

rotork®

Keeping the World Flowing
for Future Generations



Noah NA Range

Part-turn electric actuator



Reliable, compact, modular electric actuators designed to provide configurable valve control options for industrial applications.



Rotork is a market-leading global provider of mission-critical flow control and instrumentation solutions for the industrial actuation and flow control markets. These include oil and gas, water and wastewater, power, chemical, process and industrial applications.

Customers rely on us for innovative, high quality and dependable solutions for managing the flow of liquids, gases and powders. We help customers around the world to improve efficiency, reduce emissions, minimise their environmental impact and assure safety.

Our reliability record is second to none. Our products are designed with safety and performance at their core and are put through vigorous testing and certified to international standards. Our products are certified for use in the world's most dangerous and hazardous areas.

Partnering with us provides the following:

- Assured safety and reliability
- Industry leading accuracy and efficiency
- Proven technology that works with all network control systems
- Product range with solutions to suit every application
- Assistance with plant planning, development and maintenance through our local support services
- We have innovative research and development centers throughout the world

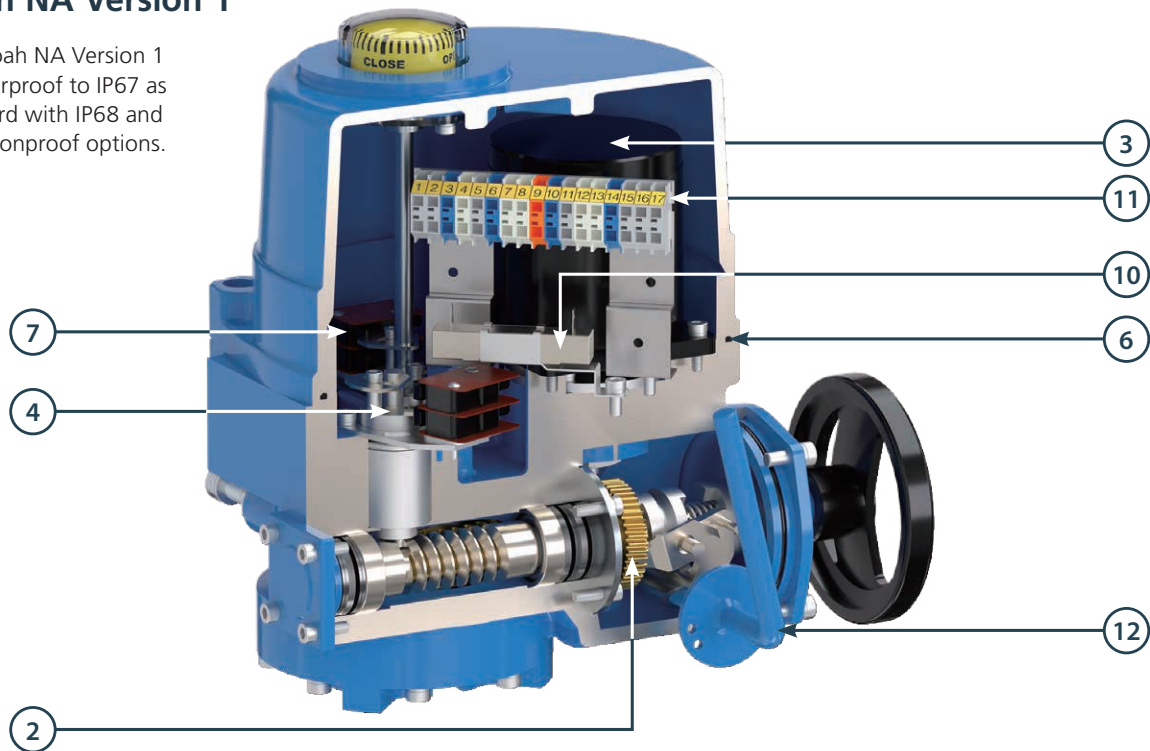


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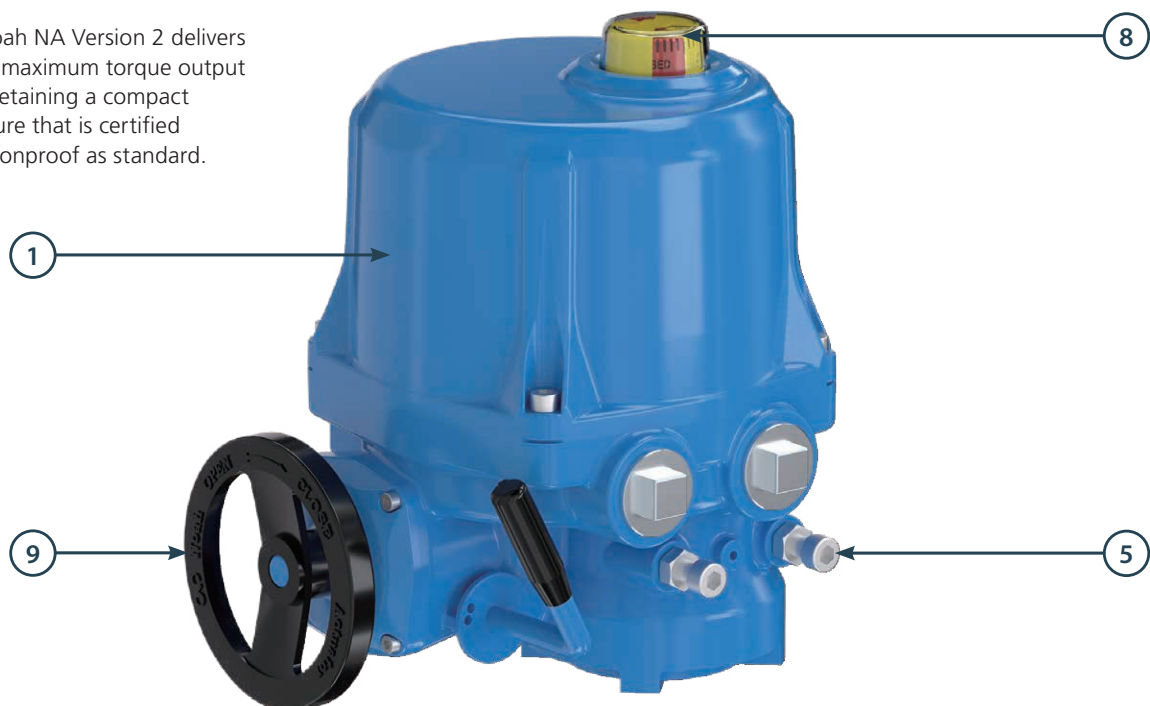
Noah NA Version 1

The Noah NA Version 1 is waterproof to IP67 as standard with IP68 and explosionproof options.



Noah NA Version 2

The Noah NA Version 2 delivers higher maximum torque output while retaining a compact enclosure that is certified explosionproof as standard.



1. Outer case

The aluminum alloy casting is oxide film treated then powder coated (Polyester, TGIC-Free) to provide the best corrosion protection performance in any environment.

Optional - Explosionproof NA version 1: Exd IIB T4
- Explosionproof NA version 2: Exd IIC T4/15/T6

2. Self-locking

The two-stage gear structure prevents rotation and reverse torque from valves and attached equipment.

3. Motor

Supply voltages for customer selection include 1-phase (110/220 VAC), 3-phase (380/440 VAC) and 24 VDC. Noah NA range actuators include a built-in thermal protector to protect the motor in case of motor overload.

4. Safety device

NA range has a built-in thermal protector for motor overload protection and a built-in torque switch (open/close) to protect the actuator and connected valves and dampers when overload exceeds the set torque, providing a double (mechanical and electrical) safety device. Note: Due to their designs, NA006 and NA009 actuators do not include a torque switch.

5. Mechanical stop device

To prevent the actuator from exceeding its open and close limits, stoppers bolt are installed to prevent the valve or damper from exceeding its limit set points.

6. Waterproof

The Noah NA range is IP67 rated waterproof and all connections feature O-rings, ensuring complete waterproofing even when installed outdoors.

Optional specification - IP68: 10 m / 72 hours

7. Limit switch

A built-in mechanical cam-type limit switch is included which accurately controls the position of valves and rotating devices. The simple design and structure allows for easy adjustment.

8. Visuals position indicator

The integral position indicator is highly visible and directly connected to the center column, so you can accurately see the movement of the valve. The NA Version 1 features a domed position indicator cover while the NA Version 2 uses a highly robust flat design suitable for explosionproof certification.

9. Handwheel

The handwheel provides effective manual operation of the valve. Handwheel drive is independent of the motor drive and is selected with a lockable lever for safe operation even when the motor is running.

10. Internal heater

The built-in internal heater prevents condensation and moisture forming inside the actuator to protect the internal components.

11. Terminal block

The terminal block is WAGO-structured allowing for simple wiring and is highly resistant to vibration and corrosion.

12. Manual/automatic switch

The built-in manual/automatic lever allows switching between manual (handwheel) and automatic (motor) output control. The lever is lockable in either position.

Standard specifications

Waterproof rating	Waterproof ingress protection IP67
Operating temperature range	Tamb -20 to +70 °C (-4 to +158 °F) Optional: -40 °C (-40 °F), -60 °C (-76 °F), +250 / +400 °C (+482 / +752 °F for 1 hour)
Power supply	1-phase 110/220 VAC 50/60 Hz, 3-phase 380/440 VAC 50/60 Hz (Option: 24 VAC, 24 VDC)
Torque switch	Open : 2ea / Close : 2ea (NA006, NA009 7°1)
Limit switch	Open : 2ea / Close : 2ea (250 VAC 16 A rating)
Duty cycle (ON-OFF)	S2 15 minutes (maximum torque) - ISO22153 standard
Duty cycle (MODULATING)	Up to S4 50% (based on 50% of maximum torque) - ISO22153 standard
Stall protection	Built-in thermal protection: Open +150 ±5 °C (+302 ±9 °F) / Closed +97 ±15 °C (+207 ±27 °F)
Range of motion	90° ±5°
Indicator	Continuous position indicator
Manual override	Hand/Auto declutching mechanism
Self locking	Prevention of reverse rotation by two-stage gear
Mechanical protection device	External adjustable screw
Heater	20 W
Cable entries	2-PF ¾" (Options: 2-M20 x Pitch 1.5, 2-NPT ¾")
Lubricant	Shell Gadus S2 V220 2
Case material	Aluminium
Surface treatment	Anodising
Standard paint finish	Polyester powder coating (TGIC-FREE)

Performance data

Model	Torque		Operating time (90°/sec)		Rated current (A) 60 Hz						Duty cycle	Max. stem size	Number of handle turns	Weight	
	Nm	lbf.ft	50 Hz	60 Hz	24 VDC	110 VAC	220 VAC	230 VAC	380 VAC	440 VAC				kg	lbs
NA006	60	44	17	14	2.5	0.7	0.42	0.38	0.15	0.15	50	22	8.5	9	19.8
NA009	90	66	17	14	3.5	1.1	0.52	0.56	0.18	0.18	50	22	8.5	9	19.8
NA015	150	111	20	17	4.5	1.7	0.9	0.75	0.3	0.3	50	22	10	11.5	25.4
NA019	190	140	20	17	4.5	1.7	0.9	0.75	0.3	3	50	22	10	11.5	25.4
NA028	280	207	24	20	6.5	1.8	0.9	0.75	0.32	0.32	50	32	12.5	14	30.9
NA038	380	280	24	20	-	2.8	1.2	1.06	0.37	0.46	30	32	12.5	14	30.9
NA050	500	369	24	20	-	3.7	1.5	1.2	0.56	0.46	25	32	12.5	14	30.9
NA060	600	443	29	24	-	3.7	1.5	1.2	0.56	0.75	25	42	14.5	24	52.9
NA080	800	590	29	24	-	4.7	1.8	1.8	0.85	0.75	25	42	14.5	24	52.9
NA100	1000	738	29	24	-	4.7	2	2	0.9	0.9	25	42	14.5	24	52.9
NA150	1500	1106	87	72	-	3.7	1.5	1.2	0.56	0.46	25	75	43.5	60	132.3
NA200	2000	1475	87	72	-	4.7	1.8	1.8	0.85	0.75	25	75	43.5	60	132.3
NA250	2500	1844	87	72	-	4.7	2	2	0.9	0.9	25	75	43.5	60	132.3
NA300	3000	2213	116	96	-	4.7	2	2	0.9	0.9	25	75	58	60	132.3

Dimensional data

NA006 ~ NA100	NA150 ~ NA300
<p>BCDØ"A" 4-M"B" DP"C"</p> <p>BCDØ"D" 4-M"E" DP"F"</p> <p>CABLE ENTRIES</p> <p>BASE & D/B</p>	<p>BCDØ"A" 4-M"B" DP"C"</p> <p>BCDØ"D" 4-M"E" DP"F"</p> <p>BCDØ"D1" 4-M"E1" DP"F1"</p> <p>CABLE ENTRIES</p>
All dimensions in millimetres	All dimensions in millimetres

Model	NA006, NA009	NA015, NA019	NA028, NA038, NA050	NA060, NA080, NA100	NA150, NA200, NA250, NA300
A	BCD70	BCD70	BCD102	BCD125	BCD125
B	4-M8	4-M8	4-M10	4-M12	4-M12
C	12	12	18	22	22
Flange (ISO 5211)	F07	F07	F10	F12	F12
D	D1	-	BCD102	BCD140	BCD140
E	E1	-	4-M10	4-M12	4-M16
F	F1	-	15	18	22
Flange (ISO 5211)		F10	F12	F14	F14
Options	BCD82	BCD82		BCD102(F10)	-
G(MAX)	Key	22	22	32	42
	Square	20	20	26	34
H	46	46	55	62	100
I	270	274	321	362	554
J	108	108	130	178	178
K	55	70	75	92	92
L	174	184	202	223	315
M	120	139	149	192	192
N	68	85	95	105	152
O	102	102	125	155	170
Cable entry	Standard	2-PF¾"	3-PF¾"		
		2-PF1"	3-PF1"		
	Options	2-M20x1.5	3-M20x1.5		
		2-M25x1.5	3-M25x1.5		
		2-NPT1"	3-NPT1"		
		2-NPT¾"	3-NPT¾"		

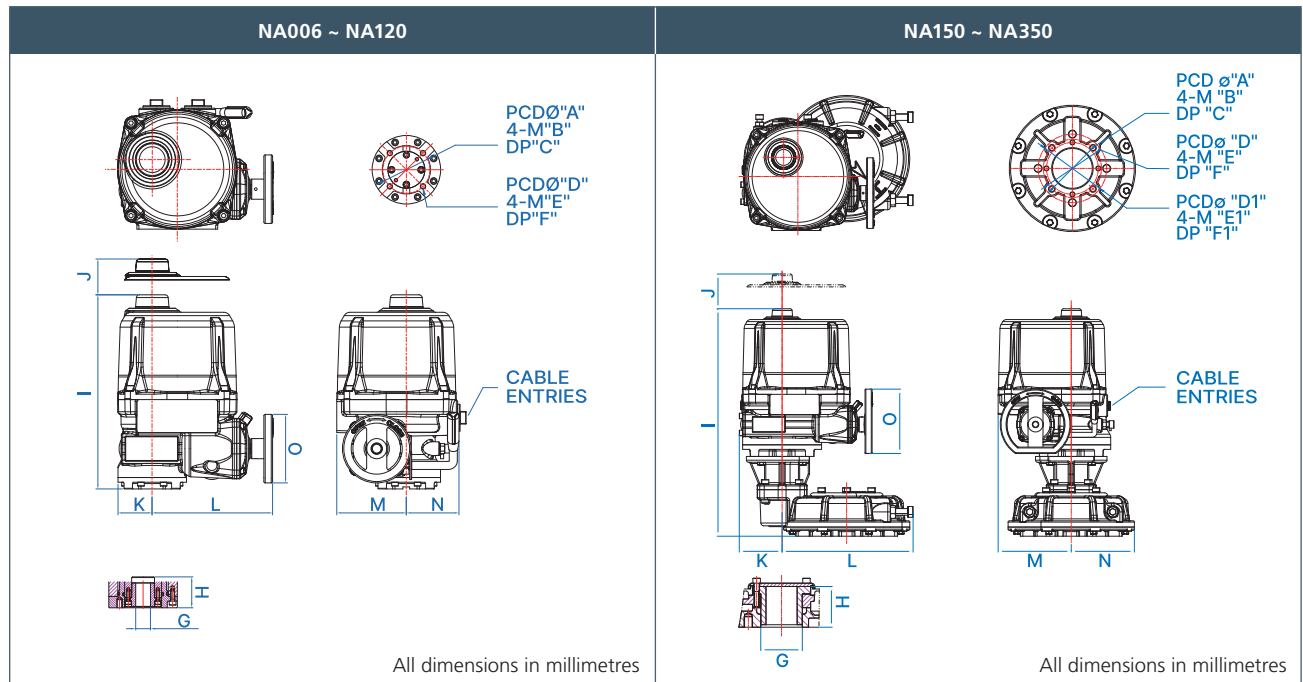
Standard specifications

Waterproof rating	Waterproof ingress protection IP67
Operating temperature range	Tamb -20 to +70 °C (-4 to +158 °F) Optional: -40 °C (-40 °F), -60 °C (-76 °F), +250 / +400 °C (+482 / +752 °F for 1 hour)
Power supply	1-phase 110/220 VAC 50/60 Hz, 3-phase 380/440 VAC 50/60 Hz (Option: 24 VAC, 24 VDC)
Torque switch	Open : 1ea / Close : 1ea (Except NA006, NA009)
Limit switch	Open : 1ea / Close : 1ea (250 VAC 16 A rating)
Duty cycle (ON-OFF)	S2 15 minutes (maximum torque) - ISO22153 standard
Duty cycle (MODULATING)	Up to S4 50% (based on 50% of maximum torque) - ISO22153 standard
Stall protection	Built-in thermal protection: Open +150 ±5 °C (+302 ±9 °F) / Closed +97 ±15 °C (+207 ±27 °F)
Range of motion	90° ±5°
Indicator	Continuous position indicator
Manual override	Hand/Auto declutching mechanism
Self locking	Prevention of reverse rotation by two-stage gear
Mechanical protection device	External adjustable screw
Heater	20 W
Cable entries	NA006 ~ 009 : 2-PF ¾" (Options: PF 1", NPT ¾", NPT 1", M20 Pitch 1.5, M25 Pitch 1.5) NA015 ~ 350 : 3-PF ¾" (Options: PF 1", NPT ¾", NPT 1", M20 Pitch 1.5, M25 Pitch 1.5)
Lubricant	Shell Gadus S2 V220 2
Case material	Aluminium
Surface treatment	Anodising
Standard paint finish	Polyester powder coating (TGIC-FREE)

Performance data

Model	Torque		Operating time (90°/sec)		Rated current (A) 60 Hz						Duty cycle	Max. stem size	Number of handle turns	Weight	
	Nm	lbf.ft	50 Hz	60 Hz	24 VDC	110 VAC	220 VAC	230 VAC	380 VAC	440 VAC	54(%)	mm		kg	lbs
NA006	60	44	18	16	3.0	0.85	0.42	0.42	0.15	0.15	50	22	8.5	11	24.3
NA009	90	66	20	17	4.3	1.35	0.55	0.55	0.19	0.19	50	22	8.5	11	24.3
NA015	150	111	23	20	4.3	1.75	1	1	0.3	0.33	50	22	10	14	30.9
NA019	190	140	23	20	5.0	1.9	1.05	1.05	0.31	0.33	50	22	10	17	37.5
NA028	280	207	29	25	7.0	2	1.05	1.05	0.35	0.32	50	22	13.3	17	37.5
NA038	380	280	29	25	13.5	2.1	1.3	1.3	0.4	0.37	30	32	13.3	17	37.5
NA050	500	369	29	25	14.5	3.8	1.45	1.45	0.51	0.5	25	32	13.3	24	52.9
NA060	600	443	38	31	15.0	2.4	1.5	1.6	0.47	0.48	25	42	15	25	55.1
NA080	800	590	38	31	16.0	3.15	1.9	2	0.62	0.62	25	42	15	25	55.1
NA100	1000	738	38	31	-	3.5	2.05	2.1	0.7	0.7	25	42	15	25	55.1
NA120	1200	885	36	30	-	4	2.2	2.4	0.9	0.75	25	42	15	65	143.3
NA150	1500	1106	114	93	-	2.4	1.5	1.6	0.47	0.48	25	75	45	65	143.3
NA200	2000	1475	114	93	-	3.15	1.9	2	0.62	0.62	25	75	45	65	143.3
NA250	2500	1844	114	93	-	3.5	2.05	2.1	0.7	0.7	25	75	45	65	143.3
NA300	3000	2213	144	120	-	4.0	1.9	2.4	0.9	0.75	25	75	60	65	143.3
NA350	3500	2581	144	120	-	4.0	2.05	2.4	0.9	0.75	25	75	60	65	143.3

Dimensional data



Model		NA006, NA009	NA015, NA019	NA028, NA038, NA050	NA060, NA080, NA100, NA120	NA150, NA200, NA250, NA300, NA350	
A		PCDØ70	PCDØ70	PCDØ102	PCDØ125	PCDØ125	
B		4-M8	4-M8	4-M10	4-M12	4-M12	
C		12	12	18	22	22	
Flange (ISO 5211)		F07	F07	F10	F12	F12	
D	D1	-	PCDØ102	PCDØ125	PCDØ140	PCDØ140	PCDØ165
E	E1	-	4-M10	4-M12	4-M16	4-M16	4-M20
F	F1	-	15	18	22	22	25
Flange (ISO 5211)		-	F10	F12	F14	F14	F16
Options		PCDØ82	PCDØ82	-	PCDØ102(F10)	-	
G(MAX)	Key	22	22	32	42	75	
	Square	20	20	26	34	65	
H		46	46	55	62	100	
I		269	298	307	362	547.5	
J		108	108	130	178	178	
K		51	81	83	103	103	
L		179	183	198	217	315	
M		103.5	124	142	176	176	
N		78.5	83	88	103	152	
O		102	102	125	155	170	
Cable entry	Standard	2-PF¾"	3-PF¾"				
		2-PF1"	3-PF1"				
	Options	2-M20x1.5	3-M20x1.5				
		2-M25x1.5	3-M25x1.5				
		2-NPT1"	3-NPT1"				
		2-NPT¾"	3-NPT¾"				

Standard features

Waterproof (standard)

The Noah NA range is certified waterproof to IP67 as standard and all connections feature O-rings to ensure complete waterproofing even when installed outdoors.

Supply voltage

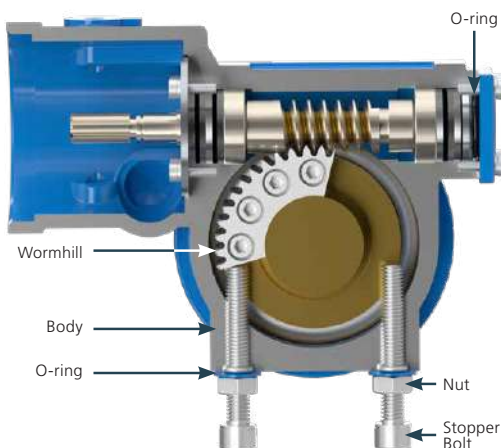
Supply voltage can be selected according to specifications including 1-phase (110/220 VAC), 3-phase (380/400/415/440/460/480 V), and 24 VDC.

Safety

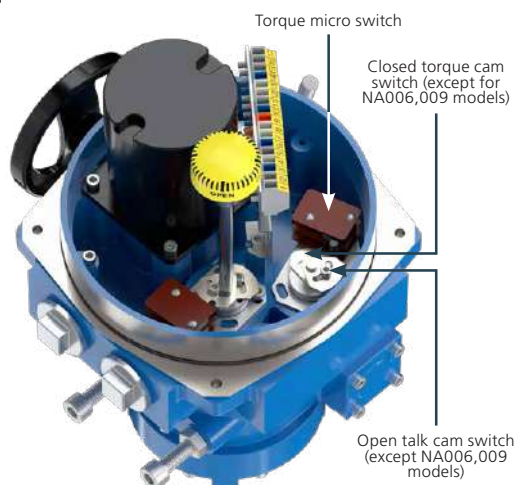
Any problem that could cause the actuator to operate beyond its set limits may create a problem with the valve. The Noah NA range features a mechanical limit switch to protect the valve. After setting the open/close limit switch, stopper bolts are also installed.

This safety device is required to protect the valve in case of an electrical problem with the actuator.

Stopper bolt



Torque switch



Optional extras

Waterproof (optional)

IP68 waterproof and dustproof rating is available as an option. IP68: 10 m depth / 72 hours

No-voltage auxiliary limit switch (ALS)

Used when the actuator position (open/closed/middle) status is output as a voltage-free contact signal with a cam structure connected in series with the driving shaft, such as the limit switch of the actuator.

No-voltage auxiliary torque switch (ATS)

Used when receiving the over-torque status of the actuator as a voltage-free contact signal with a cam structure connected in series with the torque shaft, such as the torque switch of the actuator.

NA Version 2

This model has the same gear configuration as NA Version 1 with improved power specifications and higher maximum torque output. It is certified explosionproof to the international standards listed below.

- Exd IIC T6 / 24 VDC upward model applicable.
- Can be manufactured up to the maximum size model NA350.

Pressure-proof explosionproof

Designed to contain electrically generated explosions within the actuator and prevent flammable materials from spreading to the outside environment.

NA Version 1:

Explosion-proof pressure / EX db IIB T4 - S2 15 minutes

NA Version 2:

Explosion-proof pressure / EX db IIC T4/T5/T - S2 15 minutes

Explosion Protection Type	Explosion Protection	Temperature Range
IECEX (International)	Ex db IIC T4 Gb	-20°C ≤ Ta ≤ +70°C
ATEX (European Union)	II2G Ex db IIC T4 Gb	-20°C ≤ Ta ≤ +70°C
KCs (South Korea)	Ex db IIC T4 Gb	-20°C ≤ Ta ≤ +70°C
TRCU (Russia)	1Ex d IIB T4 Gb X	-40°C ≤ Ta ≤ +55°C
CCC (China)	Ex db IIC T4 ~ T6 Gb	-40°C ≤ Ta ≤ +70°C

Current Position Transmitter (CPT)

Outputs the actuator's closed and open (0-100%) position values as a 4-20 mA output signal.

Proportional Control Unit (PCU)

Used to control the actuator so that the opening/closing degree of the valve is proportional to the input signal.

- Input adjustment signal: DC 4-20 mA (Default) / 0-5 VDC / 0-10 VDC / 1-5 VDC / 2-10 VDC
- Output transmission signal: DC 4-20 mA
- External PCU: Terminal block/board separation type
- Built-in PCU: Terminal block/board integrated type

Local Control Unit (LCU)

The compact LCU can be installed directly or indirectly on the actuator as a field control panel. It is composed of a Local/Remote switch, Open/Stop/Close switch and LED lamp, enabling easy basic operation of the actuator in the field. Mains power 110 V or 220 V.



INTEGRAL local control options

The INTEGRAL product presents a more comprehensive control solution than the LCU. It is equipped with a field operation panel, a positive/negative converter, and local control. It can be used with all power supply specifications and can be used to switch modes (OFF, LOCAL, REMOTE) and operate (OPEN, CLOSE, STOP) on site. It is used when adding control options.

You can choose between INTEGRAL / SMALL INTEGRAL according to the situation. Contact Rotork for details.

Potentiometer (PIU)

Output the actuator position signal as a resistance value.

Output value: 0-1 kΩ

Parallel Coupler Device (FCD)

Used when two or more actuators need to be opened and closed simultaneously using single-phase power. (up to 4 units)

DC direct current transformer (DDM)

This is a 24 VDC power model with a built-in converter, and can be used when both forward and reverse functions are required through a simple circuit configuration.

NA Version 1: Applicable to NA006 ~ NA028

NA Version 2: Applicable to NA006 ~ NA080

3-phase inverse transformer (IMS)

This is a type with a built-in converter in the 3-phase power model, and is used when both forward and reverse functions are required with a simple circuit configuration.

Brushless Direct Current Motor (BLDC)

It is used for very high precision control with continuous rated efficiency of 100% and adjustable operating time. Contact Rotork for details.

Super Capacitor (SCP)

The actuator has a built-in super capacitor device so that when power is cut off, it operates in the open/closed/stop position set by the user, and can be used semi-permanently with a battery or other capacitor storage device. Contact Rotork for details.

Wired Communication

Our network control options for all major fieldbus networks provide seamless compatibility with existing and new site control systems.



Modbus® is a low-speed communication protocol suitable for small systems with simple and limited scalability.



Profibus® supports high speed and large-scale networks and is widely used in manufacturing and process automation.



Foundation Fieldbus is a protocol that supports peer-to-peer communication between devices and is designed to allow more processing to be done locally in process control systems.



The advantage of HART® is that it uses a hybrid approach of analog systems and digital communications, allowing digital data to be transmitted while maintaining existing infrastructure.

(*Applicable to both general type and integral type). Contact Rotork for details.

INTEGRAL controls



The NA range INTEGRAL actuator can be operated on-site with the integrated operation panel featuring LOCAL/REMOTE selection switch and the open/close/stop buttons. The current operating status can be easily seen on the clear 0~100% LCD. Additional options and control cards can easily be inserted inside the NOAH INTEGRAL control unit. It can also be used with all power sources.

Standard specifications 220V

Power specifications	1-phase 110/220 VAC 50/60 Hz, 3-phase 380/440 VAC 50/60 Hz	
Internal control power	24 VDC	
External control power supply	110 VAC, 24 VDC Location	
Position control	Open : 1ea / Close : 1ea	
Torque control	Open : 1ea / Close : 1ea (Except NA006, NA009)	
Controller	<ol style="list-style-type: none"> 1. Non-penetrating push button [Open/Stop/Close] 2. Non-penetrating selector switch [Remote/Oil/Local] 3. Station controller 4. Phase converter 	
Indicator	Digital screen (0-100%)	
Remote dry contact	<ol style="list-style-type: none"> 1. Full Open / Close 2. Opening / Closing 3. Open / Close Over Torque 4. Monitor (Remote / Local) 	
Cable entries	Basic	1-PF 1", 2-PF ¾"
	Options	1-NPT 1", 2-NPT ¾" 1-M25 Pitch 1.5, 2-M20 Pitch 1.5
Potentiometer	0-1 kΩ	
Lubricant	Shell Gadus S2 V220 2	
Foreign port material	Aluminium alloy	
Surface treatment	Anodising	
Standard paint finish	Polyester powder coating (TGIC-FREE)	

Optional extras

Small INTEGRAL (220 V 1-phase only)

Integral type designed for use under 220 V 1-phase voltage conditions.

Proportional Control Unit (PCU)

Used to control the actuator so that the opening/closing degree of the valve is proportional to the input signal.

- Input adjustment signal: DC 4-20 mA (Default) / 0-5 VDC / 0-10 VDC / 1-5 VDC / 2-10 VDC
- Output transmission signal: DC 4-20 mA

Current Position Transmitter (CPT)

The resistance value of the potentiometer directly connected to the drive shaft can be converted into a current value to easily determine the position of the actuator.

- Output transmission signal: DC 4-20 mA

Mobile Application

Connect the actuator and smartphone via Bluetooth® wireless communication and use the mobile application to check the status and operate it.

Wired Communication

Our network control options for all major fieldbus networks provide seamless compatibility with existing and new site control systems.



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Profibus® supports high speed and large-scale networks and is widely used in manufacturing and process automation.



Foundation Fieldbus is a protocol that supports peer-to-peer communication between devices and is designed to allow more processing to be done locally in process control systems.



The advantage of HART® is that it uses a hybrid approach of analog systems and digital communications, allowing digital data to be transmitted while maintaining existing infrastructure.

(*Applicable to both general type and integral type) Contact Rotork for details.

Standard features

LCD Display and LED Lamp

Information about the actuator's various modes, position values, and error situations is displayed as text on the LCD display. The LED lamp can be used to check operation, completion of operation, and occurrence of errors.

Emergency Shut Down (ESD)

A function that automatically operates actuator to move the attached valve/device to a set final position (closed/open/middle/stop) by applying an ESD signal when an emergency situation occurs in the operational environment.

Automatic phase conversion

When using a 3-phase power supply, if the phases do not come on sequentially, this is called a reverse phase error. The reverse error situation can be changed to the phase conversion function through the phase detection setting menu.

A function that detects whether the power is sequential or non-sequential just by setting the phase conversion, and maintains the closing rotation direction of the actuator clockwise regardless of the power phase order.

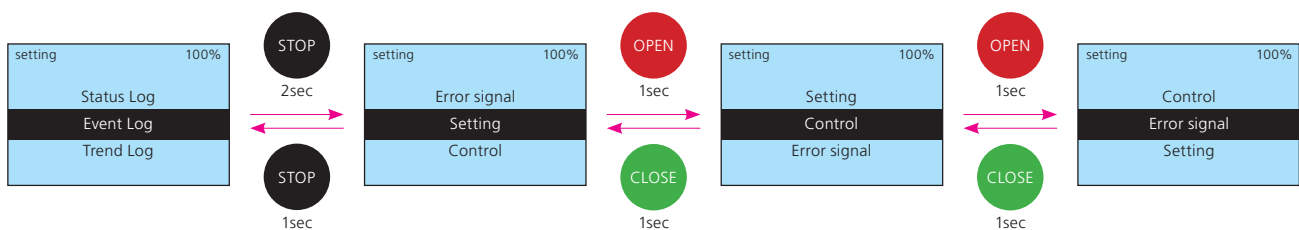
Data Log

A function that allows the user to analyse various accumulated data such as time records (year, month, day-hour, minute, second) and position values at the time of occurrence of events (setting changes, error occurrence, input/output signal and control signal changes) for actuator maintenance/repair.



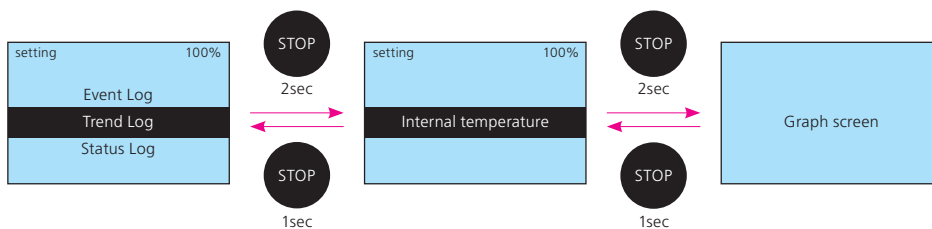
1 – Event log

Check the history of the actuator's event status. Divided into setting, control, and error signal items.



2 – Trend log

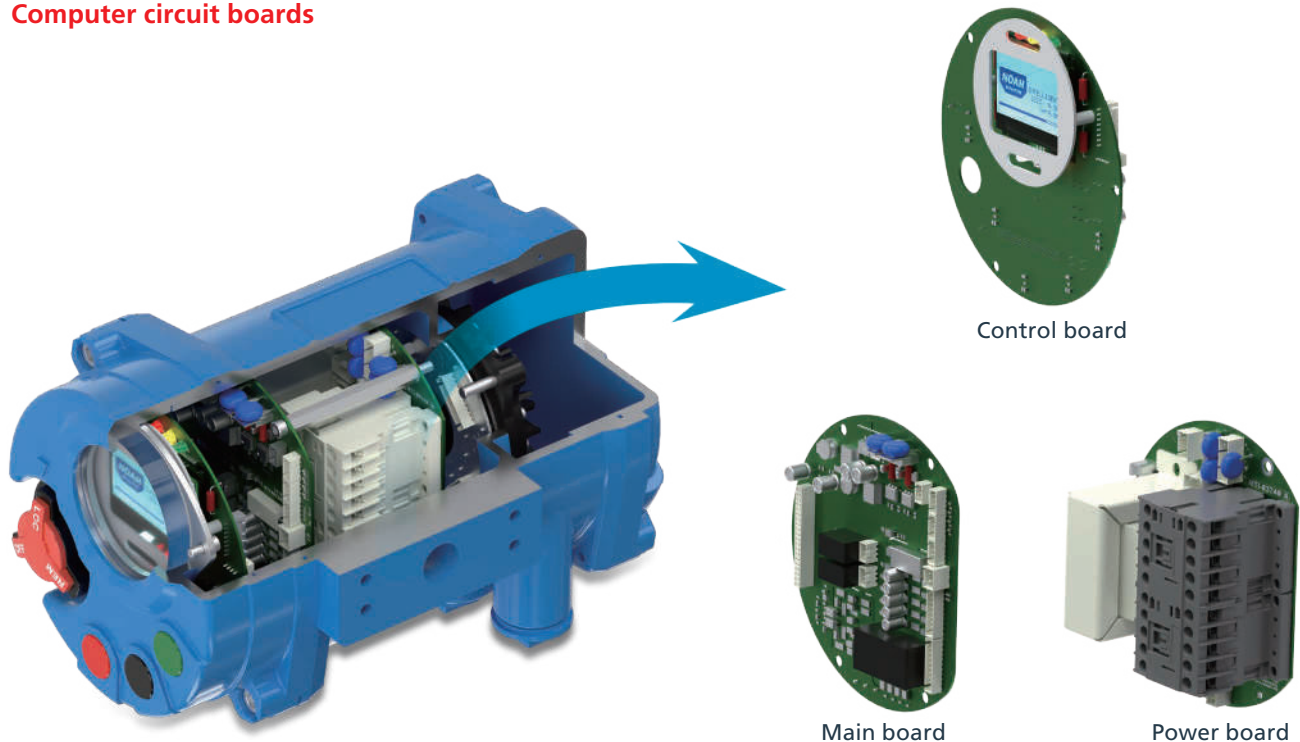
Check the environmental trend of the actuator.



3 – Status log

The starting point is divided into overview and status items.

Computer circuit boards



Control Board

The control board recognises the input signal of the actuator and operates the motor and relay (user contact) according to the signal, or outputs it to the LCD display and LED lamp according to the actuator status and information.

The control board includes a memory device that stores the actuator's menu setting values, and can store log data for settings and operations, error situations, accumulated data, etc. It can also recognise and process limit switches and torque switches, etc.

Main Board

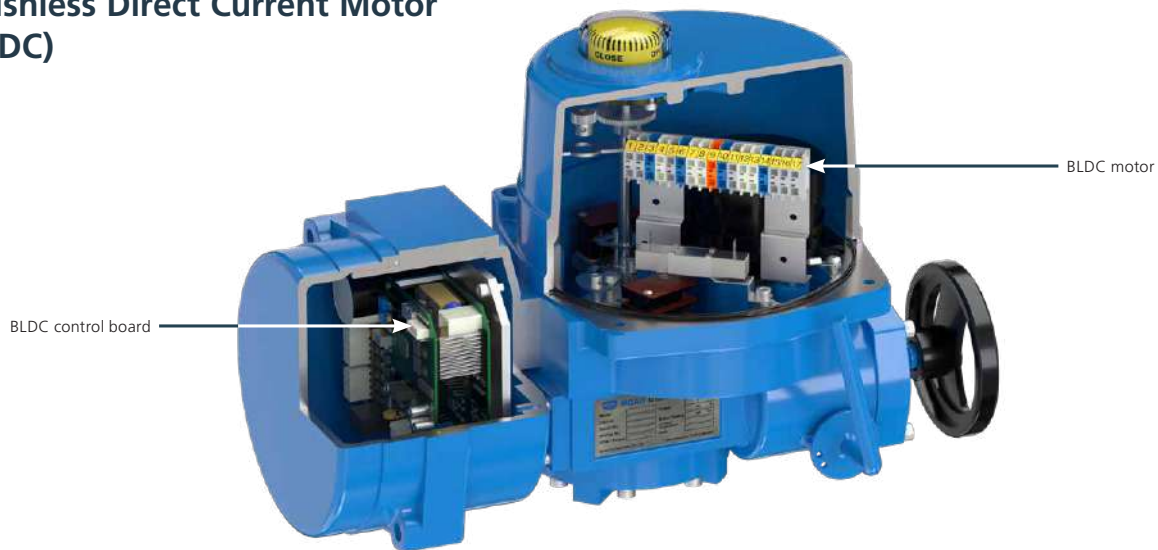
The main board converts the operating signal (remote) input to the actuator and transmits the signal so that the control board can recognise the user's operating signal, and conversely, transmits the status information of the actuator to the user through a relay output signal received from the control board.

Power Board

The power board converts a 3-phase input so that it can be used to operate the actuator systems. It has a circuit that detects the reverse phase and phase loss of the 3-phase power supply and a circuit that controls the coil of the magnetic contactor to operate the motor, so that the motor can be operated according to the user's operating command.

The power board has a built-in protection circuit (varistor, snubber circuit, etc.) against external noise, and a heater is added depending on the operating temperature to prevent condensation.

Brushless Direct Current Motor (BLDC)



BLDC is a Brushless Direct Current Motor with continuous rated efficiency of 100% and adjustable operating time, used for very high precision control.

Standard specifications

Actuator duty	100% usage rate, always-on system
Controllable unit (minimum resolution)	0.6% (0.1 mA)
Input transmission signal	4-20 mA
Feedback transmission signal	4-20 mA (± 0.05 mA)
Waterproof rating	Water ingress protection IP67
Operating temperature range	Tamb -20 to +70 °C (-4 to +158 °F)
Power supply	1-phase : 110/220 VAC 50/60 Hz, 3-phase : 380/440 VAC 50/60 Hz
Limit switch	Open : 1ea / Close : 1ea (250 V 16 A rating)
Torque switch	Open : 1ea / Close : 1ea (except NA006, NA009)
Range of motion	90° $\pm 5^\circ$
Indicator	Continuous position indicator
Manual override	Hand/Auto declutching mechanism
Self locking	Prevention of reverse rotation by two-stage worm gear
Mechanical stop device	External adjustable screw
Cable entries	2-PF 3/4" (Options: 2-M20 x Pitch 1.5, 2-NPT 3/4")
Lubricant	Shell Gadus S2 V220 2
Case material	Aluminium
Surface treatment	Anodising
Standard paint finish	Polyester powder coating (TGIC-FREE)

Noah NA Brushless Direct Current Motor (BLDC)

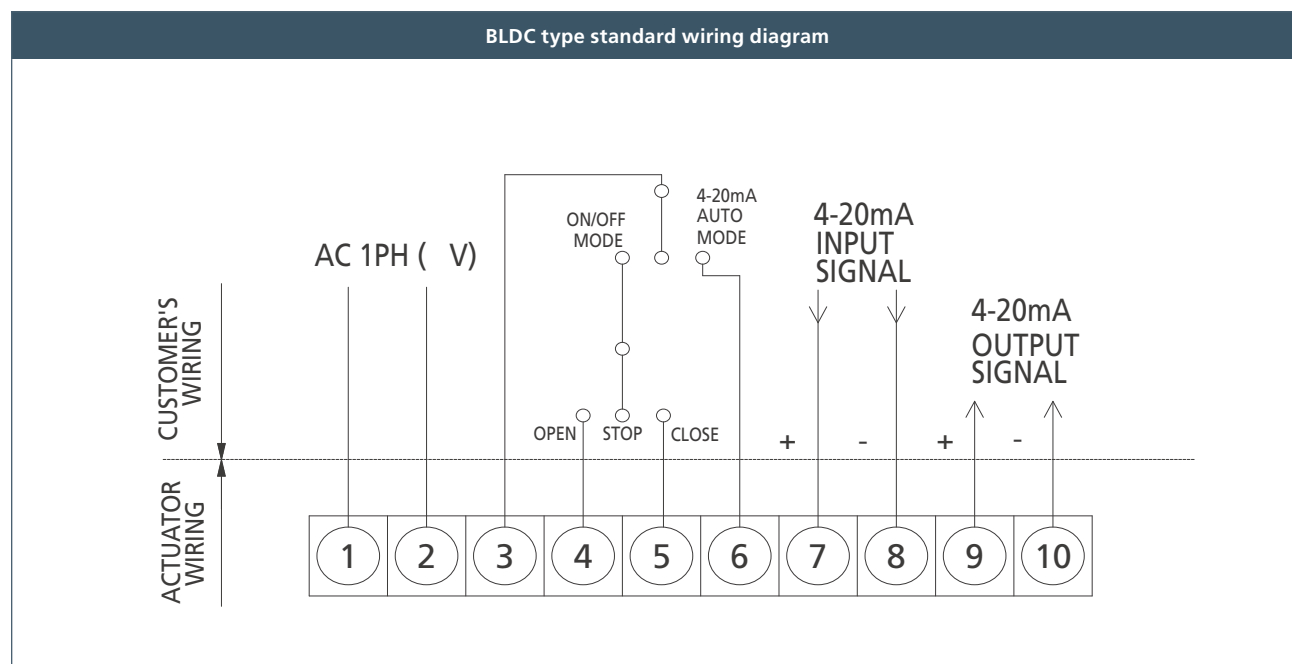
Performance data

Model	Torque		Operating time (90°/sec)	Maximum stem size	230 V rated current (A) 1-phase 230 V	Duty cycle	Number of handle turns
	Nm	lbf.ft	sec	mm	A	S4(%)	
NAC-006	60	44	10 ~ 22	22	1.1	100	8.5
NAC-009	90	66	10 ~ 22	22	1.4	100	8.5
NAC-015	150	111	12 ~ 29	22	1.8	100	10
NAC-019	190	140	12 ~ 29	22	1.9	100	10
NAC-028	280	207	15 ~ 34	32	1.5	100	12.5
NAC-038	380	280	15 ~ 34	32	1.6	100	12.5
NAC-050	500	369	15 ~ 34	32	1.7	100	12.5
NAC-060	600	443	18 ~ 40	42	1.8	100	14.5

Optional extras

Proportional Control Unit (PCU)	Controls the opening and closing degree of the valve by sending an actuator in proportion to the input signal
Current Position Transmitter (CPT)	Used when the resistance value of a potentiometer directly connected to the drive shaft is converted into a current value and the position of the actuator is used as a current value.
Non-voltage auxiliary limit switch (ALS)	Used when receiving the actuator position (open/closed/middle) status as a voltage-free contact signal with a cam structure connected in series with the driving shaft, such as the actuator's limit switch.
Auxiliary torque switch (ATS) without voltage	Used when receiving the over-torque status of the actuator as a voltage-free contact signal with a cam structure connected in series with the torque shaft, such as the torque switch of the actuator.

Standard wiring diagram



Super Capacitor (SCP)



The SCP specification incorporates a super capacitor device inside the actuator, so that when power is cut off, it operates in the open/closed/stop position set by the user, and can be used semi-permanently with a battery or other capacitor storage device.

Standard specifications

Power supply		24 VDC, 48 VDC, 90~260 VAC 50/60 Hz
Charging voltage		26.5 V
Charging time	NA006-019	3 minutes 30 seconds
	NA028	2 minutes
Weight		0.7 kg

Number of emergency operations			1 round trip (open→close/ close→open)
Charging current	NA006-019	24, 48 VDC	8.4 A
		110 V	1.1 A
		220 V	0.45 A
	NA028	24, 48 VDC	8.4 A
		110 V	2.2 A
		220 V	1.1 A

*Before using the SUPER CAPACITOR, fully charge it and then use it. It will not operate if not fully charged.

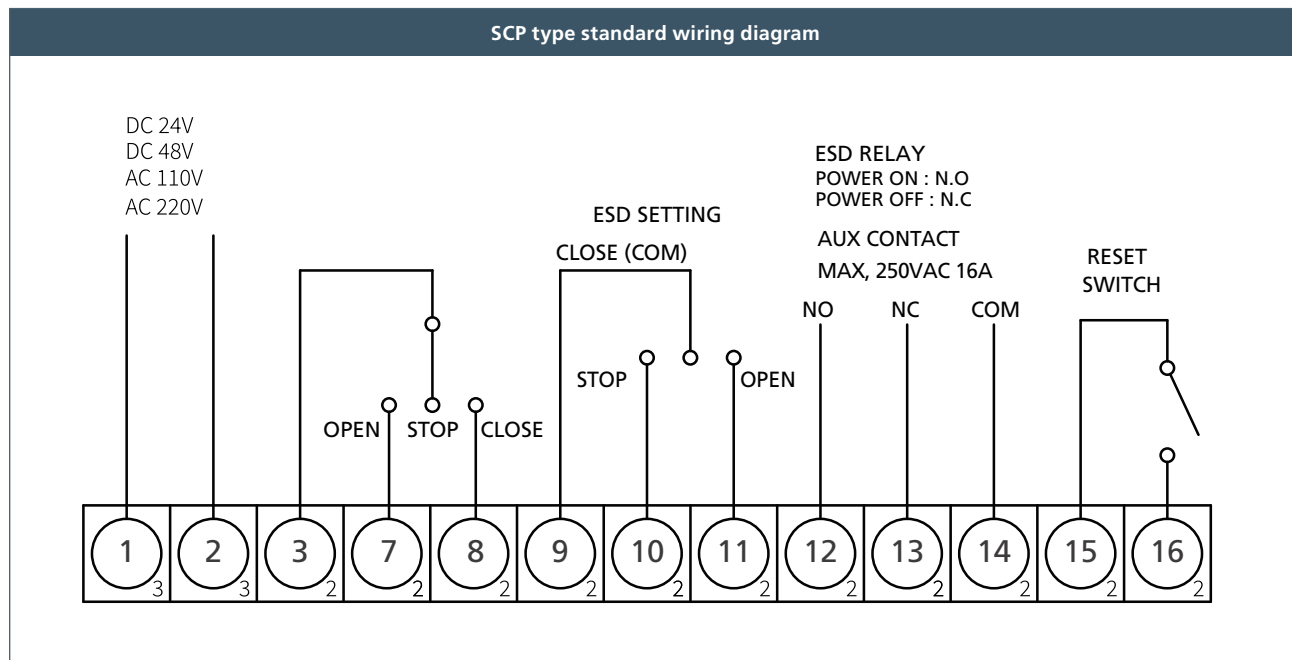
Performance data

Model	Output torque		Operating time (90°/sec)	Rated current (A)				Number of handle turns	Weight	
	Nm	lbf.ft		50/60 Hz	24 VDC	48 VDC	110 V		220 V	kg
NA006	60	44	15	2.5	1.3	0.6	0.3	8.5	13.5	29.8
NA009	90	66	17	3.5	1.8	0.8	0.37			
NA015	150	111	17	4.5	2.4	1.0	0.43	10	16	35.3
NA019	190	140	19	4.5	2.4	1.0	0.43			
NA028	280	207	22	7	3.6	2.25	1.13	12.5	18.5	40.8

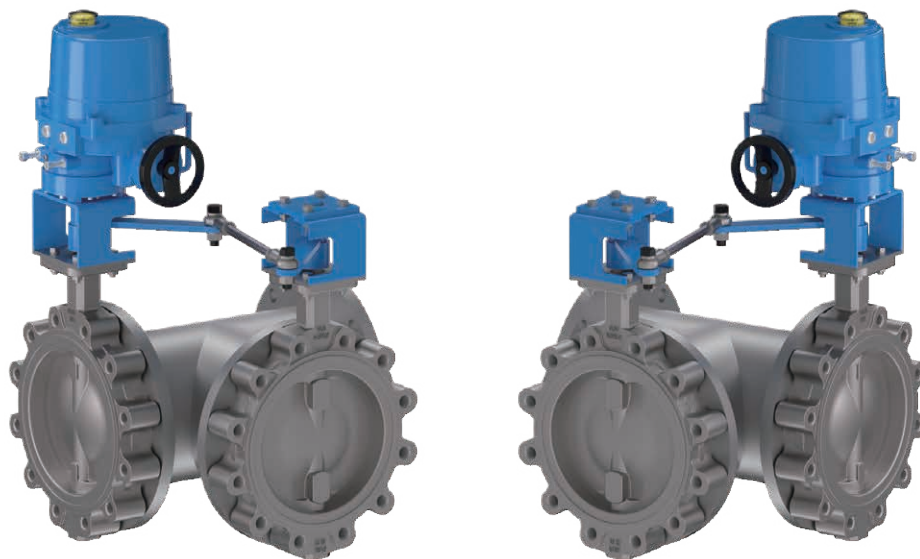
Optional extras

Proportional Control Unit (PCU)	Controls the actuator to open and close the valve proportionally to the input signal
Non-voltage auxiliary limit switch (ALS)	Used when receiving the actuator position (open/closed/middle) status as a voltage-free contact signal with a cam structure connected in series with the driving shaft, such as the actuator's limit switch.
No-voltage auxiliary torque switch (ATS)	Used when receiving the over-torque status of the actuator as a voltage-free contact signal with a cam structure connected in series with the torque shaft, such as the torque switch of the actuator.

Standard wiring diagram



3-WAY



3-WAY butterfly valve used to change the flow direction of fluid or control temperature and pressure. It can be configured with one inlet and two outlets or two inlets and one outlet and is used to distribute or combine fluids and is used when controlling two valves with one actuator. Large size production is possible, and production is possible according to the desired fluid flow direction. Mainly used for cooling and heating control in buildings.

Options: Proportional control unit / Current position transmitter / Integral controls / Explosionproof pressure, etc.

Performance data

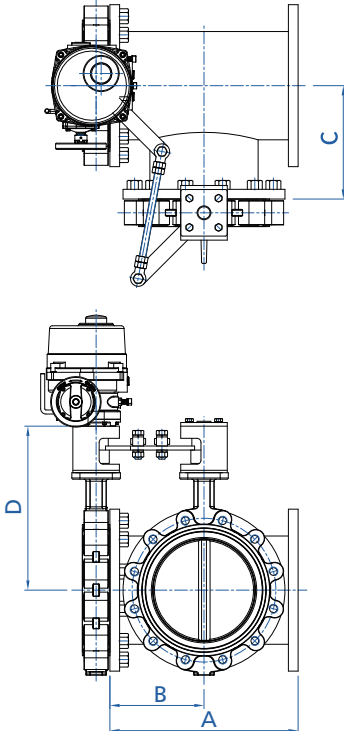
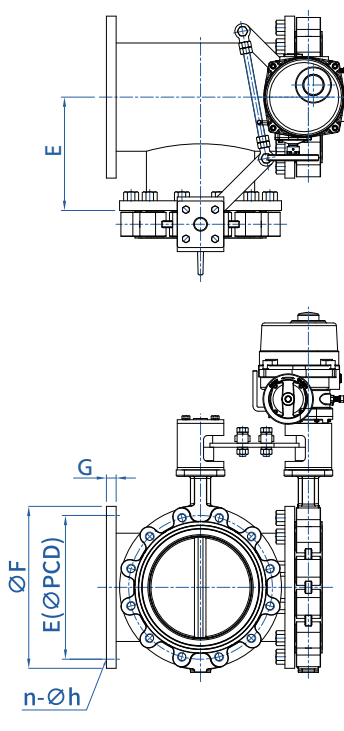
Valve size	Rating	Actuator model	Torque		Operating time (sec)
			Nm	lbf.ft	
50A	10K	NA006	60	44	14
65A	10K	NA006	60	44	14
80A	10K	NA009	90	66	14
100A	10K	NA015	150	111	17
125A	10K	NA019	190	140	17
150A	10K	NA028	280	207	20
200A	10K	NA038	380	280	20
250A	10K	NA050	500	369	20
300A	10K	NA100	1000	738	24
350A	10K	NA150	1500	1106	72
400A	10K	NA250	2500	1844	72

Valve size	Rating	Actuator model	Torque		Operating time (sec)
			Nm	lbf.ft	
50A	20K	NA006	60	44	14
65A	20K	NA009	90	66	14
80A	20K	NA015	150	111	17
100A	20K	NA019	190	140	17
125A	20K	NA028	280	207	20
150A	20K	NA038	380	280	20
200A	20K	NA060	600	443	24
250A	20K	NA080	800	590	24
300A	20K	NA150	1500	1106	72
350A	20K	NA250	2500	1475	72
400A	20K	NA300	3000	2213	96

Note 1 – Please inquire separately for OVER SIZE.

Note 2 – Operating time: Based on 60 Hz power specifications

Dimensional data

3-WAY butterfly valve (BFV) type	
 <p>All dimensions in millimetres</p>	 <p>All dimensions in millimetres</p>

	A	B	C	D	E	F	n-Øh	G
50A	150	75	130	230	120	155	4-Ø19	16
65A	180	90	140	216	140	175	4-Ø19	18
80A	195	97.5	150	245	150	185	8-Ø19	18
100A	235	117.5	180	255	175	210	8-Ø19	18
125A	275	137.5	190	275	210	250	8-Ø23	20
150A	315	157.5	200	290	240	280	8-Ø23	22
200A	385	192.5	235	345	290	330	12-Ø23	22
250A	465	232.5	280	405	355	400	12-Ø25	24
300A	540	270	315	435	400	445	16-Ø25	24
350A	595	297.5	345	470	445	490	16-Ø25	26
400A	650	325	390	510	510	560	16-Ø27	28
500A	807	403.5	450	635	620	675	20-Ø27	30



- Modbus transmission mode: RTU (8 bit binary data)
- Communication support speed (Baud rate): 1.2~115.2 kbit/s
- Maximum communication distance: 1.2 km (based on 9.6 Kbit/s)*
- Maximum number of connections: 127 (with repeater)
- Option: Redundant line



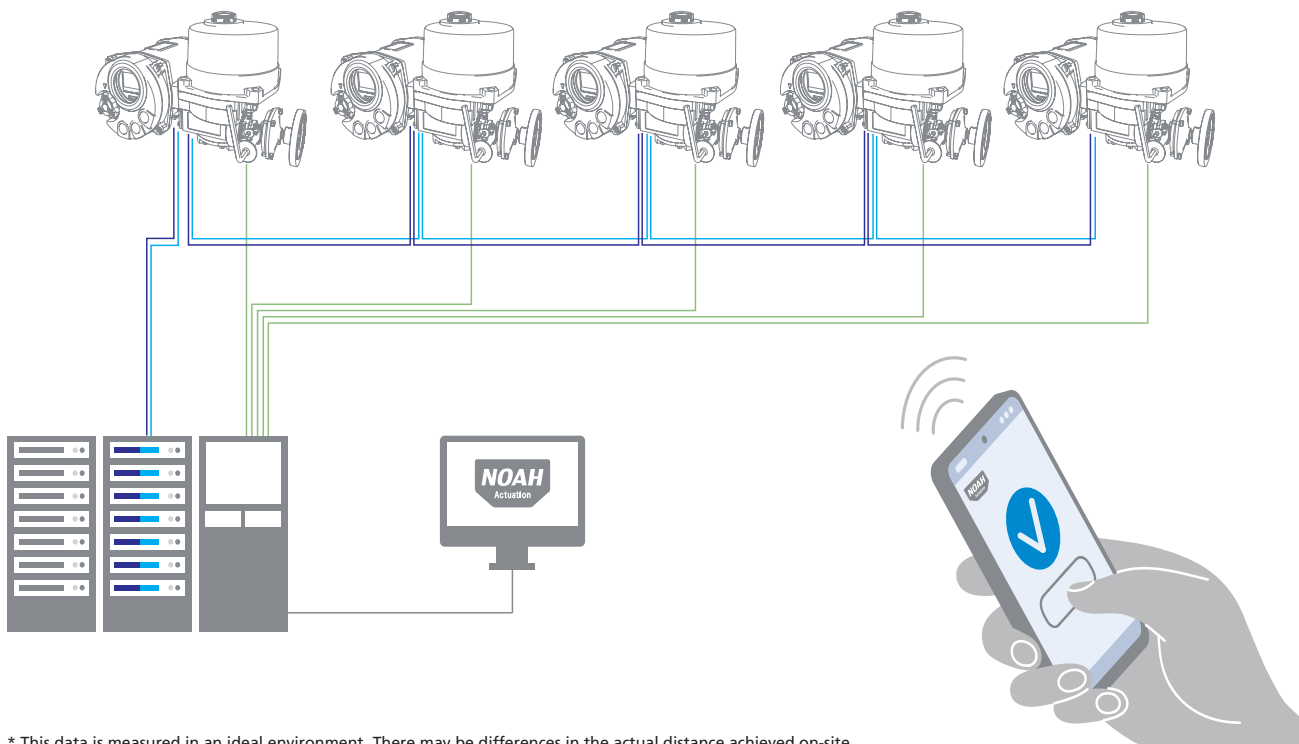
- All digital, serial, two-way communication
- F/F communication speed: 31.25 kbit/s
- A communication method that connects power lines and communication lines simultaneously.
- Maximum number of connections: 3



- PROFIBUS E 4 0|50: RS-485 2-wire highway, half duplex
- PROFIBUS EM IEEE: Profibus DP-VO
- Communication support speed (Baud rate): 9.6 kbit/s~1.5 Mbit/s
- Maximum communication distance: 1.2 km (based on 9.6 kbit/s)*.
- Maximum number of connections: 127 (with repeater)
- Option: Redundant line



- 4-20 mA analog communication + FSK (Frequency Shift Keying) communication method, Half-duplex communication method
- HART communication speed: 1.2 kbit/s
- A communication method used when you want to add additional digital communication functions using the 4~20 mA analog communication facilities.
- Maximum number of connections: 16



* This data is measured in an ideal environment. There may be differences in the actual distance achieved on-site.





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mail@rotork.com

www.rotork.com

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