Technical data sheet

920...
920C...
Electric Actuators for Butterfly Valves (Advanced series)

Product overview

Electric Butterfly valve actuators used to drive V2...BV series Butterfly Valves for Open/Close and modulating applications

- Operating voltage: 230 VAC, 50/60 Hz
- Control signals
  - 920: 2/3-point (SPDT)
  - 920C: 0–10 VDC (or 4–20 mA / 2–10 VDC)
- Ingress protection: IP67 / IP68 (optional)
- Nominal angle of rotation: 90°
- How it works: Handwheel and 3D valve position indication
- Anti-condensation: Built-in anti-condensation heating element
- Explosion-proof rating: Optional Ex dIIBT4 ~ or Ex dIICT4 ~ 6
- Bottom flange standard: ISO 5211

Technical parameters

Electrical parameters	Operating voltage	230 VAC
	Voltage tolerance	+/- 10 %
	frequency	50/60 Hz
	current	See "Model Overview"
	Control signals	920...: 2/3 Point (SPDT) 920C...: 0–10 VDC (default) or 4–20 mA / 2–10 VDC
	Position feedback	920...: Auxiliary switch (2 X SPDT), 250 VAC 5 A 920C...: 0–10 VDC (default) or 4–20 mA / 2–10 VDC
	Cable glands	2-NPT3/4", Optional：M20–M25、PG13.5、PG16、PT3/4"、PF3/4"
Performance parameters	Settling time at 50 Hz, 90°	See "Model Overview"
	Rotation angle	90°±5°
	Location indication	360° viewing angle indication (Explosion-proof type:

		continuous position indication).
	Manual operation	920(C)-230-60…600: manual/automatic clutch mechanism 920(C)-230-800…8K: No clutch mechanism required
	Self-locking device	Turbine and worm mechanisms are provided
	Mechanical limits	Externally adjustable bolts
	Over-torque protection	Standard (except 920 (C) -230-50…100).
	Anti-condensation device	Built-in moisture-proof heater
	Overheat protection	Built-in overtemperature protection, start-up temperature 120±5 °C
	Power-off status	Hold the position
	Off-signal status	4–20 mA / 2–10 VDC : Fully open/close Configurable (Default Hold) 0–10 VDC: Close
Safety performance	Protection Class	III (safety extra-low voltage)
	EMC	CE (2014/30/EU)
	LVD	CE (2014/35/EU)
	Connecting flanges	ISO 5211
	Environmental compatibility	ISO 9001（Quality）
	Ambient temperature	-25–70 °C (can be customised)
	Ambient relative humidity	5–90 %, no condensation
	Ingress protection	IP67 / IP68 (optional)
	Maintenance	Maintenance-free
Size	Size	See "Dimensions"

Selection Instructions

Actuator	Type	Options	Controls	-	Power	-	Torque	-	Switches
9	2	0	C	-	230	-	100	-	S2
9 = Butterfly valve actuators	1 = Standard Series **2** = Advanced Series 3 = Ingenious Series 7 = Pneumatic	**0** = No options	/ = 2/3-point (SPDT) **C** = 0–10 VDC (or 4–20 mA / 2–10 VDC) U = Universal		**024** = 24 VAC/DC **230** = 230 VAC **380** = 380 VAC		50 = 50 Nm 60 = 60 Nm 100 = 100 Nm 160 = 160 Nm 200 = 200 Nm 300 = 300 Nm 500 = 500 Nm 600 = 600 Nm 800 = 800 Nm 1K = 1000 Nm 1K3 = 1300 Nm 1K7 = 1700 Nm 2K = 2000 Nm 2K3 = 2300 Nm 3K5 = 3500 Nm 5K = 5000 Nm 8K = 8000 Nm		**S2** = 2 x SPDT

Model example:

920-230-60-S2 = Electric open/close actuator, 60 Nm, power supply: 230 VAC, 2/3-point (SPDT), 2 auxiliary switches

920C-230-200-S2 = Electric modulating actuator, 200 Nm, power supply: 230 VAC, 0–10 VDC, 2 auxiliary switches

Model overview

Product model	rated Voltage/current	Control signals	Position feedback signal	50 Hz, 90° positioning time	Maximum output torque [Nm]	Flange connection ISO 5211
920-230-50-S2	230 VAC/0.15 A	2/3-point (SPDT)	2 x SPDT	19 s	50 Nm	F05–F07, sq11
920-230-60-S2	230 VAC/0.52 A	2/3-point (SPDT)	2 x SPDT	27 s	60 Nm	F05–F07, sq11
920-230-100-S2	230 VAC/0.52 A	2/3-point (SPDT)	2 x SPDT	27 s	100 Nm	F05–F07, sq14
920-230-160-S2	230 VAC/0.72 A	2/3-point (SPDT)	2 x SPDT	28 s	160 Nm	F07–F10, sq17
920-230-200-S2	230 VAC/0.72 A	2/3-point (SPDT)	2 x SPDT	28 s	200 Nm	F07–F10, sq17
920-230-300-S2	230 VAC/1.42 A	2/3-point (SPDT)	2 x SPDT	32 s	300 Nm	F10–F12, sq17
920-230-500-S2	230 VAC/1.38 A	2/3-point (SPDT)	2 x SPDT	32 s	500 Nm	F10–F12, sq22
920-230-600-S2	230 VAC/1.75 A	2/3-point (SPDT)	2 x SPDT	32 s	600 Nm	F10–F12, sq22
920-230-800-S2	230 VAC/1.75 A	2/3-point (SPDT)	2 x SPDT	38 s	800 Nm	F12, sq27
920-230-1K-S2	230 VAC/1.75 A	2/3-point (SPDT)	2 x SPDT	43 s	1000 Nm	F12, sq27
920-230-1K3-S2	230 VAC/1.75 A	2/3-point (SPDT)	2 x SPDT	49 s	1300 Nm	F12, sq27
920-230-1K7-S2	230 VAC/1.52 A	2/3-point (SPDT)	2 x SPDT	34 s	1700 Nm	F14/F16, sq36
920-230-2K-S2	230 VAC/1.52 A	2/3-point (SPDT)	2 x SPDT	47 s	2000 Nm	F16, sq6
920-230-2K3-S2	230 VAC/1.52 A	2/3-point (SPDT)	2 x SPDT	47 s	2300 Nm	F16, sq36
920-230-3K5-S2	230 VAC/1.52 A	2/3-point (SPDT)	2 x SPDT	78 s	3500 Nm	F16, sq46
920-230-5K-S2	230 VAC/1.52 A	2/3-point (SPDT)	2 x SPDT	108 s	5000 Nm	F16, sq46
920-230-8K-S2	230 VAC/1.52 A	2/3-point (SPDT)	2 x SPDT	142 s	8000 Nm	F16–F25, sq55
920C-230-50	230 VAC/0.15 A	0–10 VDC (or 4–20 mA / 2–10 VDC)	0–10 VDC (or 4–20 mA / 2–10 VDC)	19 s	50 Nm	F05–F07, sq11
920C-230-60-S2	230 VAC/0.52 A			27 s	60 Nm	F05–F07, sq11
920C-230-100-S2	230 VAC/0.52 A			27 s	100 Nm	F05–F07, sq14
920C-230-160-S2	230 VAC/0.72 A			28 s	160 Nm	F07–F10, sq17
920C-230-200-S2	230 VAC/0.72 A			28 s	200 Nm	F07–F10, sq17
920C-230-300-S2	230 VAC/1.42 A			32 s	300 Nm	F10–F12, sq17
920C-230-500-S2	230 VAC/1.38 A			32 s	500 Nm	F10–F12, sq22
920C-230-600-S2	230 VAC/1.75 A			32 s	600 Nm	F10–F12, sq22
920C-230-800-S2	230 VAC/1.75 A			38 s	800 Nm	F12, sq27
920C-230-1K-S2	230 VAC/1.75 A			43 s	1000 Nm	F12, sq27
920C-230-1K3-S2	230 VAC/1.75 A			49 s	1300 Nm	F12, sq27
920C-230-1K7-S2	230 VAC/1.52 A			34 s	1700 Nm	F14/F16, sq36
920C-230-2K-S2	230 VAC/1.52 A			47 s	2000 Nm	F16, sq36
920C-230-2K3-S2	230 VAC/1.52 A			47 s	2300 Nm	F16, sq36
920C-230-3K5-S2	230 VAC/1.52 A			78 s	3500 Nm	F16, sq46
920C-230-5K-S2	230 VAC/1.52 A			108 s	5000 Nm	F16, sq46
920C-230-8K-S2	230 VAC/1.52 A			142 s	8000 Nm	F16-F25, sq55

* If you need to order an actuator with 24 VDC/AC or 380 VAC, please consult the supplier.
The default control signal for the regulated actuator is 0–10 VDC, if 4–20 mA or 2–10 VDC is needed, please specify when ordering.
The actuator is rated for 0.75 times the maximum output torque.

Device combinations

PN 16 Wafer type Butterfly valve	Actuators											
	920(C)-230-50	920(C)-230-100	920(C)-230-160	920(C)-230-200	920(C)-230-500	920(C)-230-800	920(C)-230-1K3	920(C)-230-1K7	920(C)-230-2K	920(C)-230-3K5	920(C)-230-5K	920(C)-230-8K
Butterfly valves	ΔPs [kPa]											
V2WABV.50	1600											
V2WABV.65	1600											
V2WABV.80	1600											
V2WABV.100	1600											
V2WABV.125		1600										
V2WABV.150			1600									
V2WABV.200			1600									
V2WABV.250					1600							
V2WABV.300					1600							
V2WABV.350						1600						
V2WABV.400						1600						
V2WABV.450							1600					
V2WABV.500								1600				
V2WABV.600									1600			
V2WABV.700										1000		
V2WABV.800											1000	

PN 16 Lug type Butterfly valve	Actuators											
	920(C)-230-50	920(C)-230-100	920(C)-230-160	920(C)-230-200	920(C)-230-500	920(C)-230-800	920(C)-230-1K3	920(C)-230-1K7	920(C)-230-2K	920(C)-230-3K5	920(C)-230-5K	920(C)-230-8K
Butterfly valves	ΔPs [kPa]											
V2LABV.50	1600											
V2LABV.65	1600											
V2LABV.80	1600											
V2LABV.100	1600											
V2LABV.125		1600										
V2LABV.150			1600									
V2LABV.200			1600									
V2LABV.250					1600							
V2LABV.300					1600							
V2LABV.350						1600						
V2LABV.400						1600						
V2LABV.450							1600					
V2LABV.500								1600				
V2LABV.600									1600			
V2LABV.700										1000		
V2LABV.800											1000	

PN 16 Flanged type Butterfly valve	Electric actuators											
	920(C)-230-50	920(C)-230-100	920(C)-230-160	920(C)-230-200	920(C)-230-500	920(C)-230-800	920(C)-230-1K	920(C)-230-1K7	920(C)-230-2K	920(C)-230-3K5	920(C)-230-5K	920(C)-230-8K
Butterfly valves	ΔPs [kPa]											
V2DABV.50	1600											
V2DABV.65	1600											
V2DABV.80	1600											
V2DABV.100	1600											
V2DABV.125		1600										
V2DABV.150			1600									
V2DABV.200				1600								
V2DABV.250					1600							
V2DABV.300					1600							
V2DABV.350						1600						
V2DABV.400							1600					
V2DABV.450								1600				
V2DABV.500								1600				
V2DABV.600									1600			
V2DABV.700										1000		
V2DABV.800											1000	

DPs Refers to the maximum allowable differential pressure (closing differential pressure) at both ends of the valve under the condition that the electric Butterfly valve can be safely closed.

Functionality/Features

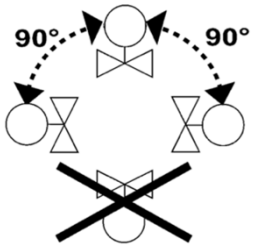
Mode of operation

- Open/close Control
- 3-point control
- Modulating control
- Manual Control

The over-torque protection function will automatically trip when the valve is jammed to prevent further damage to the valve and actuator.
The motor overheat protection function ensures the safety of the motor.
Anti-condensation function, a heater is installed inside the actuator to remove the internal condensation damage to electrical components.

Direct installation

Actuators can be installed directly in V2: BV Butterfly valves, no special tools are required.
When the actuator is mounted on the valve, the Butterfly valve must be in the fully closed position "0%".
Mounting orientation: vertical to horizontal.



Indicates the signal

A mechanical 3D indicator shows the actuator's opening position, and an integrated auxiliary switch in the switching actuator triggers signal feedback when passing a fixed angle.

Manual operation

The actuator can be operated manually via a wrench/clutchless manipulator wheel integrated into the actuator body (note: the actuator can only be operated manually when the power is off).

Safety Precautions

Electrical installation

The electrical connection of the actuator must comply with the relevant local regulations (see "Electrical Wiring").

Commissioning and maintenance

Before the test run of the electric Butterfly valve, it is necessary to confirm that the wiring is correct and the parts are functionally intact.
To avoid pressure shocks on the Butterfly valve, before starting the pump, V2: The BV must be placed in a fully open position (either manually or via a control signal).
Before performing any maintenance on a valve or actuator, do the following:

- Turn off the pump and power
- Close the main shut-off valve in the pipeline
- Release the pressure on the pipes and allow them to cool completely

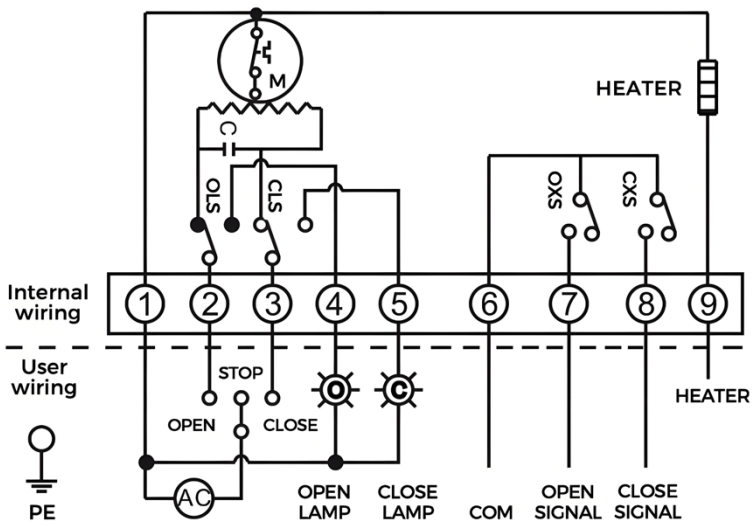
Disconnect the terminal blocks if needed.
Valves can only be commissioned after the correct installation of the handwheel, turbine or actuator.

Safety Matters

- The operation of this equipment must at all times comply with regulations and restrictions designed for the safety of persons and property!
- The device is not allowed to be used outside of the designated field of application, especially on board aircraft.
- The device should only be installed by properly trained personnel.
- The equipment installation process must comply with local laws and regulations or regulations issued by the authorities.
- Valves must comply with all local and currently applicable laws and regulations when disposed of at the end of life and are not allowed to be disposed of as household waste.
- By law, some parts may require special handling, as they may be harmful to the environment.

Electrical wiring

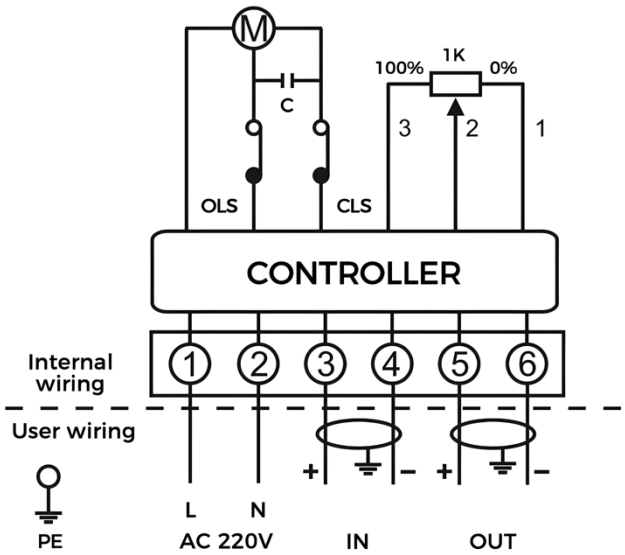
【 920-230-50-S2 】



1 System Neutral (N)
2 Control signal (open) 230 VAC
3 Control signal (close) 230 VAC
4 “Open” indicator
5 “Close” indicator
6 Dry contact auxiliary switch
7 Dry contact auxiliary switch
8 Dry contact auxiliary switch
9 Heater

earthing

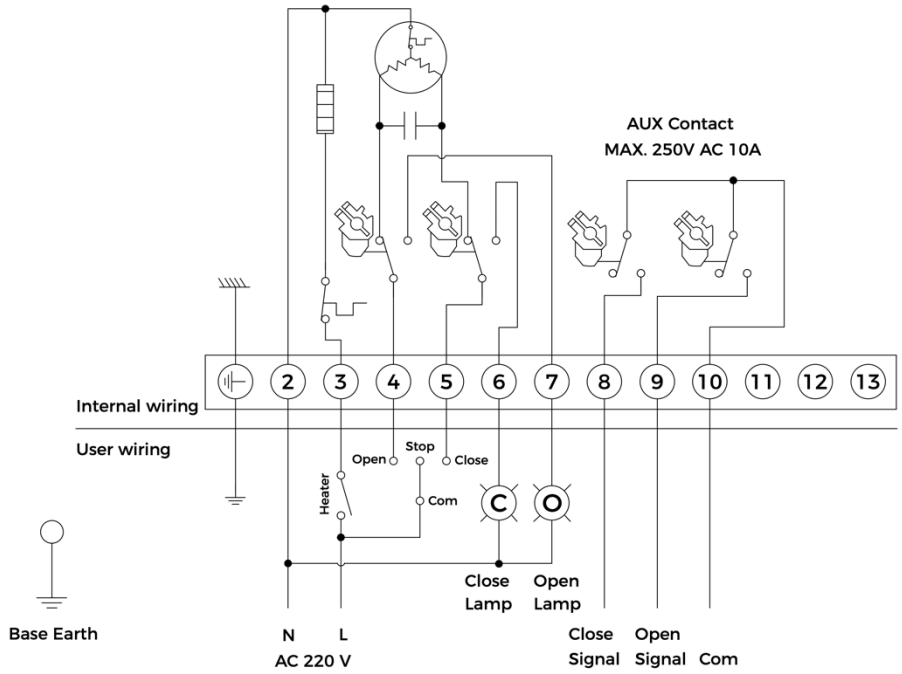
【 920C-230-50 】



1 System Live Wire (L) 230 VAC
2 System Neutral (N)
3 Control signal 0–10 VDC (or 4–20 mA / 2–10 VDC)
4 Signal Return
5 Position feedback 0–10 VDC (or 4–20 mA / 2–10 VDC)
6 Signal Return

earthing

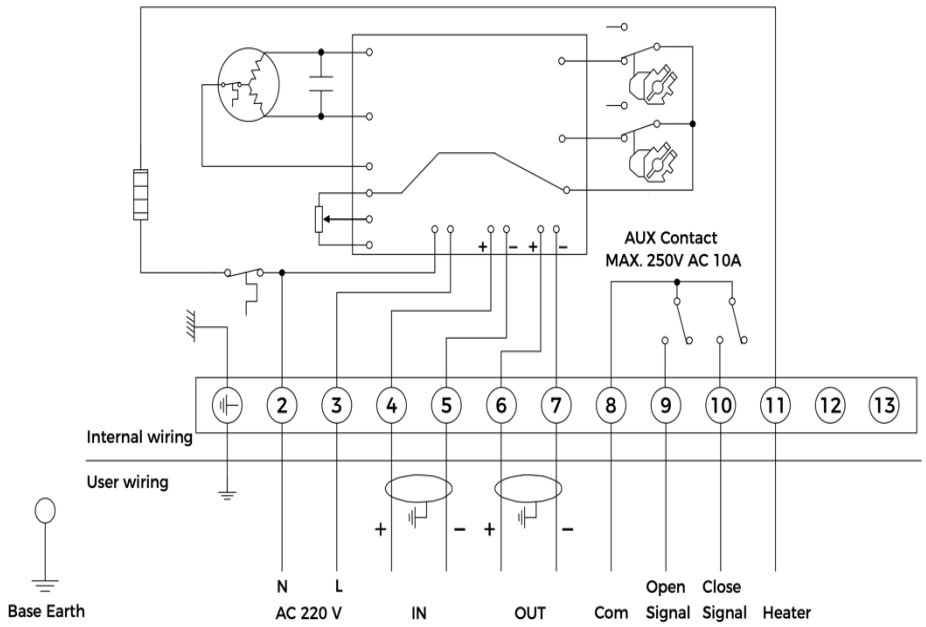
【 920-230-60...100-S2 】



2 System Neutral (N)
3 Heater
4 Control signal (Open) 230 VAC
5 Control signal (Close) 230 VAC
6 “Close” indicator
7 “Open” indicator
8 Dry contact auxiliary switch
9 Dry contact auxiliary switch
10 Dry contact auxiliary switch

earthing

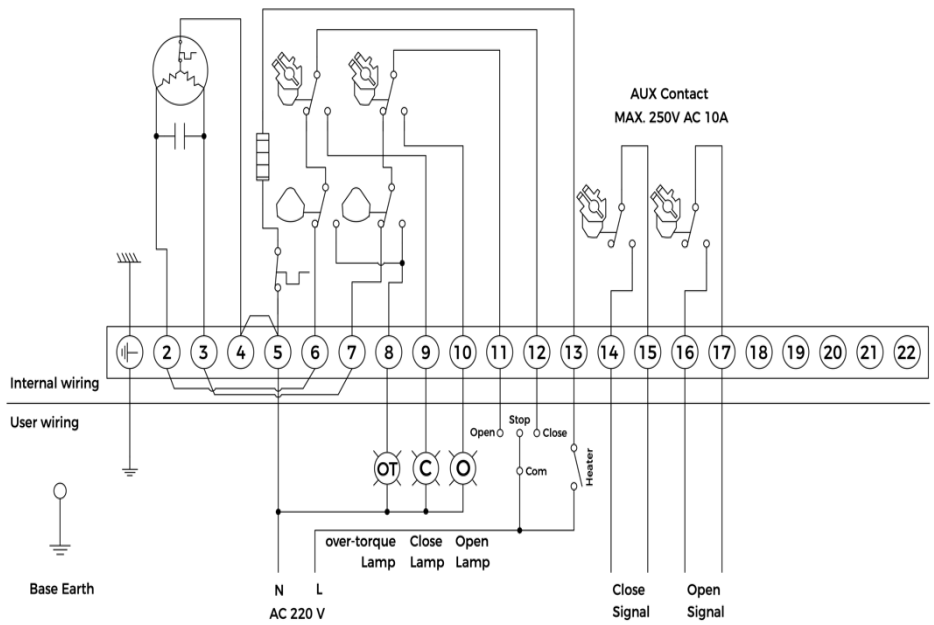
【920C-230-60...100-S2】



2 System Neutral (N)
3 System Live Wire (L) 230 VAC
4 Control signal 0–10 VDC (or 4–20 mA / 2–10 VDC)
5 Signal Return
6 Position feedback 0–10 VDC (or 4–20 mA / 2–10 VDC)
7 Signal Return
8 Dry contact auxiliary switch
9 Dry contact auxiliary switch
10 Dry contact auxiliary switch
11 Heater

earthing

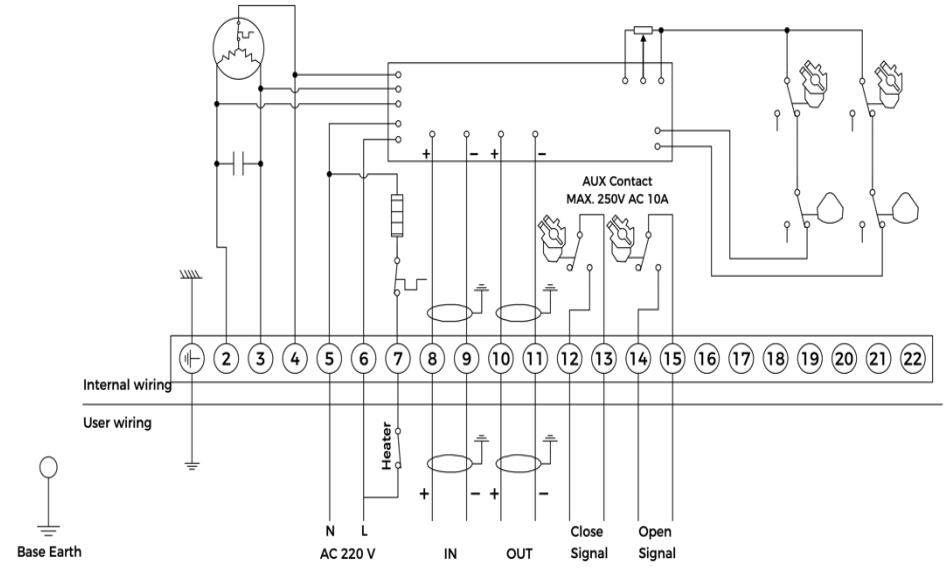
【 920-230-160...8K-S2 】



5 System Neutral (N)
8 Over torque indicator
9 “Close” indicator
10 “Open” indicator
11 Control signal (open) 230 VAC
12 Control signal (close) 230 VAC
13 Heater
14 Dry contact auxiliary switch
15 Dry contact auxiliary switch
16 Dry contact auxiliary switch
17 Dry contact auxiliary switch

earthing

【 920C-230-160...8K-S2 】

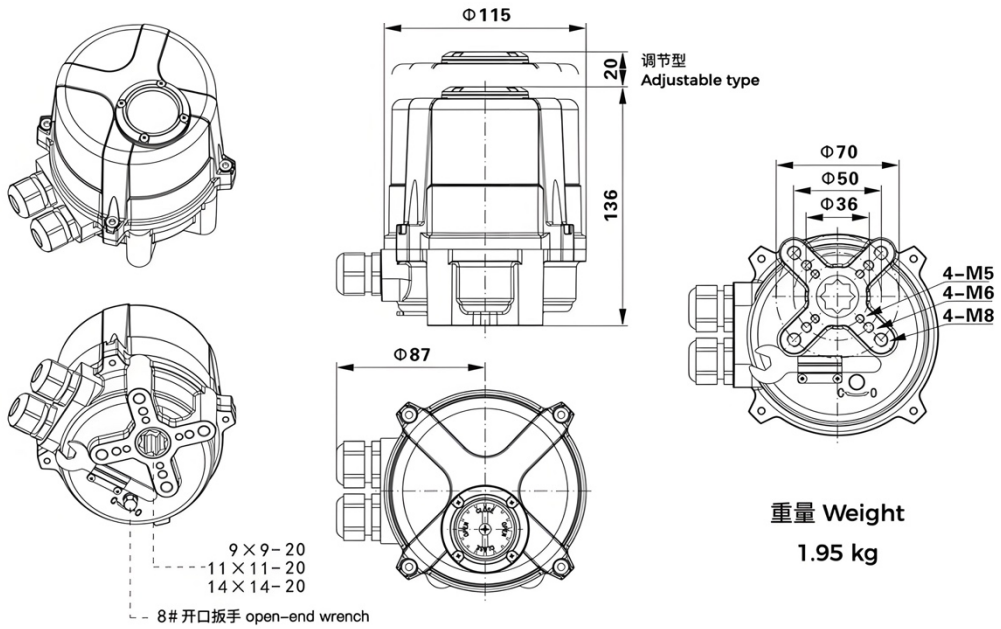


5 System Neutral (N)
6 System Live Wire (L) 230 VAC
7 Heater
8 Control signal 0–10 VDC (or 4–20 mA / 2–10 VDC)
9 Signal Return
10 Position feedback 0–10 VDC (or 4–20 mA / 2–10 VDC)
11 Signal Return
12 Dry contact auxiliary switch
13 Dry contact auxiliary switch
14 Dry contact auxiliary switch
15 Dry contact auxiliary switch

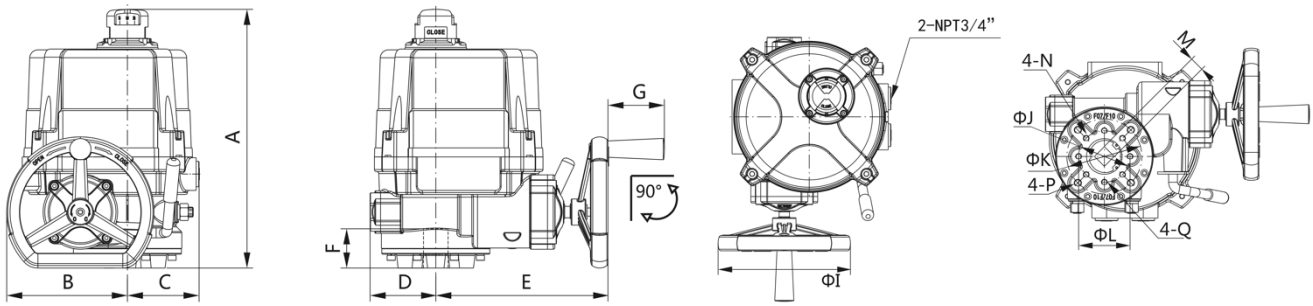
earthing

Size

【 920(C)-230-50 】

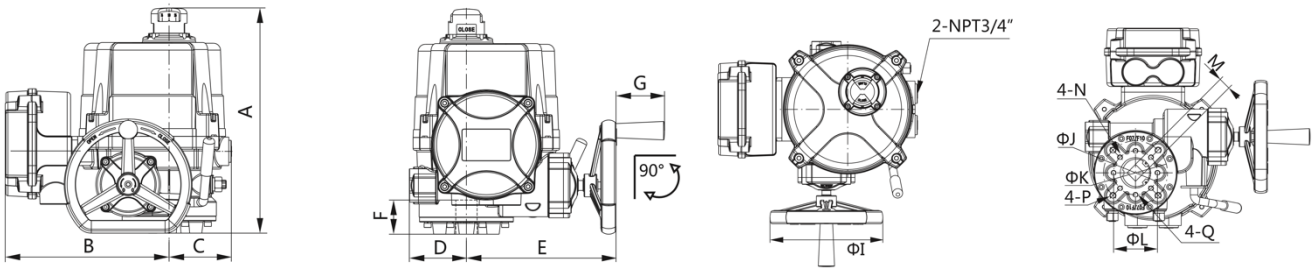


【 920-230-60...600 】



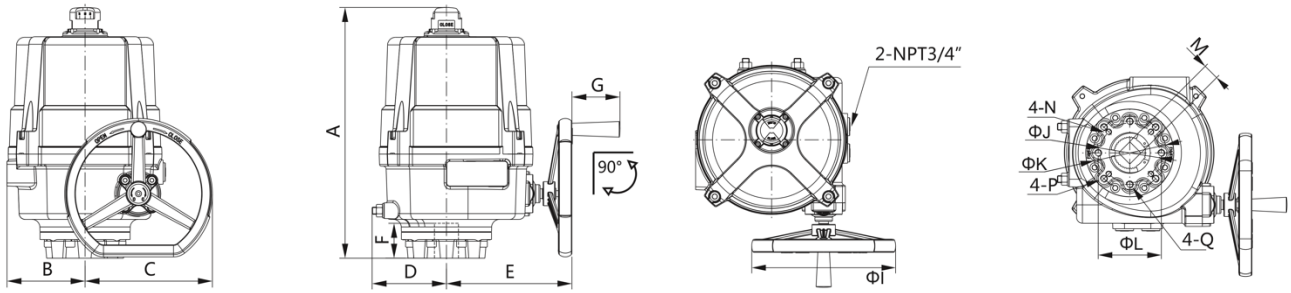
Model	A	B	C	D	And	F	G	Ø I	Ø J	4 - N	Ø K	4 - P	Ø L	4 – Q	M	Weight (kg)
920-230-60	280	92	77	47	171	40	50	100	50	4-M6	70	4-M8	57.15	4-M6	9/**11**/14/17	6.9
920-230-100	280	92	77	47	171	40	50	100	50	4-M6	70	4-M8	57.15	4-M6	9/11/**14**/17	6.9
920-230-160	316	147	90	78	208	48	63	180	70	4-M8	102	4-M10	69.85	4-M8	11/14/**17**/22	16.4
920-230-200	316	147	90	78	208	48	63	180	70	4-M8	102	4-M10	69.85	4-M8	11/14/**17**/22	16.4
920-230-300	341	152	98	81	218	52	63	180	102	4-M10	125	4-M12	88.9	4-M12	14/**17**/22	20.5
920-230-500	341	152	98	81	218	52	63	180	102	4-M10	125	4-M12	88.9	4-M12	14/17/**22**	20.5
920-230-600	341	152	98	81	218	52	63	180	102	4-M10	125	4-M12	88.9	4-M12	14/17/**22**	20.5

【 920C-230-60...600 】



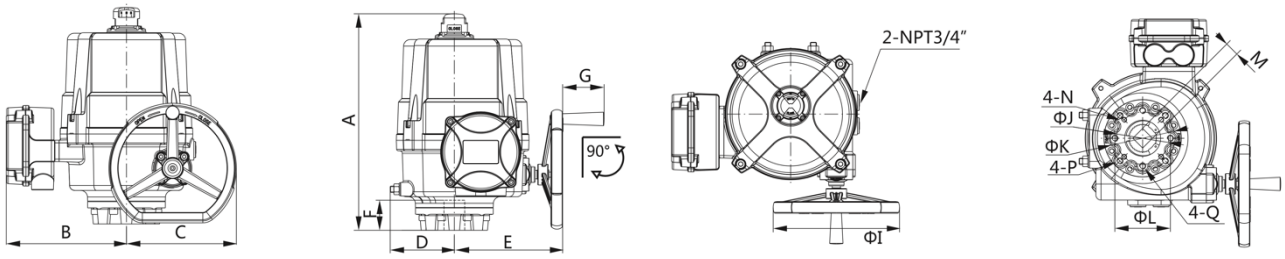
Model	A	B	C	D	And	F	G	Ø I	Ø J	4 - N	Ø K	4 - P	Ø L	4 – Q	M	Weight (kg)
920C-230-60	280	189	77	47	171	40	50	100	50	4-M6	70	4-M8	57.15	4-M6	9/**11**/14/17	6.9
920C-230-100	280	189	77	47	171	40	50	100	50	4-M6	70	4-M8	57.15	4-M6	9/11/**14**/17	6.9
920C-230-160	316	225	90	78	208	48	63	180	70	4-M8	102	4-M10	69.85	4-M8	11/14/**17**/22	16.4
920C-230-200	316	225	90	78	208	48	63	180	70	4-M8	102	4-M10	69.85	4-M8	11/14/**17**/22	16.4
920C-230-300	341	235	98	81	218	52	63	180	102	4-M10	125	4-M12	88.9	4-M12	14/**17**/22	20.5
920C-230-500	341	235	98	81	218	52	63	180	102	4-M10	125	4-M12	88.9	4-M12	14/17/**22**	20.5
920C-230-600	341	235	98	81	218	52	63	180	102	4-M10	125	4-M12	88.9	4-M12	14/17/**22**	20.5

【 920-230-800...2K3 】



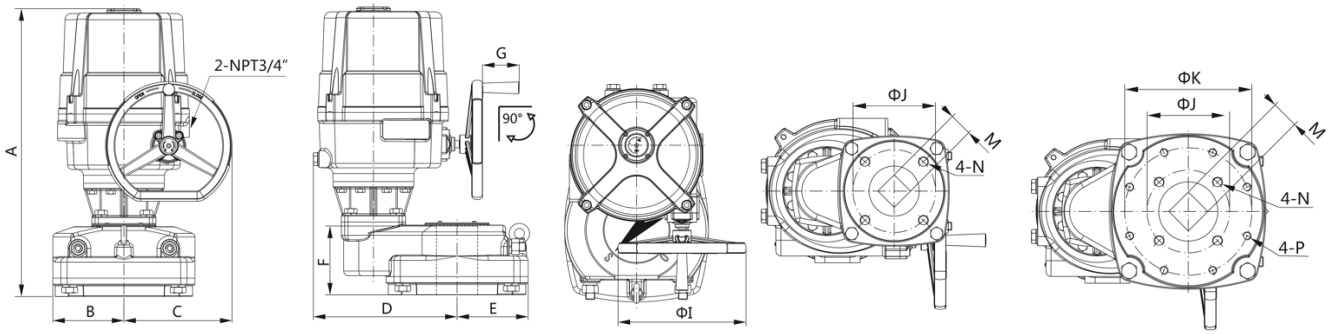
Model	A	B	C	D	And	F	G	Ø I	Ø J	4 - N	Ø K	4 - P	Ø L	4 - Q	M	Weight (kg)
920-230-800	415	130	212	128	208	58	80	250	F10-F12 / F14						17 / 22 / **27**	33.4
920-230-1K	415	130	212	128	208	58	80	250	F10-F12 / F14						17 / 22 / **27**	33.4
920-230-1K3	415	130	212	128	208	58	80	250	F10-F12 / F14						17 / 22 / **27**	33.4
920-230-1K7	458	145	236	146	236	66	80	280	F12 / F14 / **F16**						22 / 27 / **36**	44
920-230-2K	458	145	236	146	236	66	80	280	F12 / F14 / **F16**						22 / 27 / **36**	44
920-230-2K3	458	145	236	146	236	66	80	280	F12 / F14 / **F16**						22 / 27 / **36**	44

【 920C-230-800...2K3 】



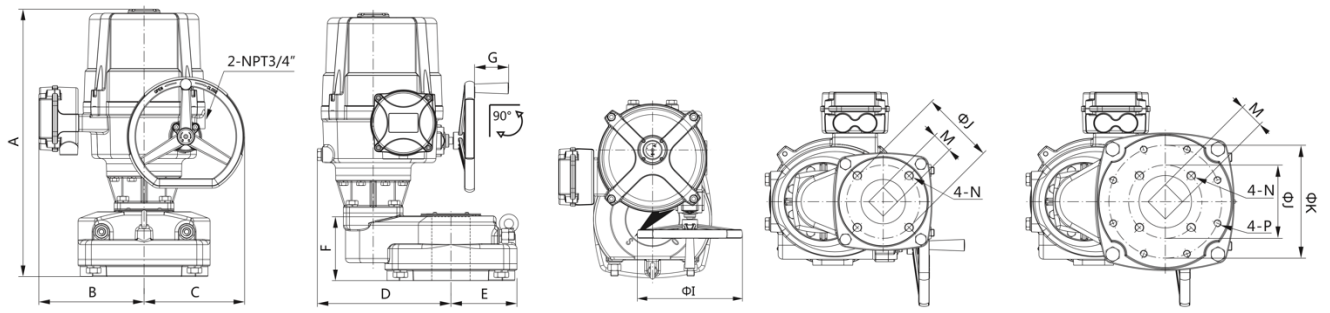
Model	A	B	C	D	And	F	G	Ø I	Ø J	4 - N	Ø K	4 - P	Ø L	4 - Q	M	Weight (kg)
920C-230-800	415	227	212	128	208	58	80	250	F10-F12 / F14						17 / 22 / **27**	33.4
920C-230-1K	415	227	212	128	208	58	80	250	F10-F12 / F14						17 / 22 / **27**	33.4
920C-230-1K3	415	227	212	128	208	58	80	250	F10-F12 / F14						17 / 22 / **27**	33.4
920C-230-1K7	458	242	236	146	236	66	80	280	F12 / F14 / **F16**						22 / 27 / **36**	44
920C-230-2K	458	242	236	146	236	66	80	280	F12 / F14 / **F16**						22 / 27 / **36**	44
920C-230-2K3	458	242	236	146	236	66	80	280	F12 / F14 / **F16**						22 / 27 / **36**	44

【 920-230-3K5…8K 】



Model	A	B	C	D	And	F	G	Ø I	Ø J	4 - N	Ø K	4 – P	M	Weight (kg)
920-230-3K5	620	145	236	267	110	145	80	280	165	4-M20	F14 / **F16**		36 / **46**	80
920-230-5K	620	145	236	267	110	145	80	280	165	4-M20	F14 / **F16**		36 / **46**	80
920-230-8K	620	145	236	315	155	150	80	280	165	4-M20	F16 / **F25**		46 / **55**	107

【 920C-230-3K5…8K 】



Model	A	B	C	D	And	F	G	Ø I	Ø J	4 - N	Ø K	4 – P	M	Weight (kg)
920C-230-3K5	620	242	236	267	110	145	80	280	165	4-M20	F14 / **F16**		36 / **46**	80
920C-230-5K	620	242	236	267	110	145	80	280	165	4-M20	F14 / **F16**		36 / **46**	80
920C-230-8K	620	242	236	315	155	150	80	280	165	4-M20	F16 / **F25**		46 / **55**	107