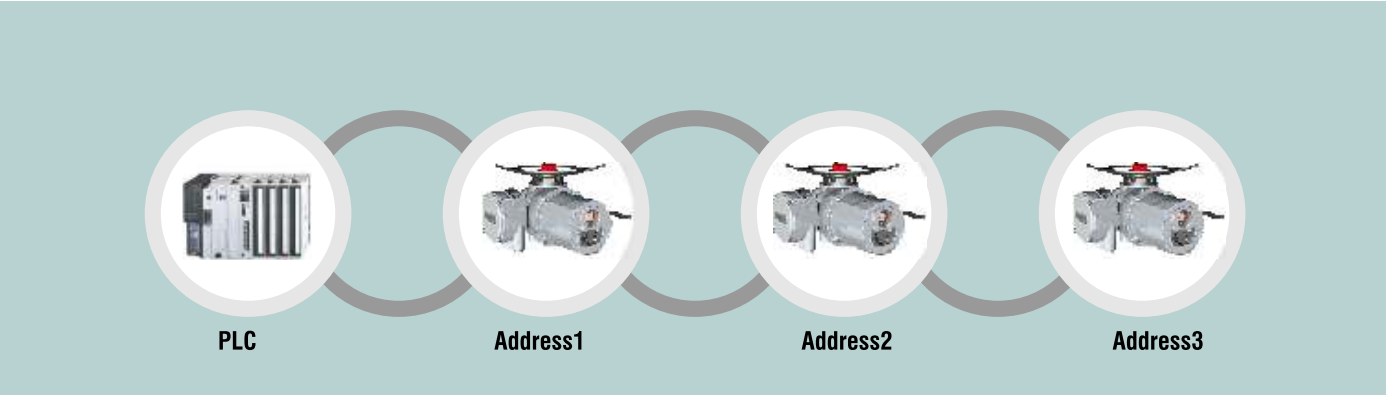


Backup Battery

For an easy manual operation when power is off, a backup battery is installed to activate window displaying of valve status and record valve position. After finishing the manual operation, battery will quit work status for power saving. Backup battery won't lose power when main power supply is connected, so backup battery can last for a long time, normally more than 5 years.

Users can observe battery level through Diagnose menu(refer to P40 of operation manual), meanwhile, **PASCO** actuator has intelligent battery management system, when battery level is lower than 15%, actuator will alarm, when lower than 10%, battery alarm icon will flash. Battery alarm will not influence actuator operation.

AVA/AVAT series
Intelligent electric valve actuator
Unparalleled advantages



Analogue signals	Input impedance
0-5mA	1K
0-10mA	500
0-20mA	250
4-20mA	250
0-5V	1M
0-10V	78K
0-20V	52K

Analogue Position Control (Option)

PASCO actuator analogue position controller allows actuator to position valve automatically in proportion, according to analogue current or voltage signal. The input proportional signal comes to analogue position controller through Linear Isolator. The controller converts the proportional signal into valve position signal and compares with current valve position to drive the actuator according the discrepancy. By adjusting the dead zone of analogue position controller and forbidden running time, valve can avoid reciprocating oscillation.

Fieldbus Control Function (Option)

The interface offered by **PASCO** actuator has full compatibility with Fieldbus-Mastering control systems and communication protocol. **PASCO** actuator can add the Fieldbus module such as Modbus, Profibus and Foundation.

Remote indication of valve position

PASCO actuator's current transmitter can convert the present valve position into 4-20mA current output signal. The smallest corresponding signals can be chosen for full open or full close. At rated voltage, the maximum external impedance is 500 Ω and the linearity of the whole stroke is less than 1%.

4-20mA Signal Feedback (Option)

PASCO standard actuator has no 4-20mA signal feedback, it is only available when signal feedback module is installed.

Modulating Control (Option)

PASCO standard actuator has no 4-20mA signal input/output modulating function, it is only available when modulating module is installed.

AVA/AVAT SERIES
Intelligent Electric Actuator

Torque measurement

PASCO actuator which adpots precise pressure sensor can have fast and accurate detecting of output shaft torque.

Motor and Drive

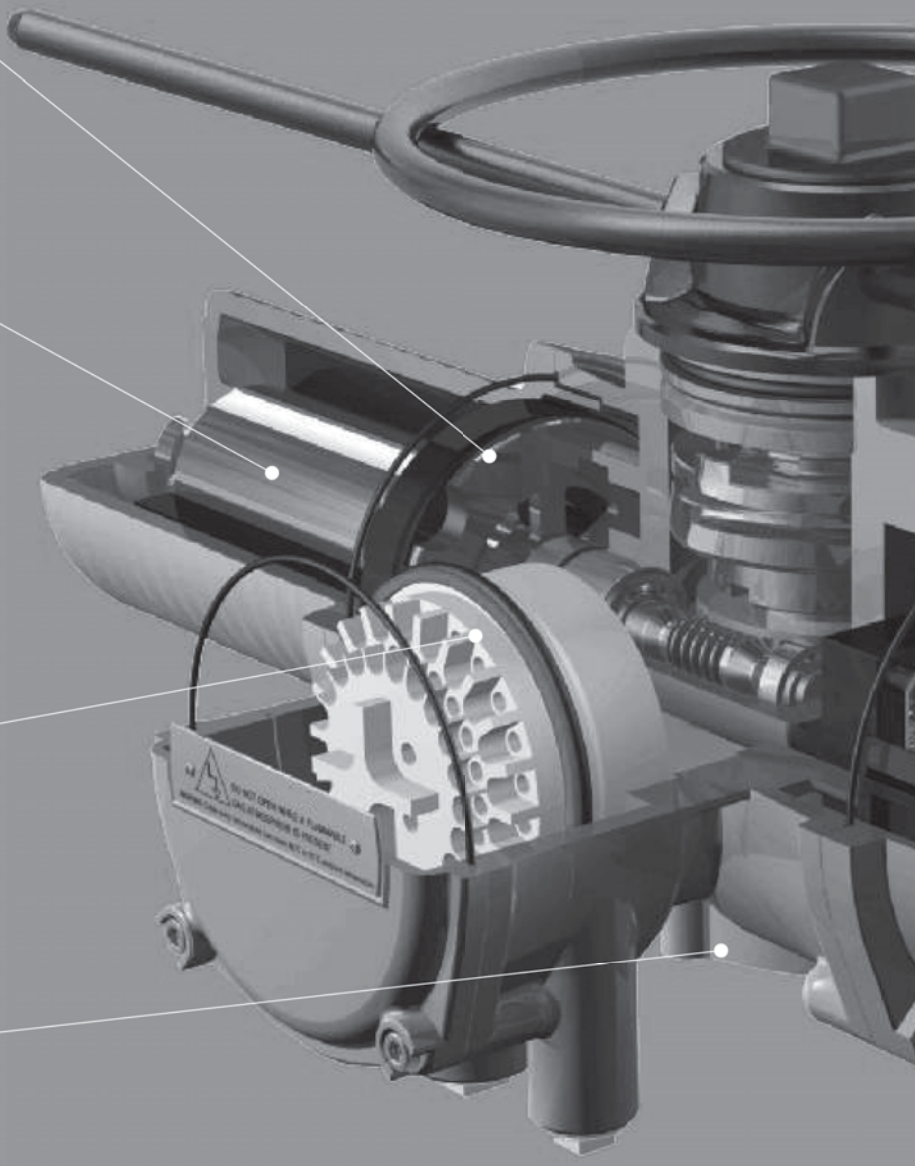
PASCO three-phase squirrel-cage asynchronous motor designed by advanced special software can work in extreme environments with F class insulation. The motor shaft and worm shaft are separate in order to faciliate rapid replacement. Worm and worm shaft are immerged in lubricant to fit temperature change.

Teminal Compartment

Separately sealed terminal compartment can make sure of the integrity of the electrical control part even when the terminal compartment cover is removed for site wiring.

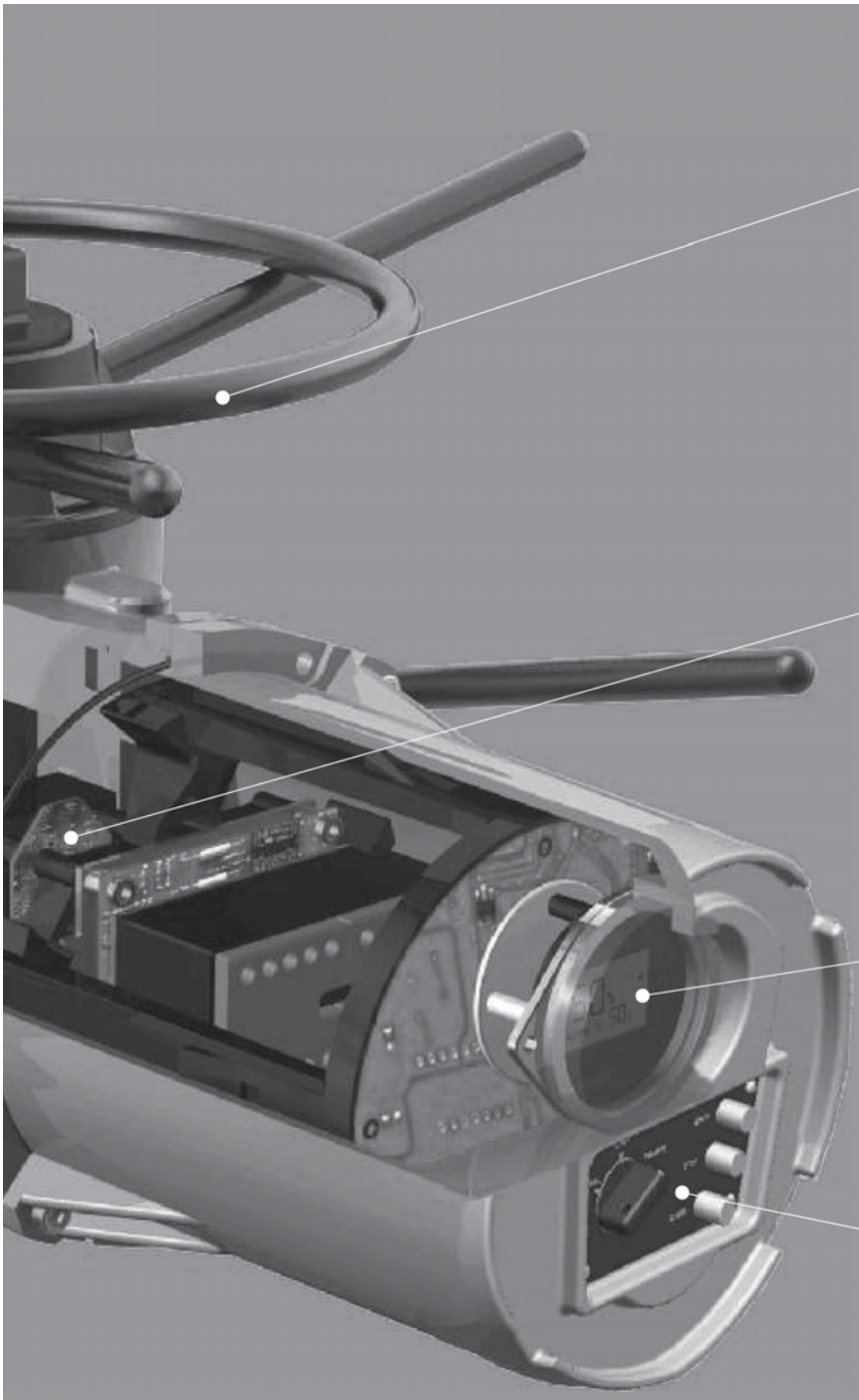
Thrust Base

Models below AVA06 are fitted with lubricated, removable type 'A' thrust base. Actuators can be removed without changingg valve position. AVA07 and above models' thrust bases are integrated with enclosure. Simple and removable drive bushing can be machined to fit valve stem.



PASCO

AVA/AVAT series
Intelligent Electric valve actuator
Internal structure



Manual operation

The handwheel (or independently geared handwheel on larger size) can be directly driven with low speed padlockable hand/auto clutch to provide reliable emergency manual operation in the event of a power supply failure. Manual operation has lost motion “hammerblow” effect, which will facilitate easy valve operation.

Valve position Control

PASCO discards traditional potentiometer to measure valve position and introduce hall incremental encoder to improve the position accuracy. Optical absolute encoder as the option can record the valve postion accurately without battery when the power is off.

Infrared setting

Infrared setting tool can set and diagnose actuator through sealed indication window without removing the electric cover. The communication distance between setting tool and window is within 0.75 meter.

Local Control

Local control switch (Local/Stop/Remote) and pushbuttons are magnetic switches without penetrating shafts and control the actuator by internal magnetic reed. It can meet the requirements of tight seal and damp-proof.

Note: The switch can be locked at Local/Stop/Remote position by padlock to prohibit unnecessary local control.

AVA/AVAT SERIES

Intelligent Electric Actuator

AVA series Performance Data (380V 3Phase 50 Hz On/Off)

Multi-turn

Model	Flange (ISO 5210)	RPM (50Hz)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVA01	F10	18	45	4	1.47	3.80	0.16	0.74	68	32
		24	45	4	1.48	3.80	0.17	0.74	68	32
		36	35	4	1.50	4.20	0.20	0.74	68	32
		48	35	4	1.60	4.20	0.18	0.74	68	32
		72	35	2	1.90	6.00	0.30	0.86	77	32
		96	30	2	2.00	6.00	0.38	0.86	77	32
AVA02	F10	18	80	4	1.66	4.80	0.21	0.78	66	32
		24	80	4	1.70	4.80	0.23	0.78	66	32
		36	80	4	1.72	4.80	0.24	0.78	66	32
		48	80	4	1.75	4.80	0.24	0.78	66	32
		72	45	2	2.20	6.50	0.38	0.87	77	32
		96	40	2	2.30	6.50	0.41	0.87	77	32
AVA03	F10	18	110	4	1.86	5.20	0.24	0.80	62	32
		24	110	4	1.95	5.20	0.28	0.80	62	32
AVA04	F14	18	250	4	3.90	16.00	0.67	0.83	78	52
		24	250	4	4.10	16.00	0.68	0.83	78	52
		36	205	4	4.20	16.00	0.87	0.83	78	52
		48	205	4	4.30	16.00	0.99	0.83	78	52
		72	160	2	3.00	20.00	0.70	0.88	83	52
		96	145	2	3.10	20.00	0.72	0.88	83	52
		144	100	2	5.20	24.00	1.05	0.90	80	52
AVA05	F14	18	450	4	5.40	18.00	0.73	0.83	69	52
		24	450	4	5.50	18.00	0.84	0.83	69	52
		36	300	4	5.60	18.00	0.84	0.83	69	52
		48	240	4	5.90	18.00	0.87	0.83	69	52
		72	240	2	5.70	25.00	0.92	0.82	73	52
		96	230	2	6.60	25.00	1.01	0.82	73	52
		144	150	2	6.30	28.00	1.19	0.82	77	52
AVA06	F16	18	650	4	7.20	35.00	1.35	0.80	79	75
		24	650	4	7.60	35.00	1.54	0.80	79	75
		36	540	4	7.74	35.00	1.36	0.80	79	75
		48	450	4	13.50	43.00	2.02	0.88	73	75
		72	450	2	12.50	43.00	1.67	0.88	73	75
		96	365	2	13.20	43.00	2.44	0.88	73	75
		144	270	2	13.00	43.00	2.43	0.88	73	75
AVA07	F25	18	1100	4	11.00	52.00	1.77	0.86	81	200
		24	1100	4	12.00	52.00	2.17	0.86	81	200
		36	780	4	12.30	52.00	2.73	0.86	81	200
		48	680	4	15.80	88.00	3.00	0.85	82	200
		72	550	2	16.60	88.00	3.65	0.85	82	200
		96	550	2	17.80	88.00	3.83	0.85	82	200
AVA08	F30	18	1500	4	10.50	67.00	2.17	0.87	88	230
		24	1500	4	12.60	67.00	2.40	0.87	88	230
		36	1300	4	13.80	67.00	3.13	0.87	88	230
		48	1000	4	19.00	118.00	4.08	0.89	86	230
		72	800	2	19.50	118.00	4.42	0.89	86	230
		96	745	2	21.00	118.00	4.58	0.89	86	230
AVA09	F30	18	2000	4	18.50	93.00	3.74	0.86	83	230
		24	2000	4	20.00	93.00	4.61	0.86	83	230
		36	1700	4	22.00	93.00	5.00	0.86	83	230
		48	1350	4	21.00	120.00	3.98	0.85	81	230
		72	1100	2	23.00	120.00	4.84	0.85	81	230
		96	1000	2	25.00	120.00	5.10	0.85	81	230
AVA09.1	F30	24	2500	4	25.00	120.00	5.46	0.93	84	230
		36	2500	4	26.00	120.00	5.71	0.93	84	230
AVA10	F30	24	3000	4	29.00	105.00	5.32	0.88	83	230
AVA10G	F30	18	3500	4	30.00	105.00	5.68	0.86	80	230
		24	3500	4	32.00	105.00	5.80	0.86	80	230
		36	2000	4	29.00	105.00	5.43	0.86	80	230
		48	1600	4	31.00	130.00	5.83	0.90	82	230
		72	1400	2	32.00	130.00	5.92	0.90	82	230
		96	1200	2	33.00	130.00	6.10	0.90	82	230

AVA series Performance Data (380V 3Phase 60 Hz On/Off)

Multi-turn

Model	Flange (ISO 5210)	RPM (60Hz)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVA01	F10	21	45	4	1.53	4.20	0.18	0.80	70	32
		29	45	4	1.55	4.20	0.19	0.80	70	32
		43	35	4	1.57	4.50	0.22	0.80	70	32
		57	35	4	1.60	4.50	0.20	0.80	70	32
		86	35	2	1.86	5.50	0.30	0.90	78	32
		115	30	2	2.05	5.50	0.39	0.90	78	32
AVA02	F10	21	80	4	1.70	4.60	0.24	0.81	67	32
		29	80	4	1.73	4.60	0.26	0.81	67	32
		43	80	4	1.77	4.60	0.27	0.81	67	32
		57	80	4	1.82	4.60	0.28	0.81	67	32
		86	45	2	2.30	6.10	0.41	0.90	75	32
		115	40	2	2.35	6.10	0.47	0.90	75	32
AVA03	F10	21	110	4	1.85	5.20	0.25	0.81	66	32
		29	110	4	1.92	5.20	0.29	0.81	66	32
AVA04	F14	21	250	4	3.95	14.00	0.69	0.84	78	52
		29	250	4	4.15	14.00	0.70	0.84	78	52
		43	205	4	4.24	14.00	0.92	0.84	78	52
		57	205	4	4.36	14.00	1.02	0.84	78	52
		86	160	2	3.50	19.00	0.74	0.90	83	52
		115	145	2	3.60	19.00	0.78	0.90	83	52
		173	100	2	5.40	23.00	1.08	0.89	82	52
AVA05	F14	21	450	4	5.50	17.00	0.75	0.80	71	52
		29	450	4	5.60	17.00	0.88	0.80	71	52
		43	300	4	5.80	17.00	0.87	0.80	71	52
		57	240	4	6.10	17.00	0.90	0.80	71	52
		86	240	2	6.00	15.80	1.02	0.81	82	52
		115	230	2	8.00	15.80	1.29	0.81	82	52
		173	150	2	6.60	26.00	1.23	0.81	76	52
AVA06	F16	21	650	4	7.50	29.00	1.44	0.84	79	75
		29	650	4	7.80	29.00	1.63	0.84	79	75
		43	540	4	8.00	29.00	1.44	0.84	79	75
		57	450	4	14.60	41.00	2.05	0.80	70	75
		86	350	2	12.80	41.00	1.67	0.80	70	75
		115	365	2	13.50	41.00	2.41	0.80	70	75
		173	270	2	14.50	41.00	2.50	0.80	70	75
AVA07	F25	21	1100	4	11.50	44.00	1.80	0.91	82	200
		29	1100	4	12.60	44.00	2.21	0.91	82	200
		43	780	4	13.00	44.00	2.79	0.91	82	200
		57	680	4	16.50	76.00	3.28	0.89	80	200
		86	550	2	17.30	76.00	3.87	0.89	80	200
		115	550	2	18.20	76.00	4.00	0.89	80	200
AVA08	F30	21	1500	4	11.50	90.00	2.24	0.88	84	230
		29	1500	4	13.80	90.00	2.72	0.88	84	230
		43	1300	4	15.00	90.00	3.36	0.88	84	230
		57	1000	4	20.00	93.00	4.16	0.90	85	230
		86	800	2	21.00	93.00	4.55	0.90	85	230
		115	745	2	22.00	93.00	4.60	0.90	85	230
AVA09	F30	21	2000	4	19.50	97.00	4.18	0.87	84	230
		29	2000	4	21.00	97.00	4.70	0.87	84	230
		43	1700	4	23.00	97.00	5.50	0.87	84	230
		57	1350	4	22.00	95.00	4.10	0.86	83	230
		86	1100	2	24.00	95.00	4.93	0.86	83	230
		115	800	2	26.00	95.00	5.37	0.86	83	230
AVA09.1	F30	29	2500	4	26.00	95.00	5.29	0.85	81	230
		43	2500	4	26.50	95.00	5.38	0.85	81	230
AVA10	F30	29	3000	4	33.00	102.00	5.51	0.84	82	230
AVA10G	F30	21	3500	4	34.00	102.00	5.82	0.84	81	230
		29	3500	4	36.00	102.00	6.32	0.84	81	230
		43	2000	4	32.00	102.00	5.76	0.84	81	230
		57	1600	4	33.00	124.00	5.96	0.86	83	230
		86	1400	2	34.00	124.00	6.06	0.86	83	230
		115	1200	2	35.00	124.00	6.52	0.86	83	230

AVAM series Performance Data (380V 3Phase 50Hz Modulating)

Model	Flange (ISO 5210)	RPM (50Hz)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVAM02	F10	18	50	4	1.46	4.00	0.22	0.75	70	32
		24	50	4	1.50	4.00	0.23	0.75	70	32
		36	50	4	1.53	4.00	0.25	0.75	70	32
		48	40	4	1.60	4.00	0.26	0.75	70	32
		72	25	2	2.00	5.80	0.41	0.82	78	32
AVAM03	F10	18	90	4	1.65	4.70	0.28	0.78	66	32
		24	90	4	1.68	4.70	0.29	0.78	66	32
AVAM04	F14	18	180	4	3.50	15.00	0.98	0.80	79	52
		24	180	4	3.75	15.00	1.17	0.80	79	52
		36	125	4	3.90	15.00	1.27	0.80	79	52
		48	125	4	4.00	15.00	1.23	0.80	79	52
		72	80	2	3.00	20.00	1.17	0.88	83	52
AVAM05	F14	18	360	4	4.00	17.00	1.33	0.81	78	52
		24	360	4	4.10	17.00	1.38	0.81	78	52
		36	240	4	4.18	17.00	1.31	0.81	78	52
		48	200	4	4.26	17.00	1.46	0.81	78	52
		72	140	2	4.50	25.00	1.60	0.90	81	52
AVAM06	F16	18	600	4	7.80	31.00	1.62	0.81	80	75
		24	600	4	8.30	31.00	1.87	0.81	80	75
		36	300	4	6.50	31.00	1.95	0.81	80	75
		48	260	4	6.30	38.00	1.74	0.89	82	75
		72	220	2	6.50	38.00	1.86	0.89	82	75

Note:1.Wiring and airbreak switch selection should refer to current(A) data of actuators.
2.The torque value above apply to those voltage higher than 380V.

AVAM series Performance Data (380V 3Phase 60Hz Modulating)

Model	Flange (ISO 5210)	RPM (60Hz)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVAM02	F10	21	50	4	1.52	4.20	0.24	0.79	68	32
		29	50	4	1.58	4.20	0.25	0.79	68	32
		43	50	4	1.62	4.20	0.27	0.79	68	32
		57	40	4	1.71	4.20	0.30	0.79	68	32
		86	25	2	2.10	8.00	0.48	0.90	77	32
AVAM03	F10	21	90	4	1.62	4.60	0.28	0.80	65	32
		29	90	4	1.75	4.60	0.31	0.80	65	32
AVAM04	F14	21	180	4	3.80	14.00	0.99	0.83	79	52
		29	180	4	3.96	14.00	1.15	0.83	79	52
		43	125	4	4.17	14.00	1.27	0.83	79	52
		57	125	4	4.25	14.00	1.25	0.83	79	52
		86	80	2	3.30	18.00	1.16	0.90	84	52
AVAM05	F14	21	360	4	4.10	16.50	1.29	0.84	78	52
		29	360	4	4.16	16.50	1.33	0.84	78	52
		43	240	4	4.23	16.50	1.26	0.84	78	52
		57	200	4	4.41	16.50	1.35	0.84	78	52
		86	140	2	4.80	23.00	1.52	0.91	81	52
AVAM06	F16	21	480	4	6.20	29.00	1.50	0.84	80	75
		29	480	4	6.40	29.00	1.76	0.84	80	75
		43	300	4	6.80	29.00	1.88	0.84	80	75
		57	260	4	6.60	35.00	1.73	0.90	82	75
		86	220	2	6.90	35.00	1.88	0.90	82	75

Note:1.Wiring and airbreak switch selection should refer to current(A) data of actuators.
2.The torque value above apply to those voltage higher than 380V.

AVA Series Performance Data (220V 1Phase 50Hz On/Off)

Model	Flange (ISO 5210)	RPM (50Hz)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVA03	F10	18	65	4	2.30	4.30	0.20	0.96	61	32
		24	60	4	2.30	4.30	0.20	0.96	61	32
AVA04	F14	18	165	4	6.70	16.30	0.45	0.95	73	52
		24	140	4	6.70	16.30	0.49	0.95	73	52
		36	130	4	6.70	16.30	0.50	0.95	73	52
		48	125	4	6.70	16.30	0.50	0.95	73	52
		72	80	2	9.00	24.00	0.80	0.96	71	52
		96	60	2	9.00	24.00	0.73	0.96	71	52
AVA05	F14	18	200	4	8.00	17.80	0.63	0.97	72	52
		24	200	4	8.00	17.80	0.63	0.97	72	52
		36	150	4	8.00	17.80	0.76	0.97	72	52
		48	130	4	8.00	17.80	0.76	0.97	72	52
		72	100	2	11.50	26.00	0.87	0.96	71	52
		96	70	2	11.50	26.00	0.87	0.96	71	52
AVA06	F16	18	400	4	12.60	39.00	1.17	0.97	76	75
		24	350	4	12.60	39.00	1.17	0.97	76	75
		36	300	4	12.60	39.00	1.17	0.97	76	75
		48	270	4	12.60	39.00	1.04	0.97	76	75
		72	200	2	16.00	45.00	1.36	0.95	74	75
		96	170	2	16.00	45.00	1.33	0.95	74	75

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVA series Performance Data (220V 1Phase 60Hz On/Off)

Model	Flange (ISO 5210)	RPM (60Hz)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVA03	F10	21	65	4	2.10	4.20	0.21	0.95	68	32
		29	60	4	2.10	4.20	0.21	0.95	68	32
AVA04	F14	21	165	4	7.50	13.00	0.59	0.94	73	52
		29	140	4	7.50	13.00	0.60	0.94	73	52
		43	130	4	7.50	13.00	0.61	0.94	73	52
		57	125	4	7.50	13.00	0.61	0.94	73	52
		86	80	2	9.80	23.00	0.91	0.92	77	52
		115	60	2	9.80	23.00	0.84	0.92	77	52
AVA05	F14	21	200	4	8.30	15.00	0.68	0.97	73	52
		29	200	4	8.30	15.00	0.68	0.97	73	52
		43	150	4	8.30	15.00	0.82	0.97	73	52
		57	130	4	8.30	15.00	0.82	0.97	73	52
		86	100	2	12.70	24.00	1.04	0.96	68	52
		115	70	2	12.70	24.00	1.04	0.96	68	52
AVA06	F16	21	400	4	14.00	28.70	1.31	0.98	74	75
		29	350	4	14.00	28.70	1.31	0.98	74	75
		43	300	4	14.00	28.70	1.31	0.98	74	75
		57	270	4	14.00	28.70	1.18	0.98	74	75
		86	200	2	19.00	41.00	1.46	0.96	71	75
		115	170	2	19.00	41.00	1.43	0.96	71	75

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVAM Series Performance Data (220V 1Phase 50Hz Modulating)

Model	Flange (ISO 5210)	RPM (50Hz)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVAM03	F10	18	40	4	1.80	4.00	0.14	0.98	62	32
		24	40	4	1.80	4.00	0.14	0.98	62	32
AVAM04	F14	18	100	4	6.40	16.00	0.41	0.93	66	52
		24	85	4	6.40	16.00	0.41	0.93	66	52
		36	70	4	6.40	16.00	0.42	0.93	66	52
		48	60	4	6.40	16.00	0.42	0.93	66	52
		72	50	2	8.20	24.00	0.67	0.98	78	52
AVAM05	F14	18	120	4	7.20	17.00	0.53	0.98	74	52
		24	120	4	7.20	17.00	0.53	0.98	74	52
		36	90	4	7.20	17.00	0.65	0.98	74	52
		48	80	4	7.20	17.00	0.65	0.98	74	52
		72	60	2	9.60	25.00	0.85	0.97	79	52
AVAM06	F16	18	240	4	11.30	26.00	1.07	0.96	75	75
		24	210	4	11.30	26.00	1.07	0.96	75	75
		36	180	4	11.30	26.00	0.96	0.96	75	75
		48	160	4	14.50	41.00	1.15	0.99	84	75
		72	140	2	14.50	41.00	1.15	0.99	84	75

Note:

1.For 1 phase modulating actuator, client should operate the actuator to opposite direction for 1-2 seconds first, then move to right direction. The length of opposite operation time should according the load of actuator, generally 2 seconds is enough.

2.Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVAM Series Performance Data (220V 1Phase 60Hz Modulating)

Model	Flange (ISO 5210)	RPM (60Hz)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVAM03	F10	21	40	4	1.90	3.90	0.15	0.98	63	32
		29	40	4	1.90	3.90	0.15	0.98	63	32
AVAM04	F14	21	100	4	7.30	13.00	0.47	0.98	73	52
		29	85	4	7.30	13.00	0.47	0.98	73	52
		43	70	4	7.30	13.00	0.48	0.98	73	52
		57	60	4	7.30	13.00	0.48	0.98	73	52
		86	50	2	10.00	22.00	0.78	0.96	78	52
AVAM05	F14	21	120	4	7.60	14.00	0.57	0.97	75	52
		29	120	4	7.60	14.00	0.57	0.97	75	52
		43	90	4	7.60	14.00	0.69	0.97	75	52
		57	80	4	7.60	14.00	0.69	0.97	75	52
		86	60	2	11.00	24.00	0.90	0.96	75	52
AVAM06	F16	21	240	4	13.00	25.00	1.10	0.98	78	75
		29	210	4	13.00	25.00	1.10	0.98	78	75
		43	180	4	13.00	25.00	0.99	0.98	78	75
		57	160	4	18.00	39.00	1.23	0.95	76	75
		86	140	2	18.00	39.00	1.23	0.95	76	75

Note:

1.For 1 phase modulating actuator, client should operate the actuator to oppsite direction for 1-2 seconds first, then move to right direction. The length of oppsite operation time should according the load of actuator, generally 2 seconds is enough.

2.Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVAMD Series Performance Data(380V 3Phase 50Hz)

Model	AVAMD01			AVAMD03		
Flange	F10			F10		
Worm shaft diameter/thread	25/3			25/3		
Max.Linear stroke	115					
Speed(rpm)	Linear speed (mm/sec)	Modulating Thrust(KN)	Rating Seat Thrust(KN)	Linear speed (mm/sec)	Modulating Thrust(KN)	Rating Seat Thrust(KN)
18	0.9	8.1	16.1	0.9	15.9	28.59
24	1.2	8.1	16.1	1.2	15.9	25.42
36	1.8	7.9	15.0	1.8	14.3	25.42
48	2.4	7.7	14.7	2.4	12.7	22.26
72	-	-	-	-	-	-

Model	AVAMD04			AVAMD04		
Flange	F14			F14		
Worm shaft diameter/thread	33/7			38/15		
Max.Linear stroke	115					
Speed(rpm)	Linear speed (mm/sec)	Modulating Thrust(KN)	Rating Seat Thrust(KN)	Linear speed (mm/sec)	Modulating Thrust(KN)	Rating Seat Thrust(KN)
18	2.1	24.26	36.4	5.4	16.7	25.1
24	2.8	24.26	36.4	7.2	16.7	25.1
36	4.2	20.22	24.3	10.8	13.9	16.7
48	5.6	16.17	20.2	14.4	11.1	13.9
72	8.4	14.15	16.1	21.6	8.9	11.1

Model	AVAMD05					
Flange	F14					
Worm shaft diameter/thread	33/7			38/15		
Max.Linear stroke	115					
Speed(rpm)	Linear speed (mm/sec)	Modulating Thrust(KN)	Rating Seat Thrust(KN)	Linear speed (mm/sec)	Modulating Thrust(KN)	Rating Seat Thrust(KN)
18	2.5	45.5	60.7	5.4	31.3	41.7
24	3.4	45.5	60.7	7.3	31.3	41.7
36	5.0	38.4	48.5	10.8	26.4	33.3
48	6.8	30.3	40.4	14.4	20.85	27.8
72	10.1	30.3	40.4	21.6	20.85	27.8

Drive Bush

AVA&AVAM Series Actuator Mechnical Interface Size

Model			AVA01 AVA02 AVA03	AVA04 AVA05	AVA06	AVA07	AVA08	AVA09	AVA09.1	AVA10	AVA10G
Flange	ISO5210		F10	F14	F16	F25	F30	F30	F30	F30	F30
	MSS SP-102		FA10	FA14	FA16	FA25	FA30	FA30	FA30	FA30	FA30
Stem acceptance diameter											
Type'A'(max) rising		mm	32	38	54	64	70	70	70	70	70
Non-rising		mm	26	32	45	51	57	57	57	57	57
Type'Z'(max) rising		mm	-	51	67	73	83	83	83	83	83
Non-rising		mm	-	38	51	57	73	73	73	73	73
Type 'Z3'		mm	32	51	67	-	-	-	-	-	-
Type 'B1' (fixed bore)		mm	42	60	80	100	100	120	120	120	120
Type 'B3' (fixed bore)		mm	20+	30+	40+	50	50	50	50	50	50
Type'B4' (maximum)		mm	20+	30+	44+	50	60	60	60	60	60

AVAT Series Performance Data (380V 3Phase 50Hz On/Off)

Model	Flange (ISO 5211)	Stem Dia (mm)		90°time (s)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
		Key	Square									
AVAT01	F07	28	19	18-20	125	2	0.47	1.20	0.05	0.80	53	24
AVAT02	F07	28	19	18-20	250	2	0.49	1.20	0.05	0.80	53	24
	F10	42	27									
AVAT03	F10	42	27	26-30	500	2	0.53	1.30	0.06	0.78	56	35
AVAT04	F12	50	32	27-30	1000	2	0.56	1.30	0.06	0.78	56	35
	F14	60	36									
AVAT05	F12	50	32	46-50	1500	2	0.60	1.30	0.06	0.76	51	35
	F14	60	36									
AVAT06	F14	60	36	58-60	2000	2	0.62	1.30	0.06	0.76	51	35

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVAT Series Performance Data (380V 3Phase 60Hz On/Off)

Model	Flange (ISO 5211)	Stem Dia (mm)		90°time (s)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
		Key	Square									
AVAT01	F07	28	19	16-18	125	2	0.50	1.20	0.07	0.72	67	24
AVAT02	F07	28	19	16-18	250	2	0.56	1.20	0.07	0.72	67	24
	F10	42	27									
AVAT03	F10	42	27	19-22	500	2	0.59	1.20	0.07	0.74	67	35
AVAT04	F12	50	32	23-26	1000	2	0.62	1.20	0.07	0.74	67	35
	F14	60	36									
AVAT05	F12	50	32	42-45	1500	2	0.65	1.20	0.08	0.76	66	35
	F14	60	36									
AVAT06	F14	60	36	45-50	2000	2	0.69	1.20	0.08	0.76	66	35

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVATM Series Performance Data (380V 3Phase 50Hz Modulating)

Model	Flange (ISO 5211)	Stem Dia (mm)		90°time (s)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
		Key	Square									
AVATM01	F07	28	19	18-20	125	2	0.42	1.10	0.05	0.80	57	24
AVATM02	F07	28	19	18-20	215	2	0.45	1.10	0.05	0.80	57	24
	F10	42	27									
AVATM03	F10	42	27	26-30	300	2	0.50	1.20	0.06	0.80	57	35
AVATM04	F12	50	32	27-30	700	2	0.53	1.20	0.06	0.79	59	35
	F14	60	36									
AVATM05	F12	50	32	46-50	1100	2	0.57	1.20	0.07	0.84	55	35
	F14	60	36									
AVATM06	F14	60	36	58-60	1500	2	0.60	1.20	0.07	0.84	55	35

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVATM Series Performance Data (380V 3Phase 60Hz Modulating)

Model	Flange (ISO 5211)	Stem Dia (mm)		90°time (s)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
		Key	Square									
AVATM01	F07	28	19	16-18	125	2	0.45	1.10	0.07	0.75	70	24
AVATM02	F07	28	19	16-18	215	2	0.48	1.10	0.07	0.75	70	24
	F10	42	27									
AVATM03	F10	42	27	19-22	300	2	0.53	1.20	0.08	0.73	69	35
AVATM04	F12	50	32	23-26	700	2	0.58	1.20	0.08	0.73	69	35
	F14	60	36									
AVATM05	F12	50	32	42-45	1100	2	0.61	1.20	0.08	0.72	67	35
	F14	60	36									
AVATM06	F14	60	36	45-50	1500	2	0.66	1.20	0.08	0.72	67	35

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVAT Series Performance Data (220V 1Phase 50Hz On/Off)

Model	Flange (ISO 5211)	Stem Dia (mm)		90°time (s)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
		Key	Square									
AVAT01	F07	28	19	14-16	100	2	1.60	5.00	0.08	0.96	67	24
AVAT02	F07	28	19	18-20	200	2	1.60	5.00	0.08	0.96	67	24
	F10	42	27									
AVAT03	F10	42	27	18-20	400	2	1.86	5.00	0.09	0.96	69	35
AVAT04	F12	50	32	25-30	800	2	1.86	5.00	0.10	0.96	69	35
	F14	60	36									
AVAT05	F12	50	32	27-30	1200	2	1.70	5.00	0.10	0.96	68	35
	F14	60	36									
AVAT06	F14	60	36	58-62	1600	2	1.70	5.00	0.10	0.96	68	35

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVAT Series Performance Data (220V 1Phase 60Hz On/Off)

Model	Flange (ISO 5211)	Stem Dia (mm)		90°time (s)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
		Key	Square									
AVAT01	F07	28	19	13-15	100	2	1.70	4.60	0.09	0.95	70	24
AVAT02	F07	28	19	16-18	200	2	1.70	4.60	0.09	0.95	70	24
	F10	42	27									
AVAT03	F10	42	27	16-18	400	2	1.98	4.60	0.10	0.95	72	35
AVAT04	F12	50	32	19-22	800	2	1.98	4.60	0.11	0.95	72	35
	F14	60	36									
AVAT05	F12	50	32	23-26	1200	2	1.92	4.60	0.10	0.94	73	35
	F14	60	36									
AVAT06	F14	60	36	45-50	1600	2	1.92	4.60	0.10	0.94	73	35

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVATM Series Performance Data (220V 1Phase 50Hz Modulating)

Model	Flange (ISO 5211)	Stem Dia (mm)		90°time (s)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
		Key	Square									
AVATM01	F07	28	19	14-16	100	2	1.50	4.80	0.10	0.98	80	24
AVATM02	F07	28	19	18-20	150	2	1.50	4.80	0.10	0.98	80	24
	F10	42	27									
AVATM03	F10	42	27	18-20	200	2	1.70	4.80	0.11	0.96	78	35
AVATM04	F12	50	32	25-30	600	2	1.70	4.80	0.11	0.96	78	35
	F14	60	36									
AVATM05	F12	50	32	27-30	1000	2	1.60	4.80	0.11	0.97	79	35
	F14	60	36									
AVATM06	F14	60	36	58-62	1300	2	1.60	4.80	0.11	0.97	79	35

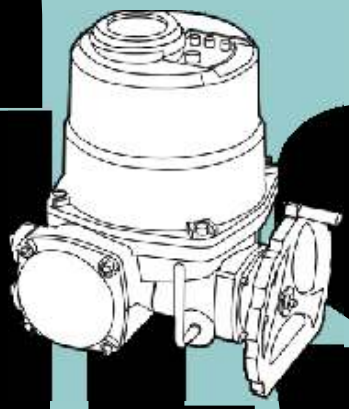
Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVATM Series Performance Data (220V 1Phase 60Hz Modulating)

Model	Flange (ISO 5211)	Stem Dia (mm)		90°time (s)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
		Key	Square									
AVATM01	F07	28	19	13-15	100	2	1.65	4.50	0.10	0.96	77	24
AVATM02	F07	28	19	16-18	150	2	1.65	4.50	0.10	0.96	77	24
	F10	42	27									
AVATM03	F10	42	27	16-18	200	2	1.85	4.50	0.12	0.95	78	35
AVATM04	F12	50	32	19-22	600	2	1.85	4.50	0.12	0.95	78	35
	F14	60	36									
AVATM05	F12	50	32	23-26	1000	2	1.76	4.50	0.12	0.95	79	35
	F14	60	36									
AVATM06	F14	60	36	45-50	1300	2	1.76	4.50	0.12	0.95	79	35

Note:Wiring and airbreak switch selection shouldrefer to current(A) data of actuators.

AVAR SERIES



Intelligent Electric Actuator

In order to meet the demand of the market, **PASCO** has developed AVAR series quarter-turn electric actuator on the basis of AVAT series actuator. AVAR series actuator with the torque range from 50Nm to 500Nm, has the characteristics of smart, simple structure, complete function, reliable quality and competitive price.

Features and functions of AVAR series electric actuator

AVAR series actuator simplifies parts function of AVAT range without lowering its performance and introduces dot matrix LCD as well as absolute encoder to make it more personified.

AVAR reserved functions of AVAT as listed:

- ❒ Non-intrusive design
- ❒ Auto phase correction
- ❒ Instantaneous reversal protection
- ❒ Motor overheating protection
- ❒ 4 sets of indication contacts
- ❒ Analogue position control (option)
- ❒ Fieldbus (option)

AVAR Changed functions of AVAT as listed:

Button setting of parameters

AVAR actuator changes the parameter setting mode and uses the push button to set parameters instead of infrared setting tool which is used by AVAT.

High-brightness industrial LCD display

AVAR series adopt high-brightness large-screen LCD display which can show Chinese or English menu clearly.

Absolute encoder measurement of valve position

AVAR range actuator takes advanced 12-bit hall magnetic absolute encoder, which can record the valve position accurately without battery when the power is off. The accuracy of the valve position measurement can be 0.08°.

The Internal Structure of AVAR Actuator

1. Liquid crystal Display

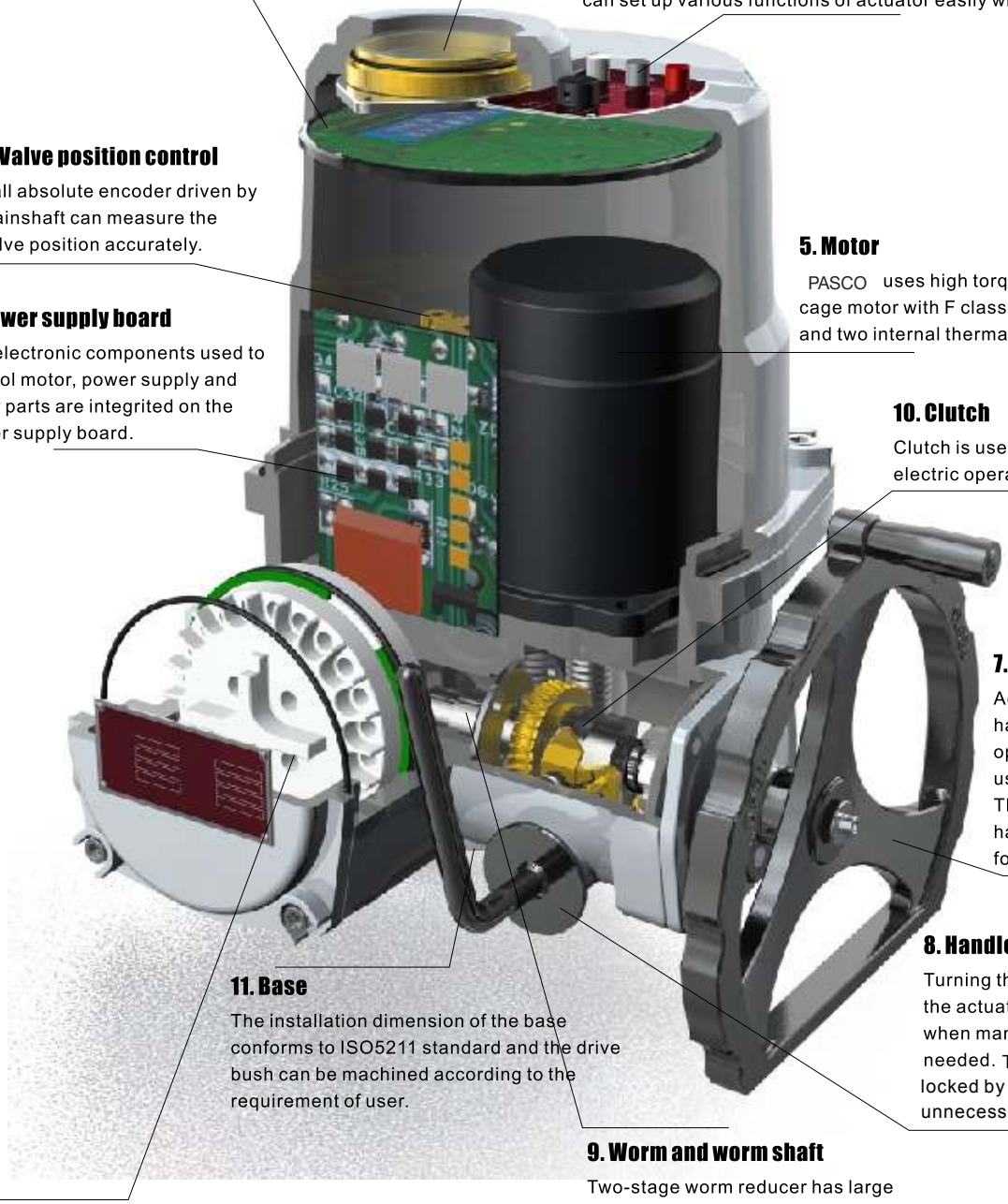
Dot Matrix LCD with blue backlight can clearly show Chinese or English menu. Real-time valve position, torque value, actuator current status and fault information will also be shown. At the bottom of the screen, there are three high brightness diodes which can indicate open, close and middle position of valve.

2. Mainboard

The adoption of SOC chip and high integrated circuit design provide actuator with multiple functions such as fault detection, self-protection and alarm. Therefore, the reliability of actuator is improved.

4. Button

There are four buttons called local/remote/menu button, open/plus button, close/minus button and stop/enter button on the actuator. User can set up various functions of actuator easily with these buttons.



3. Valve position control

Hall absolute encoder driven by mainshaft can measure the valve position accurately.

5. Motor

PASCO uses high torque, low inertia squirrel cage motor with F class enamel-insulated wire and two internal thermal switches.

6. Power supply board

The electronic components used to control motor, power supply and other parts are integrited on the power supply board.

10. Clutch

Clutch is used to switch manual and electric operation.

7. Handwheel

Actuator has a handwheel, which can operate the valve by user when power is off. The dimension of the handwheel is designed for labor saving.

8. Handle

Turning the handle can switch the actuator to manual status when manual operation is needed. The handle can be locked by padlock to prohibit unnecessary manual setting.

11. Base

The installation dimension of the base conforms to ISO5211 standard and the drive bush can be machined according to the requirement of user.

9. Worm and worm shaft

Two-stage worm reducer has large transmission ratio, low noise (50dB is the highest) and self-lock functions.

12. Terminal compartment

The double-seal design of the terminal compartment can protect the internal electric components from the outside hazardous gas during site wiring.

AVAR Series Performance Data (380V 3Phase 50Hz On/Off)

Model	Specification	Flange (ISO 5211)	Time (S)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVAR200	AVAR5	F05/F07	20	50	4	0.50	1.60	0.05	0.83	57	14
	AVAR10	F05/F07	20	100	4	0.53	1.60	0.05	0.83	57	14
	AVAR15	F05/F07	20	150	4	0.56	1.60	0.05	0.83	57	14
	AVAR20	F05/F07	20	200	4	0.62	1.60	0.05	0.83	57	14
AVAR500	AVAR30	F07/F10	30	300	4	1.03	2.20	0.08	0.74	61	17
	AVAR40	F07/F10	30	400	4	1.08	2.20	0.08	0.74	61	17
	AVAR50	F07/F10	30	500	4	1.12	2.20	0.09	0.74	61	17

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVAR Series Performance Data (380V 3Phase 60Hz On/Off)

Model	Specification	Flange (ISO 5211)	Time (S)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVAR200	AVAR5	F05/F07	17	50	4	0.51	1.50	0.05	0.72	67	14
	AVAR10	F05/F07	17	100	4	0.54	1.50	0.05	0.72	67	14
	AVAR15	F05/F07	17	150	4	0.58	1.50	0.05	0.72	67	14
	AVAR20	F05/F07	17	200	4	0.63	1.50	0.05	0.72	67	14
AVAR500	AVAR30	F07/F10	26	300	4	0.95	1.90	0.08	0.75	64	17
	AVAR40	F07/F10	26	400	4	1.02	1.90	0.08	0.75	64	17
	AVAR50	F07/F10	26	500	4	1.12	1.90	0.08	0.75	64	17

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVARM Series Performance Data (380V 3Phase 50Hz Modulating)

Model	Specification	Flange (ISO 5211)	Time (S)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVARM 200	AVARM5	F05/F07	20	50	4	0.48	1.50	0.05	0.80	60	14
	AVARM10	F05/F07	20	75	4	0.50	1.50	0.05	0.80	60	14
	AVARM15	F05/F07	20	100	4	0.52	1.50	0.05	0.80	60	14
	AVARM20	F05/F07	20	140	4	0.56	1.50	0.05	0.80	60	14
AVARM 500	AVARM30	F07/F10	30	180	4	0.92	2.10	0.09	0.75	63	17
	AVARM40	F07/F10	30	240	4	0.96	2.10	0.09	0.75	63	17
	AVARM50	F07/F10	30	300	4	1.02	2.10	0.10	0.75	63	17

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVARM Series Performance Data (380V 3Phase 60Hz Modulating)

Model	Specification	Flange (ISO 5211)	Time (S)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVARM 200	AVARM5	F05/F07	17	50	4	0.50	1.40	0.05	0.74	68	14
	AVARM10	F05/F07	17	75	4	0.52	1.40	0.05	0.74	68	14
	AVARM15	F05/F07	17	100	4	0.55	1.40	0.05	0.74	68	14
	AVARM20	F05/F07	17	140	4	0.60	1.40	0.05	0.74	68	14
AVARM 500	AVARM30	F07/F10	26	180	4	0.86	1.80	0.09	0.78	65	17
	AVARM40	F07/F10	26	240	4	0.93	1.80	0.09	0.78	65	17
	AVARM50	F07/F10	26	300	4	1.05	1.80	0.09	0.78	65	17

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVAR Series Performance Data (220V 1Phase 50Hz On/Off)

Model	Specification	Flange (ISO 5211)	Time (S)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVAR200	AVAR5	F05/F07	20	40	4	0.86	1.20	0.03	0.96	52	14
	AVAR10	F05/F07	20	60	4	0.86	1.20	0.03	0.96	52	14
	AVAR15	F05/F07	20	80	4	0.86	1.20	0.03	0.96	52	14
	AVAR20	F05/F07	20	100	4	0.86	1.20	0.03	0.96	52	14
AVAR500	AVAR30	F07/F10	30	150	4	1.30	2.20	0.05	0.96	58	17
	AVAR40	F07/F10	30	175	4	1.30	2.20	0.05	0.96	58	17
	AVAR50	F07/F10	30	220	4	1.30	2.20	0.05	0.96	58	17

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVAR Series Performance Data (220V 1Phase 60Hz On/Off)

Model	Specification	Flange (ISO 5211)	Time (S)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVAR200	AVAR5	F05/F07	17	40	4	0.90	1.10	0.04	0.94	70	14
	AVAR10	F05/F07	17	60	4	0.90	1.10	0.04	0.94	70	14
	AVAR15	F05/F07	17	80	4	0.90	1.10	0.04	0.94	70	14
	AVAR20	F05/F07	17	100	4	0.90	1.10	0.04	0.94	70	14
AVAR500	AVAR30	F07/F10	26	150	4	1.50	2.10	0.05	0.93	62	17
	AVAR40	F07/F10	26	175	4	1.50	2.10	0.05	0.93	62	17
	AVAR50	F07/F10	26	220	4	1.50	2.10	0.05	0.93	62	17

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVARM Series Performance Data (220V 1Phase 50Hz Modulating)

Model	Specification	Flange (ISO 5211)	Time (S)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVARM 200	AVARM5	F05/F07	20	30	4	0.76	1.10	0.03	0.97	68	14
	AVARM10	F05/F07	20	40	4	0.76	1.10	0.03	0.97	68	14
	AVARM15	F05/F07	20	55	4	0.76	1.10	0.03	0.97	68	14
	AVARM20	F05/F07	20	70	4	0.76	1.10	0.03	0.97	68	14
AVARM 500	AVARM30	F07/F10	30	100	4	1.22	2.00	0.05	0.95	63	17
	AVARM40	F07/F10	30	140	4	1.22	2.00	0.05	0.95	63	17
	AVARM50	F07/F10	30	180	4	1.22	2.00	0.05	0.95	63	17

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

AVARM Series Performance Data (220V 1Phase 60Hz Moudlating)

Model	Specification	Flange (ISO 5211)	Time (S)	Torque (Nm)	Motor Poles	Rated Current (A)	Starting Current (A)	Rated Power (KW)	Power Factor	Efficiency (%)	Weight (KG)
AVARM 200	AVARM5	F05/F07	17	30	4	0.82	1.00	0.04	0.95	71	14
	AVARM10	F05/F07	17	40	4	0.82	1.00	0.04	0.95	71	14
	AVARM15	F05/F07	17	55	4	0.82	1.00	0.04	0.95	71	14
	AVARM20	F05/F07	17	70	4	0.82	1.00	0.04	0.95	71	14
AVARM 500	AVARM30	F07/F10	26	100	4	1.30	1.90	0.05	0.93	64	17
	AVARM40	F07/F10	26	140	4	1.30	1.90	0.05	0.93	64	17
	AVARM50	F07/F10	26	180	4	1.30	1.90	0.05	0.93	64	17

Note:Wiring and airbreak switch selection should refer to current(A) data of actuators.

Figure Number System

How To Order And Specify

The following is an example of a specific figure number. The fields have been numbered and are explained in the corresponding sections.

Model	Code	RPM	Flange	Base	Volt	Phase	Hz	Protection	Fieldbus	Other
AVA AVAM AVAT AVATM AVAR AVARM AVAMD	Numbers: Eg.01,02...	50Hz 60Hz 18 21 24 29 36 43 48 57 72 86 96 115 114 173	F05 F07 F10 F12 F14 F16 F25 F30	A(Rising) A(Non rising) Z (Rising) Z (Non rising) Z3 B1 B3 B4	380350 220150 380360 220160 Or other			BT4: Exd II BT4 CT4: Exd II CT4 IP67 IP68 Other	1.No 2.Modbus RTU 3.Foundation Fieldbus 4.Profibus DP 5.Other	1.No 2.Intermittent timing model 3.Extent to 8 Contacts 4.Anti-condensation heater 5.4-20mA signal feedback 6. Modulating 7.Space heater

Example:

AVAM03-24-F10A-380350-BT4-4-4

It means the actuator model is AVAM03, Flange F10, A type thrust base, the voltage is 380v,3P,50Hz, the enclosure protection class is Exd II BT4, the bus control system is Profibus DP , actuator should be equipped with Anti-condensation heater

1.Model Number, the actuator mentioned below can directly mounted on the valves.
Multi-turn application: AVA,AVAM
Quarter-turn application: AVAT, AVATM, AVAR
Linear application: AVAMD
2.RPM(Round per minute), it will determine the open/Close time of valves, for multi-turn actuators, the RPM range from 18 to144 or higher as specified.
3.Connection flange for valves
4.Power supply. For PASCO actuator, the applicable voltage is range from 100VAC to 690VAC,
5.Enclosure protection class.
6.Bus control system.
7.Other special option. Special requirements will be defined on the sales order as per customer specifications.